

Views/Comments Received on Draft PNGRB (Technical Standards and Specifications including Safety Standards for Petroleum Installations) Regulations, 2017				
S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
1			<p><b>HPCL:</b></p> <p>This notification is covering many areas which have already been codified by Oil Industry Safety Directorate (OISD), a body under MOP&amp;NG which are currently used by Oil Industry extensively. Since, this is intended to be a comprehensive regulation document it would be better to indicate the source as OISD standards wherever same has been used as such. New clauses can be separately grouped with source say API, IS, ASNE, NEPA etc. This will help industry in better understanding of clauses.</p>	No Change
2	<b>Definition</b>		<p><b>Indian Oil- HSE Division:</b></p> <p>Definition of "Flame proof Enclosure" to be added</p> <p>Flameproof Enclosure (EX-d)-(Ref: IS/IEC: 60079-1)</p> <p>An enclosure for electrical apparatus that will withstand, when the cover or other access doors are properly secured, an internal explosion of the flammable gas or vapour which may enter it or which may originate inside the enclosure, without suffering damage and without communicating the internal flame to the external.</p>	No Change
3	<b>Definition</b>		<p><b>Indian Oil- HSE Division:</b></p> <p>Definition of "Utilities" to be added</p> <p>Utilities consisting of administrative building, QC Laboratory, canteen, parking shed, air compressors with or without dryers etc. shall be separated from other POL facilities and located as per the separation distance as specified in this standard</p>	<p>Definition of "Service Building" &amp; "Utilities" to be added in the definition section, same as OISD-244 Service Building</p> <p><b>Building/s housing facilities for inspection/maintenance/other supporting services which are directly required for operation of the installation. Utilities:</b></p> <p>Utilities consisting of administrative building, QC Laboratory, canteen, parking shed, air compressors with or without dryers, dryers etc. shall be separated from other POL facilities and located as per the separation distance as specified in this standard</p>
4	<b>Definition</b>		<p><b>Indian Oil- HSE Division:</b></p> <p>Definition of "Blast Resistant Construction" to be added</p> <p>Single-stored RCC construction (column-beam and external wall or any other framing system) structurally suitable for design loads. Concrete roof slab of minimum 150 mm thick and concrete peripheral walls of minimum 230 mm thick shall be considered. All opening on peripheral wall (for cable entries) shall be through MCT's with proper (equal grade as for structural works) concrete plugging</p>	No Change. Relevant IS Code can be mentioned in the references section.

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5	Definition		<p><b>Indian Oil- HSE Division:</b> Definition of "Non-Blast Resistant Construction" to be added</p> <p>Single- storied column-beam frame construction with concrete floor/roof slab and brick filler walls.</p>	No Change
6		<p><b>4. Scope:</b> (1) Requirements of these regulations shall apply to all existing and new Petroleum Installations.</p>	<p><b>Indian Oil - HSE Division:</b></p> <p><b>To Modify</b></p> <p><b>4. Scope</b></p> <p>(1) Requirements of these regulations shall apply to all existing and new petroleum Installations. However, certain exceptions have been defined for certain clauses (1.1.v, 1.1. vi, 1.2.1.iv, 1.2.1.ix, 1.2.2.5.g, 1.2.2.7) in this standard which ar not applicable for existing facilities equipement, structures or installations that are already in place, that are in the process of construction, or that are installed before the date of publication of this standard.</p> <p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b></p> <p>(1) Requirements of these regulations shall apply to all existing and new petroleum Installations. However, certain exceptions have been defined for certain clauses ( 1.1 v, 1.1 vi, 1. 2.1 iv, 1.2.2.5(g), 1.2.2.7 {Note} in this Regulation which are not aplicable for existing facilities,equipment structures or installations that are already in place, that are in the process of construction, or that are installed before the date of publication of this Regulation.</p> <p>(5) This regulation specifically excludes The facilities on cross-country pipelines that include sectionalizing valve station, pig launching / receiving station, / Unmanned "T" point/ CP station without above ground storage fo which PNGRB regulations "Technical Regulations and Specifications including Safety Regulations for Petroleum and Petroleum Product Pipelines Regulations, 2016 shall be referred.</p> <p><b>RIL:</b></p> <p>Requirments of these regulations shall apply to all existing and new petroleum installations. "excluding:</p>	No Change

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7		<p><b>7. Compliance to these regulations</b></p> <p>(3) If an entity has laid, built, constructed, under construction or expanded the Petroleum Installation based on some other standard or is not meeting the requirements specified in these Regulations, the entity shall carry out a detailed Quantitative Risk Analysis (QRA) of its infrastructure. The entity shall thereafter take approval from its highest decision making body or its Board for non-conformities and mitigation measures. The entity's Board approval along with the compliance report, mitigation measures and implementation schedule shall be submitted to PNGRB within six months from the date of notification of these regulations.</p>	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To modify:</b> If an entity has laid, built, constructed, under construction or expanded the Petroleum Installation based on some other standard or is not meeting the requirements specified in these Regulations, the entity shall carry out a detailed Quantitative Risk Analysis (QRA) of its infrastructure. The entity shall thereafter take approval from <b>its competent authority as authorized by entity's Board</b> for non-conformities and mitigation measures. <b>The compliance report, mitigation measures and implementation schedule shall be submitted to PNGRB within six months from the date of notification of these regulations.</b></p> <p><b>RIL:</b></p> <p><b>To Modify:</b> If an entity has laid, build, constructed, under construction or expanded the Petroleum Installation based on some, other standard or is not meeting the requirements specified in these Regulations, the entity shall carry out a detailed Quantitative Risk Analysis (QRA) of its infrastructure and for non-conformities shall take suitable mitigation measures.</p> <p><b>HPCL:</b></p> <p><b>To Modify:</b> Depending upon the item, non-compliance of time required shall be determined by the Project in-Charge and shall be submitted along with the action plan for compliance.</p>	No Change
8		<p><b>8. Default and Consequences.</b></p> <p>(1) There shall be a system for ensuring compliance to the provision of these Regulations through conduct of technical and safety audits during the construction, commissioning and operation phase.</p>	<p><b>Essar Oil:</b></p> <p><b>Suggestion:</b> "Audit by Owner officials to ensure compliance" is to be added</p>	No Change
9		<p><b>8. Default and Consequences.</b></p> <p>(2) In case of any deviation or shortfall in compliance to these Regulations, the entity shall be given time limit for rectification of such deviation, shortfall, default and in case of non-compliance, the entity shall be liable for any penal action under the provisions of the Act or termination of operation or termination of authorization.</p>	<p><b>RIL :</b> Cause should not be part of the technical standard as it is covered in the Act.</p>	No Change

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10		<p><b>9. Requirements under other statutes.</b></p> <p>It shall be necessary to comply with all statutory rules, regulations and Acts in force as applicable and requisite approvals shall be obtained from the relevant competent authorities for Petroleum Installations.</p>	<p><b>RIL :</b></p> <p>This technical standard should limit dealing with statutes covered under PNGRB Act.</p>	No Change.
11		<p><b>10. Miscellaneous.</b></p> <p>(2) The Board may at any time effect appropriate modifications in these regulations</p>	<p><b>RIL :</b></p> <p><b>Suggestion:</b> Modifications in regulations shall be applicable on post facto basis.</p>	No Change
12	1.1 ii. b.	Quantitative Risk Assessment (QRA) shall be done when ever major addition(s) in facilities or major changes in the surrounding areas, operating parameters, product grade takes place or once in every five years whichever is earlier.	<p><b>Essar Oil:</b></p> <p><b>Suggestion:</b> Once we are doing QRA for all major changes involving inventory changes, there will be no significant impact on the original QRA necessitating redoing at five years.</p>	No Change
13	1.1 iii	Approaches from the highway / major road should be provided for normal / emergency movement with minimum road width of 3.5 mtrs for one way movement.	<p><b>Indian Oil- HSE Division:</b></p> <p><b>To be added:</b> for existing locations, wherever it is difficult or not practicable to implement due to severe space constraint, QRA shall be conducted and mitigation measures shall be implemented.</p> <p><b>HPCL:</b></p> <p>The design of the National Highway is as per the specification drawn by National Highway authorities. These specifications are applicable across the country and no deviations are allowed. Accordingly, the approach needs to be conforming to these specifications and shall have service road, take off and merger laps as required.</p> <p><b>BPCL:</b></p> <p><b>Suggestion</b> No mention of separate entry / exit to the terminal with the road size. Road width for two way movement for entry / exit from the terminal to major road / highway to be considered.</p>	No Change
14	1.1 iv	Roads inside the hazardous area of Installation shall be restricted to vehicles required for operational, maintenance and safety/security reasons and allowed only with proper safety fittings and authorization from location in-charge/designated safety officer. except tank trucks coming inside for filling / decantation.	<p><b>Indian Oil- HSE Division:</b></p> <p><b>To be added:</b> for existing locations, wherever it is difficult or not practicable to implement due to severe space constraint, QRA shall be conducted and mitigation measures shall be implemented.</p>	No Change

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15	1.1 v	Alternative access shall be provided for each facility so that it can be approached for fire fighting in the event of blockage on one route.	<b>Indian Oil- HSE Division/Indian Oil - Pipeline Division:</b>  <b>To be added:</b> for existing locations, wherever it is difficult or not practicable to implement due to severe space constraint, QRA shall be conducted and mitigation measures shall be implemented.	No Change
16	1.1 vi	Road widths, gradient and turning radii at road junctions shall be designed to facilitate movement of the fire-fighting vehicle envisaged in the event of emergency. Minimum road width of 3.5 M should be maintained for each way. The turning radius at the gantry shall be designed to facilitate the smooth movement of the tank trucks (including trailer mounted).	<b>Indian Oil- HSE Division/Indian Oil - Pipeline Division:</b>  <b>To be added:</b> for existing locations, wherever it is difficult or not practicable to implement due to severe space constraint, QRA shall be conducted and mitigation measures shall be implemented.	No Change
17	1.1 x	Physical segregation of hazardous and non hazardous areas shall be provided. Layout drawing indicating hazardous and non hazardous area segregation /demarcation shall be available. Hazardous area segregation/demarcation shall be as per IS 5572:2009.	<b>HPCL :</b>  The plant layout is approved by the CCOE identifying the licensed and non-licensed area segregated by proper demarcation. The same terminology may be used for maintaining clarity.  <b>BPCL:</b>  <b>Suggestion</b> The reference to standard shall always be referred to as follows : as per IS 5572 : 2009 / latest revised edition applicable.	Modify the clause as below : Layout drawing indicating hazardous and non hazardous area segregation /demarcation shall be available. Hazardous area segregation/demarcation shall be as per IS 5572:2009.
18	1.2 ii	Town planning	<b>Indian Oil - Pipeline Division:</b>  Word 'Town planning' to be deleted	No Change
19	1.2 xiv	Environmental considerations including water treatment plant and reuse of treated water, rain water harvesting and roof top solar system with connectivity to grid.	<b>Indian Oil - Pipeline Division:</b> "Environmental considerations" should be omitted  <b>HPCL:</b>  Environmental consideration like ETPs and disposal of waste water treatment plant to be planned for the full scope of the plant and shall be interconnected. Re-use of treated water, Rain Water Harvesting shall have planned on comprehensive basis for the entire plant. Generation of power through Solar System shall be as per relevant electricity rules and the power so generated shall be routed to the grid as required.	No Change
20	1.2.1 i	Tank farm, loading / unloading gantry, utilities, Effluent Treatment Plant (ETP) / mechanised OWS, Drains and culverts and approach roads should be suitably constructed to prevent flooding.	<b>BPCL:</b>  <b>Clarification</b> Only ETP to be mentioned as directive from Supreme Court has made it mandatory for CPCB to implement it in Feb 2017. Also design considerations for ETP can be provided if possible for uniformity of implementation. Also ETP discharge to contain less than 10 ppm to be mentioned.	No Change

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21	1.2.1 ii	Control room should be located in a non-hazardous area, upwind (Majority of the year) of hydrocarbon storage and handling facilities and at a distance from potential leak sources. It shall not be located on a lower level than surrounding plants and tank farms. There shall be no structure in close vicinity that would fall on the control room in case of a blast. Control Room should be situated at such a place in the layout from which most of the facilities/activities of the location are visible.	<p><b><u>Indian Oil - Pipeline Division:</u></b></p> <p><b>To modify:</b> Control room should be located in a non-hazardous area, upwind (Majority of the year) of hydrocarbon storage and handling facilities and at a distance from potential leak sources. It shall not be located on a lower level than surrounding plants and tank farms. There shall be no structure <b>without robust design</b> in close vicinity that would fall on the control room in case of a blast.</p> <p><b><u>HPCL:</u></b></p> <p>In OISD standard 163, location of Control Room and the type of construction of control Room is dealt with in detail. Control rooms are to be constructed in line with the standards.</p>	No Change
22	1.2.1 iii	In case it is unavoidable to comply with inter distance requirements for control room, the control room shall be made blast resistant.	<p><b><u>HPCL:</u></b></p> <p>Blast resistant wall may be constructed between the control room and the hazard. Making an entire building blast resistant may not be feasible.</p>	No Change
23	1.2.1 iv	The control room for Pipeline Tap off Point (TOP) (if applicable) at the same location of the same company, shall be in the same building where the Control room for Depot/installation is located	<p><b><u>Indian Oil- HSE Division/Indian Oil - Pipeline Division:</u></b></p> <p><b>To be added:</b> This clause shall be applicable only to the locations conceived after the publication of this regulation.</p> <p><b><u>HPCL:</u></b></p> <p>Not feasible at existing locations.</p>	No change
24	1.2.1 v	Utility block(s) shall be located outside the hazardous area.	<p><b><u>RIL :</u></b></p> <p>The Utility Block(s) should be located outside the hazardous area. (The Provisioning of the utility blocks in hazardous /non-hazardous area depends upon the company's operation philosophy and placement of these require the applicable safety precautions applicable for the area.)</p>	"shall" to be replaced with "should"
25	1.2.1 vii	High Tension (HT) line and HT sub-station(s) shall be terminated / located outside the hazardous area (For Distance refers table-1).	<p><b><u>Indian Oil - Pipeline Division:</u></b></p> <p><b>To Modify:</b> High Tension (HT) line and HT sub-station(s) shall be terminated / located outside the hazardous area <b>inside the installation</b> (For Distance refers table-1).</p>	No Change
26	1.2.1 ix	Rail loading / unloading facilities should be located along the boundary of the installation. In case Tank wagon (TW) unloading facilities are located outside of installation boundary that shall also have a boundary wall as per MOHA / Government Guidelines.	<p><b><u>Indian Oil- HSE Division:</u></b></p> <p><b>To be added:</b> This clause shall be applicable only to the locations conceived after the publication of this regulation. However, at existing locations, wherever implementation of this clause is feasible, the same must be complied. Stand alone unloading siding at existing location wherever implementation of this clause is infeasible due to space constraint, at least suitable fencing to be provided in order to have access control. Alternately, Quantitative Risk Assessment (QRA) shall be carried out and suggested control/ mitigation measures shall be implemented.</p>	No Change

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27	1.2.1 x	Drain shall be provided around the TT gantry loading platform area to collect product due to accidental spill over / leakage and shall be routed to OWS/ETP. The drains shall always be maintained clean.	<b>BPCL:</b>  <b>Suggestion</b> Design of the drain to be specified as there is no uniformity in design / implementation. ( Varied interpretation with regards to location of the drain exist.)	No Change
28	1.2.1 xi	Effluent Treatment Plant should be located at a distance as per table 1. This should be closer to disposal point by the side of the boundary and at lower grade to facilitate gravity flow of effluent.	<b>Indian Oil - HSE Division:</b>  <b>To be added:</b> OWS also to be added	No Change
29	1.2.1 xii	Smoking booths shall not be provided in PETROLEUM Installations. However, drinking water, booths can be provided at prominent work stations like TLF, TW siding etc.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Smoking booths shall not be provided in PETROLEUM Installations. However, drinking water <b>booths/Facility</b> can be provided at prominent work stations like TLF, TW siding etc.	No Change
30	1.2.1 xv	The provision shall be made to receive water from other sources including mutual aid / sharing of water directly into fire water storage tanks.	<b>RIL:</b>  Sharing of water with mutual aid members should be recommendatory as it depended on technical fesibility and willingness of the mutual aid members.	Modify the clause as below : The provision shall be made to receive water from external sources directly into fire water storage tanks. This can be from mutual aid members, fire brigade etc.
31	1.2.1 xviii	Room for storing hydrocarbon samples shall be provided with bottom exhaust for release of flammable vapours. The racks and flooring should be made of fire resistant material. Electrical fittings as well as electrical equipment shall be flame-proof. Adequate number of portable fire extinguishers should be placed.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Room for storing hydrocarbon samples shall be provided with <b>suitable exhaust system for ventilation of flammable vapours</b> . The racks and flooring should be made of fire resistant material. Electrical fittings as well as electrical equipment shall be flame-proof. Adequate number of portable fire extinguishers should be placed.  <b>BPCL:</b>  <b>Gap:</b> Sample room to be located in Hazardous Area. Define the distance criteria for sample room from various facilities.	No Change
32	1.2.1 xix	The additives/ blue dye etc. shall be stored at the designated / segregated area as per respective Material Safety Data Sheet.	<b>BPCL:</b>  <b>Suggestion:</b> Can be more specific eg. additives / blue dye to be stored in licensed area.	No Change
33	1.2.1 xx	Special precautions should be taken as required where ambient temperatures or the handling temperatures are higher than the flash point of the product or where product handled is artificially heated to a temperature above its flash point.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify/delete:</b> Special precautions to be detailed other wise point to be deleted . Flash point of Crude oil is below ambient temp.  <b>BPCL:</b>  <b>Suggestion:</b> Special precautions can be briefed with reference standard. It is vaguely referred	No Change

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34	1.2.2	LAYOUT OF STORAGE TANKS	<p><b>Essar Oil:</b></p> <p><b>Suggestion:</b> In case of any spillage inside the dyke, in case of petroleum stores, the soil migration is extremely low, and as part of recovery the top soil is removed and disposed-off as per environmental norms. Our facility siting also includes a rocky subsurface geology. Since such events are one-time activity in case of extreme emergencies only, the requirement for paving of all storage tank dykes should be reviewed to be included relating to fluid service and soil nature.</p>	No Change
35	1.2.2.1 a	Safe Capacity limits do not apply to a single tank in a dyke.	<p><b>HPCL:</b></p> <p>Agree and the distance norms shall identify the same clearly.</p>	No Change
36	1.2.2.1 c	The height of tank enclosure dyke (including free board) shall be at least 1.0 M and shall not be more than 2.0 M above average inside grade level.	<p><b>Indian Oil- HSE Division:</b></p> <p><b>To Modify:</b> However , construction of dyke exceeding 2 M may be considered where there is severe constraint on space availability subject to approval from PESO case to case basis. In such case, additionally following conditions must be fulfilled: a. Total dyke capacity shall be based on containment of largest tank capacity. b. Monitors on raised platforms, if required, shall be provided so that throw of the monitors are not restricted. c. All the tank inside such dyke shall be provided with sprinkler system, irrespective of the tank dia. d. Tank farm area shall be covered through CCTV surveillance system and same shall be continuously monitored.</p> <p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> However , construction of dyke exceeding 2 M may be considered where there is severe constraint on space availability subject to approval from PESO case to case basis. In such case, additionally following conditions must be fulfilled: a. Total dyke capacity shall be based on containment of largest tank capacity. b. Monitors on raised platforms, if required, shall be provided so that throw of the monitors are not restricted. c. All the tank inside such dyke shall be provided with sprinkler system, irrespective of the tank dia.</p> <p><b>BPCL:</b></p> <p><b>Addition:</b> Addition (Reference OISD 244) - In case the dyke height calculated exceeds the limit of 2.0 m approval from PESO as specified in Petroleum Rules may be taken for special case exemption.</p>	<p><b>Add the following at 1.2.2.1 xi. However, construction of dyke exceeding 2 M may be considered where there is severe constraint on space availability subject to approval from PESO case to case basis. In such case, additionally following conditions must be fulfilled:</b></p> <p><b>a. Total dyke capacity shall be based on containment of largest tank capacity. b. Monitors on raised platforms, if required, shall be provided so that throw of the monitors are not restricted. c. All the tanks inside such dyke shall be provided with sprinkler system, irrespective of the tank dia. d. Tank farm area shall be covered through CCTV surveillance system and same shall be continuously monitored.</b></p>



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37	1.2.2.1 c i	Tank farm area shall be covered through CCTV surveillance system and same shall be continuously monitored.	<b>HPCL:</b>  This is a new requirement. Currently Refineries and Marketing location have installed camera in many locations within premises and same is being monitored regularly from Security and safety perspective. Visibility and line of site will not be available for continuous live coverage of entire tank farm.	No Change
38	1.2.2.1 c v	The dyke and the enclosures will be inspected for cracks, visible damage etc. every six months (pre and post monsoons) and after every major repair in the tanks / dykes etc. so as to keep it impervious.	<b>Indian Oil- HSE Division:</b>  <b>To be added:</b> Piping through dyke wall if any shall be properly sealed to make dyke impervious.	No Change
39	1.2.2.1 c xi b	A minimum of 3 M clear distance around the tank shall be maintained (from structures / boundary wall etc).	<b>BPCL:</b>  <b>Gap:</b> Distance of unloading point from tank vent / manhole to be specified.	No Change
40	1.2.2.4 b	Piping layout design inside tank dyke area should ensure easy accessibility for any operations in the tank farm wherever necessary, well designed, cross-overs shall be provided to cross the pipelines running within the dyke area. Elevated Catwalks connecting the tank manifold to the dyke wall above the height of the dyke wall shall be provided for safe access and exit in case of normal / emergency situations. The catwalks shall run at the same level and terminate directly outside the dyke.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Piping layout design inside tank dyke area should ensure easy accessibility for any operations in the tank farm.	No Change
41	1.2.2.5 b	The boundary wall shall be constructed as per the directives of the Ministry of Home Affairs or any other Government directive. In any case the boundary wall shall be of minimum 3 M height from either side of boundary wall with V/U shaped barbed wire fencing on the wall with 600 mm diameter concertina coil on top.	<b>BPCL:</b>  <b>Clarification:</b> Present design is 3 m boundary wall with 600 mm concertina. V/U barbed wire mentioned to be removed	No Change
42	1.2.2.5 f	The CCTV monitoring station shall be provided in control room, Security cabin and in-charge room. The CCTV data shall be stored for a minimum period of 60 days or in line with prevailing IB norms.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Periodicity to be changed from 60 days to 30 days.  <b>Essar Oil:</b>  <b>To Modify:</b> CCTV footage storage for 30 days is suggested	No Change
43	1.2.2.5 g	Proper sized TT parking area based on fleet size shall be provided with following facilities:	<b>BPCL:</b>  <b>Suggestion:</b> Clarity on size of TT parking area - Say minimum 30% of fleet strength to be available with staggered reporting system.	No Change

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44	1.2.2.5 g iv	Parking lane demarcation / slotting to ensure independent & quick evacuation in emergency.	<p><b>Indian Oil- HSE Division/Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> Parking lane demarcation / slotting to ensure independent &amp; quick evacuation in emergency. <b>For existing locations, wherever the parking area is inadequate due to space constraint. Proper monitoring of vehicle parking/ movement be ensured in liaison with local administration.</b></p>	No Change
45	1.2.2.5 h	Hydrocarbon (HC) detectors shall be installed near all potential leak sources of class "A" petroleum products i.e tank dykes, tank manifolds and pump house manifold. These detectors shall be placed in a way that entire possible source of leaks and collection of products is continuously detected and alarm is set at 20% of lower explosive limit of class A. (Refer clause 9.1.a for details)	<p><b>Indian Oil- HSE Division:</b></p> <p>Replace Refer clause 9.1 a for details with "<b>Refer clause 5.8.1 (ii) (a) for details.</b>"</p> <p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To delete:</b> (Refer clause 9.1.a for details) as there is no relevance with clause 9.1 a)</p> <p><b>BPCL:</b></p> <p><b>Correction:</b> <del>There is no clause 9.1.a in this as well as OISD 244 from where it has been derived.</del></p>	Correct the referred clause no. Hydrocarbon (HC) detectors shall be installed near all potential leak sources of class "A" petroleum products i.e tank dykes, tank manifolds and pump house manifold. These detectors shall be placed in a way that entire possible source of leaks and collection of products is continuously detected and alarm is set at 20% of lower explosive limit of class A. (Refer clause 5.8.1. (ii) a for details)
46	1.2.2.7	<b>Separation Distances between tanks / offsite facilities</b>	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>Following Note to be added</b> Note: Separation distances as given in the enclosed tables in this Std. shall be applicable for all new and upcoming locations. For existing locations which do not meet the stipulated safety distances, following provisions &amp; measures shall be in place:</p> <p>1. Provision of sprinkler &amp; fixed or semi fixed foam system for storage tanks on all tanks, irrespective of diameter in the installations</p> <p>2. For other facilities where inter distance is not meeting in existing locations, necessary Quantitative Risk Assessment (QRA) carried out and suggested control / mitigation measures shall be implemented.</p> <p><b>Aegis Logistics:</b></p> <p><b>To Modify:</b> Revise the separation distances between facilities as given in Petroleum rules 2002 (tables 1,2, and 3 of Petroleum Rule 2002).</p>	No Change

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47	1.2.2.7 point (b) of General Notes to Table 1	b) All distances shall be measured between the nearest points on the perimeter of each facility except (i) In case of tank vehicle loading / unloading area where the distance shall be from the centre of nearest bay.	<b>Indian Oil- HSE Division:</b>  <b>To be removed:</b> (i) In case of tank vehicle loading / unloading area where the distance shall be from the centre of nearest bay.	No Change
48	1.2.2.7 point (e) of General Notes to Table 1	e) Fire station shall be in safe area or at least 60 m from other facilities	<b>Indian Oil- HSE Division:</b>  <b>To be added:</b> Separation Distance between Fire Station and Boundary wall around installation, Service buildings shall be 12 mtr. Also, Separation Distance between Fire Station and Control Room, Rail Spur shall be 30 mtrs.  <b>Indian Oil - Pipeline Division:</b>  <b>To be added:</b> However, Separation Distance between Fire Station and Boundary wall around installation / Service buildings shall be 12 mtr.	No Change
49	1.2.2.7 Note-2 of Specific Notes to Table 1	Shall be 60 meters for non-blast construction and 30 meters for blast resistant construction.	<b>Indian Oil- HSE Division:</b>  Word "resistant" to be added after "non-blast"	Modify the clause as below: Shall be 60 meters for non-blast resistant construction and 30 meters for blast resistant construction.
50	1.2.2.7 Note-3 of Specific Notes to Table 1	Shall be 45 meters for non-blast construction and 30 meters for blast resistant construction.	<b>Indian Oil- HSE Division:</b>  Word "resistant" to be added after "non-blast"	Modify the clause as below :Shall be 45 meters for non-blast resistant construction and 30 meters for blast resistant construction.
51	1.2.2.7 Table-1- S. No.-6	Minimum Separation distance of Fire water storage & pump house from storage tanks/ loading has been specified as 60 m.	<b>RIL:</b>  The Separation Distance from FW storage tank and pump house should be in line with OISD 117 which is a part of Petroleum Rules 2002.  "OISD 117 CI. 4.3.5 Fire Water Pumps (v) Fire water pumps & storage shall be located far away from the potential leak sources / tankage area and shall be at least 30 m (minimum) away from equipment or where hydrocarbons are handled or stored."	No Change
52	1.2.2.7 Table-1- S. No.-10	Separation distance between OWS/ effluent Treatment plant/oil sludge pit	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify</b>  Separation distance between should be as follows OWS to bulk loading / unloading POL (Rail) = 30 Mtrs and OWS to bulk loading / unloading POL (Road) = 50 Mtrs  <b>Note :</b> Distance of product pump house (loading /unloading) from utilities and electrical substation shall be 30 mtrs. Respectively.	No Change
53	1.2.2.7 Table-2	SEPARATION DISTANCES BETWEEN TANK / OFFSITE FACILITIES	<b>BPCL:</b>  <b>Gap:</b> Distance of product pump house , tank lorry unloading point,sample room to be specified. Non flame proof motor distance to be included in table 2.	No Change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
54	1.2.2.7 Table-3	SEPARATION DISTANCES BETWEEN STORAGE TANKS WITHIN A DYKE	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Following new column to be added for between fixed and Floating roof Tanks Class- ( A&A) or (A&B) or (B&B)  <b>All tanks with Diameter up to 50 meters -(D+d) / 4 or Min 10 m</b> <b>Tanks with Diameter exceeding 50 meters.- (D+d) / 3</b>	No Change
55	1.2.2.7 General Notes to Table-4 g	Pig launcher/receiver at liquid hydrocarbon handling pipeline installations should be located at least 5 m from boundary wall	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Pig launcher/receiver at liquid hydrocarbon handling pipeline installations should be located from boundary wall as per operational convenience.	No Change
56	2.2.1 ii	The outlet from dyke shall have the provision to either divert to the effluent Treatment plant / OWS or to main storm water drain.	<b>BPCL:</b>  <b>Suggestion:</b> Option of diversion to OWS or storm water drain leads to ambiguous design with different implementation. Standard design to be recommended such as divert to OWS being the best option is subject case. Also the design of storm water drain is no where specified. The same to be specified.	No Change
57	2.2.1 iii	Dyke drain Valves shall be provided with position indication and alarm system in the event of opening the valve.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Dyke drain Valves shall be provided with position indication in the event of opening the valve for tanks having capacity 1000 KI & more	No Change
58	2.2.2 ii	Tank body valves on process lines (inlet, outlet & recirculation) of all storage tanks storing class –A & B products shall be remote operated shut off valve. Mitigation measures due to sudden closure of shut off valve shall be incorporated in the design.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Tank body valves on process lines (inlet, outlet & recirculation) of all storage tanks storing class –A & B products shall be remote operated shut off valve for tanks having capacity 1000 KI & more.  <b>HPCL:</b>  The mitigation measures against sudden closure of the valves could be Surge Relief Valves in the case of Cross Country Pipeline and Break Disk Type in the case of internal line. Suitable specifications may be incorporated for the above	Add in Regulation 3. These regulations do not apply to petroleum installations with aggregate storage capacity < 1000 KL.
59	2.2.2 iii	Tank body valves on process lines (inlet, outlet & recirculation) of all storage tanks storing class –A & B products shall be remote operated shut off valve. Mitigation measures due to sudden closure of shut off valve shall be incorporated in the design.	<b>BPCL:</b>  <b>Suggestion:</b> Needs to be more specific as it will lead to individual interpretations and uniformity will not be achieved. Assessment of implementation will be subject to assessors interpretation.	No Change
60	2.2.2 iv	Tank body valves including remote operated shut off valves should remain shut after closure of day operations.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Tank body valves should remain shut after closure of day operations.	No Change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
61	2.2.2 xii	TSV outlet line or expansion line shall be connected back to tank / tank inlet /outlet line before ROSOV with suitably positioned isolation valve(s). One isolation valve on TSV outlet line or expansion line shall be installed close to the tank shell / inlet / outlet line to the maximum extent possible.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> TSV on <b>inlet / outlet</b> line or expansion line shall be connected back to tank shell / tank inlet /outlet line before ROSOV with suitably positioned isolation valve(s) <b>and NRVs</b>. One isolation valve on TSV outlet line or expansion line shall be installed close to the tank shell / inlet / outlet line to the maximum extent possible.</p> <p><b>HPCL:</b></p> <p>Normally, Thermal Relief Valve is provided for distressing in the pipeline segment between the block valves and is not meant for thermal relief in the tanks. Accordingly, the outlet of TSV would be connected to the pipeline on the upstream and the same practice is recommended.</p>	<b>No Change</b>
62	2.2.2 xiii	The expansion lines to be connected at roof tops in case of CRVTs and through combined gauge well in case of FRVTs and shall be extended inside upto the tank bottom to avoid freefall of product through vapour space with provision of siphon breaker on top. Expansion lines should be provided with class 800 flanged gate valves.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> Facility for IFRVT tank is to be included.</p> <p><b>Essar Oil:</b></p> <p><b>To Modify:</b> Class 300 flanged gate valves is suggested.</p>	Modify the clause as below :The expansion lines to be connected at roof tops in case of CRVTs and through combined gauge well in case of FRVTs/ IFRVTs and shall be extended inside upto the tank bottom to avoid freefall of product through vapour space with provision of siphon breaker on top. Expansion lines should be provided with class 800 flanged gate valves.
63	2.4.1 ii	Each drain line shall have minimum two isolation valves separated by spool piece (s) and pipe extended beyond tank pad up-to drain point. One of these valves shall be of quick closing type. Ends of each drain point should have provision of blind flange / capping arrangement.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> Each drain line shall have minimum two isolation valves <b>separated by spool piece (s) as per operational requirement</b> and pipe extended beyond tank pad up-to drain point.</p>	<b>No Change</b>
64	2.5.2 ii	Pressure and Vacuum Relieving Valves (PVRVs) provided on cone roof tanks usually have 20% accumulation. While designing, it is necessary to ensure that under full relieving conditions, the design pressure/vacuum in the tank is not exceeded. Set pressure of PVRV must be decided according to API STD 2000.	<p><b>BPCL:</b></p> <p><b>Gap:</b> There is no mention of UG / Horizontal AG tanks PVRV settings.</p>	<b>No Change</b>

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
65	2.7.1	<p><b>Safety Integrity Level (SIL)</b></p> <p>The SIL classification study shall be carried out to determine the required SIL level. SIL of the safety instrumented function for the tank including overfill protection shall be meeting the requirement of Part 1 of IEC 61511. The SIL level of the entire interlock loop shall also meet the requirement of IEC 61511.</p>	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b>  <b>Safety Integrity Level (SIL)</b>  The SIL classification study shall be carried out to determine the required SIL level. SIL of the safety instrumented function for the tank including overfill protection shall be meeting the requirement of Part 1 of IEC 61511. <b>The SIL level of the entire interlock loop shall be specified which also meet the requirement of IEC 61511.</b></p>	No Change
66	2.7.2 iii	<p>Independent level switch shall be provided at the “HHH” which in any case shall not be above the level corresponding to PESO approved safe filling capacity of the tank.</p>	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b>  <b>Independent level switch of required SIL</b> shall be provided at the “HHH” which in any case shall not be above the level corresponding to PESO approved safe filling capacity of the tank</p>	No Change
67	2.7.2 iv	<p>The level switch shall enable initiation of action for closure of the respective inlet valve i.e. ROSOVs, MOVs and product pumps so that the entire receipt operation closes on safe mode and the product does not over flow.</p>	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b>  The level switch shall enable initiation of action for closure of the respective inlet valve i.e. ROSOVs, MOVs and product pumps so that the entire receipt operation closes on safe mode and the product does not over flow.  <b>Wherever pipeline receipt is in progress, logic should exist for diversion of flow to another tank before closure of inlet valve for tank under receipt.</b></p>	No Change
68	2.9.1 viii	<p>Locations having automation shall be provided ESD feature through Automation system.</p>	<p><b>Indian Oil- HSE Division:</b></p> <p><b>To be added at the starting point:</b>  Loading pumps shall also be provided with additional explosion proof switch located at the strategic location in the gantry to switch off the pump in case of emergency such as over flow fire or any other abnormal situation.</p>	No Change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
69	2.9.1 xi	All closed sections of pipings shall be provided with thermal safety relief device to relieve pressure due to ambient temperature rise. Thermal Safety relief device may vent into a tank or piped to OWS located in safe area. When connected to tank, TSV shall be provided with isolation valves. One isolation valve shall be installed close to the tank shell to the maximum extent possible.	<p><b>BPCL:</b></p> <p><b>Suggestion:</b> piped to OWS is unsafe operation. can be removed as this design is not there in most locations.</p> <p><b>Addition:</b> Ref OISD 244 - In case of large capacity wagon loading gantries where loading could vary from a rake to a few wagons, shall be provided a minimum flow bypass / auto recirculation valve / controller on discharge line to take care of pressure fluctuations. Alternately, Variable Frequency Drive (VFD) with Inverter grade motor shall be provided.</p>	Modify the clause as below : All closed sections of pipings shall be provided with thermal safety relief device to relieve pressure due to ambient temperature rise. Thermal Safety relief device may vent into a tank or piped to OWS located in safe area. When connected to tank, TSV shall be provided with isolation valves. One isolation valve shall be installed close to the tank shell to the maximum extent possible. The vent should be piped to closed blow-down system.
70	2.9.2 v	The provision for Kerosene and MS / Naptha loading in TT (tank truck) loading gantry shall not be in the same bay	<p><b>BPCL:</b></p> <p><b>Suggestion:</b> For TAS compliant locations, possibility of MS and SKO loading arms on same bay can be explored as there is almost NIL margin of error.</p>	<b>No Change</b>
71	2.9.2 xxii	All trucks entering truck loading gantry shall be PESO approved and provided with approved spark arrestor/ flame arrestors at the exhaust.	<p><b>Indian Oil- HSE Division:</b></p> <p>For BS IV vehicles and future models, spark arrestor is exempted. To be incorporated / amended.</p>	Modify the clause as below : All trucks entering truck loading gantry shall be PESO approved and provided with approved spark arrestor/ flame arrestors at the exhaust. The Vehicle conforming to emission level BS IV and beyond are exempt from fitment of spark arrestor.
72	2.12 iv	The outer PVC sheath of all cables used inside the dyke shall be fire retardant type conforming to category AF as per IS: 10810. The minimum Oxygen Index shall be 29.	<p><b>BPCL :</b></p> <p><b>Gap:</b> Guideline on old cables not complying the criteria to be issued such as painting with fire retardant paint or replacment in a specified duration. Also the point refers to only cables inside the dyke. Clarification for cables within hazardous zones to be provided.</p>	Modify the clause as below :The outer PVC sheath of all cables used inside the dyke shall be fire retardant type conforming to category AF as per IS: 10810.
73	2.12.1 iv d	2 Ohms for each electrode to the general mass of the earth.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> <b>5 Ohms for each electrode to the general mass of the earth as per NFPA / IEEE.</b></p>	<b>No Change</b>

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
74	2.12.3 i	All flanged connections shall be effectively bonded by strips of suitable material.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To modify:</b> It is not required to provide additional shorting link metallic flange joint. However it shall be ensured to maintain electrical continuity, before opening of any flange joint. Before opening of the flange joint, a flexible cable shall be connected across the flange by connecting at any two points on the succeeding and preceding section of the flange being opened (either through crocodile clips or fixing the wire with the bolts of any flange succeeding and preceding section of the flange being opened) for avoiding any electrical spark generation during opening of the flange</p>	No Change
75	2.12.4 i	Static earthing (earthing for static charge dissipation) shall be provided at Tank Lorry / Wagon Filling / Decantation Gantries, to prevent building up of Static Charges.	<p><b>BPCL :</b></p> <p><b>Gap:</b> Number of static earthing connections for Tank Wagon / Bonding connection of Tank wagon and unloading point / loading arm to be specific.</p>	No Change
76	2.12.7	Size of the conductor shall be selected based on the fault current that is required to be dissipated during emergencies.	<p><b>Indian Oil- HSE Division:</b></p> <p>Table mentioning size of the conductor of various equipment as mentioned in OISD 244 on page no 39 may be included</p>	No Change
77	2.12.8	This is minimum requirement and additional earth pits shall be made such as to maintain Grid Values below 1 Ohm.	<p><b>Indian Oil- HSE Division:</b></p> <p>In last row of table, "Minimum 2 nos and further as defined in Cl. B above." to be replaced with "Minimum 2 nos and further as defined in Cl.2.12.2.1 (xi) above."</p> <p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To modify:</b> In last row of table, Minimum 2 nos and further as defined in Cl. 2.12.2 above.</p>	No Change



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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
78	2.13 x	<p><b>Area - Lux level</b></p> <p>Main roads (Gate entry /exit , roads around TT gantry - <b>20</b>                      Secondary roads (along storage tanks &amp; Periphery etc) - <b>10</b>                      Tank farm area - <b>20</b>                      Pump / Compressor / Dosing Sheds / Fire Pump House - <b>100</b>                      Main Operation Platforms &amp; Access Stairs (TT and TW gantry, Tank manifold) - <b>100</b>                      Ordinary Platforms - <b>20</b>                      OWS / ETP Area - <b>60</b>                      Sub Station / PMCC room - <b>150</b>                      Transformer yard / HT Di pole area - <b>100</b>                      Battery room , Charger/UPS rooms - <b>100</b>                      Control Room bldg./ laboratory - <b>150</b>                      Lube Warehouse - <b>100</b>                      Admin Building - <b>200</b>                      Security Cabin / Watch Booth - <b>100</b>                      Stairs - <b>80</b>                      Corridors - <b>70</b>                      Tank truck Parking area - <b>40</b></p>	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To modify:</b></p> <p><b>Area - Lux level</b></p> <p>Main Operation Platforms &amp; Access Stairs (TT and TW gantry, Tank manifold) - <b>100</b>                      Control Room bldg./ laboratory - <b>150</b>                      Admin Building - <b>300</b>                      Stairs- <b>80</b></p> <p><b>RIL:</b></p> <p><b>Area - Lux Level</b></p> <p>Main roads (Gate entry /exit , roads around TT gantry - <b>20</b>                      Secondary roads (along storage tanks &amp; Periphery etc)-<b>10</b>                      Tank farm area - <b>20</b>                      Pump / Compressor / Dosing Sheds / Fire Pump House -<b>100</b>                      Main Operation Platforms &amp; Access Stairs (TT and TW gantry, Tank manifold) - <b>60</b>                      Ordinary Platforms - <b>20</b>                      OWS / ETP Area - <b>60</b>                      Sub Station / PMCC room - <b>150</b>                      Transformer yard / HT Di pole area - <b>100</b>                      Battery room , Charger/UPS rooms - <b>150</b>                      Control Room bldg./ laboratory - <b>400</b>                      Lube Warehouse - <b>100</b>                      Admin Building - <b>200</b>                      Security Cabin / Watch Booth - <b>100</b>                      Stairs - <b>50</b>                      Corridors - <b>70</b>                      Tank truck Parking area - <b>20</b></p>	No Change
79	2.13 x Notes		<p><b>BPCL:</b></p> <p><b>Addition:</b>                      Ref OISD 244 :                      Low pressure sodium vapour lamps shall not be installed in hazardous areas.                      Min. One number calibrated lux meter shall be kept in the location.</p>	Add the following at 2.13 x notes at d : Low pressure sodium vapour lamps shall not be installed in hazardous areas.
80	Schedule 1C		<p><b>HPCL:</b></p> <p>Only 3.0 and 3.1 can retained . All other sections to be deleted.                      Majority of the points mentioned are repetitions and pertain to design criteria. Also, SOPs are dynamic in nature and require frequent updations. Should not be part of regulations. Only a few of the operations are covered . Locations might be carrying out operations other than those mentioned in the regulations.</p>	Add the following at 3.0 v. The SOPs mentioned below outline the general guidelines and are not intended to override sound engineering practices & safety parameters regarding when and where the operating procedures should be used and any additional steps that may be sought to be included to ensure process safety.

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
81	3.0 iv	When changes are made in facilities, operating procedures should be reviewed as part of the management of change procedure. In addition, operating procedures should be reviewed periodically to verify that they reflect current and actual operating practices. Operating manuals should be certified as updated by authorized / competent person every year.	<b>Indian Oil - Pipeline Division:</b>  <b>To modify:</b> Operating manuals should be certified as updated by authorized / competent person every 5 year.	No Change
82	3.1 iii	Mobile phones and any other source of ignition shall not be allowed inside the Petroleum Installation operational areas where petroleum products are stored pumped and handled.	<b>Indian Oil - Pipeline Division:</b>  <b>To modify:</b> <b>Non-flame proof/ Non-intrinsically safe</b> Mobile phones and any other source of ignition shall not be allowed inside the Petroleum Installation operational areas where petroleum products are stored pumped and handled.	Modify the clause as under : Non-flame proof/ Non-intrinsically safe Mobile phones and any other source of ignition shall not be allowed inside the Petroleum Installation operational areas where petroleum products are stored pumped and handled.
83	3.1 vii	All operations shall be carried out under supervision of designated personnel.	<b>Indian Oil - Pipeline Division:</b>  <b>To modify:</b> All operations shall be carried out under supervision of <b>responsible personnel.</b> <b>Only in serious exigencies, permission can be granted by authorized personnel subject to obtaining a reliever forthwith. The person leaving site shall only be allowed on a valid authorization issued by the immediate officer and records maintained.</b>	No Change
84	3.1 xi	Check list for operators for monitoring and checking safety system & equipment shall be prepared, followed and records maintained thereof.	<b>Indian Oil - Pipeline Division:</b>  <b>To modify:</b> <b>Check list for operators/ Maintenance Personnel</b> for monitoring and checking safety system & equipment shall be prepared, followed and records maintained thereof.	No Change
85	3.1 xix	Intrinsically safe VHF handsets shall be used in operating areas.	<b>Indian Oil - Pipeline Division:</b>  <b>To modify:</b> Intrinsically safe handsets working on VHF/ UHF or any other acceptable frequency band shall be used in operating areas.	<b>Modify the clause as under :</b> <b>Intrinsically safe handsets working on VHF/ UHF or any other acceptable frequency band shall be used in operating areas.</b>
86	3.1 xxiii	All personnel who are handling petroleum products shall be suitably trained on use of firefighting, equipment and first aid. Through training shall be incorporated to all personnel on various levels of emergency response.	<b>BPCL:</b>  <b>Correction:</b> Correction in spelling - Thorough	Correct the spelling as below : All personnel who are handling petroleum products shall be suitably trained on use of firefighting, equipment and first aid. Thorough training shall be incorporated to all personnel on various levels of emergency response.
87	3.1 xxvi	The CCTV monitoring station shall be available in Control room, Security cabin and Depot in-charge room. The CCTV data shall be stored for a minimum period of 60 days.	<b>Indian Oil - Pipeline Division:</b>  <b>To modify:</b> The CCTV monitoring station shall be available in Control room, Security cabin and Depot in-charge room. The CCTV data shall be stored for <b>a minimum period of 30 days.</b>	No Change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
88	3.2 iii	Dyke drain Valves shall be provided with position indication and alarm system in the event of opening the valve. The dyke drain shall be provided along the inside periphery of the dyke enclosure wall. In case circular drain around tank pad is provided, the same needs to be connected to the peripheral drain. The outlet from dyke shall have the provision to either divert to the effluent Treatment plant / OWS or to main storm water drain.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To modify:</b> Dyke drain Valves shall be provided <b>with position indication in the event of opening the valve for tanks having capacity 1000 Kl &amp; more.</b> The dyke drain shall be provided along the <b>outside</b> periphery of the dyke enclosure wall. In case circular drain around tank pad is provided, the same needs to be connected to the peripheral drain. The outlet from dyke shall have the provision to either divert to the effluent Treatment plant / OWS or to main storm water drain</p>	No Change
89	3.2 iv	Dyke drain valves shall be in closed condition and shall be operated only under supervision of an authorized person and log book maintained. Piping through dyke wall if any shall be sealed to make dyke impervious.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To modify:</b> Dyke drain valves shall be in closed condition and shall be <b>operated only under supervision of an authorized person.</b> Piping through dyke wall if any shall be sealed to make dyke <b>impervious.</b></p>	No Change
90	3.2 x	ROSOVs and MOVs shall be fail safe and fire safe (shall close in case of signal failure). The actuator shall be fail-safe. The cables leading to the control room shall be fire resistant. These ROSOVs shall be operational from the field and also from control room.	<p><b>Indian Oil- HSE Division:</b></p> <p><b>To be added:</b> ROSOV shall have only close operation from control room, or at a strategic remote location.</p>	No Change
91	3.2 xi	Thermal safety valve (TSV) / Expansion line shall be connected for blocked portion of pipe line(s) to take care of the thermal expansion of product due to rise of temperature. Temperature Safety Valves (TSV's) downstream valves shall be always kept open and its discharge should be routed to slop collection system. Alternatively the discharge may be connected to a common header and back to the tank through NRV.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To modify:</b> Thermal Safety Valves (TSV's) downstream valves shall be always kept open and its discharge should be routed to slop collection system. Alternatively the discharge may be connected to a common header and back to the tank through NRV.</p> <p><b>Isolation valves shall be installed upstream of all TSVs.</b></p> <p><b>BPCL:</b></p> <p><b>Gap:</b> The TSV settings are nowhere covered in OISD 244 as well as these regulations. The clarification is necessary for different sections of pipeline for uniformity in implementation.</p>	No Change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
92	3.2 xix	SOPs for entry on floating roof/ confined spaces for maintenance and inspection (when the tank is with product for normal operation) shall consider the following: a. Floating roof is levelled, free of oil and excessive water and is at higher operating level. b. Adequate manpower with a canister mask / breathing apparatus etc. c. A life line with safety belt to be used for entering into confined space. The other end of the line held by the standby at the top of platform.	<b>Indian Oil - Pipeline Division:</b>  <b>To modify:</b> ..... <b>a.</b> <b>b.</b> <b>c.</b> <b>d. In case of requirement of going on floating roof deck for inspection during normal operation, at least one person should accompany the person.</b>  <b>BPCL:</b>  <b>Addition:</b> Following to be included in this as well as point no. 8.1.2 - ii - iii : a. Ref OISD 244 - The tank is not under operation (receipt or delivery). b. Ref OISD 244 - One man shall be available as standby at the top of platform with a canister mask / breathing apparatus. A situation may arise during excess generation of vapour at the time of rim seal inspection and dip hatch seal inspection. <b>Suggestion:</b>	Add the following at 3.2 xix d. <b>In case of requirement of going on floating roof deck for inspection during normal operation, at least one person should accompany the person.</b>
93	3.2 xxii	Receipt and withdrawal rate from the tanks shall be limited to the design parameters of the tank as below. The flow velocity at tank inlet shall not exceed 1 m/s until the inlet is completely submerged.	<b>BPCL:</b>  <b>Gap:</b> No specifics provided for Floating Roof movement speed for receipt and maximum limiting velocity for fixed roof (i.e. 6 m/s)	<b>No Change</b>
94	3.2 xxvii	Synthetic fibre cord shall not be used for sampling, dipping, gauging etc. If the sampling, gauging, dipping, etc., equipment is a conductor, the cord must be conductive, e.g. a metal wire. Metal chains shall not be used instead.	<b>BPCL:</b>  <b>Addition:</b> Ref OISD 244 - Natural fibers such as sisal and manila have sufficient conductivity to prevent the operator from becoming charged by handling it, hence can also be used.	<b>Modify the clause as below:</b> <b>Synthetic fibre cord shall not be used for sampling, dipping, gauging etc. If the sampling, gauging, dipping, etc., equipment is a conductor, the cord must be conductive, e.g. a metal wire. Metal chains shall not be used instead. Natural fibers such as sisal and manila which have sufficient conductivity to prevent the operator from becoming charged by handling it, can also be used.</b>
95	3.2 xxix	During receipt, tank level shall be monitored at regular intervals. Effective communication shall be provided in the tank farms. .this may include public announcement system /Page phone / loud speakers/VHF/ paging etc. This system can also be utilised for communication during emergency.	<b>Indian Oil - Pipeline Division:</b>  <b>To modify:</b> During receipt, tank level shall be monitored at regular intervals. Effective communication shall be provided in the tank farms. <b>This may include Intrinsically safe VHF/ UHF/ any other acceptable frequency band handset etc.</b> This system can also be utilised for communication during emergency.	<b>Modify the clause as below:</b> During receipt, tank level shall be monitored at regular intervals. Effective communication shall be provided in the tank farms. <b>This may include Intrinsically safe VHF/ UHF/ any other acceptable frequency band handset etc.</b> This system can also be utilised for communication during emergency.

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
96	3.2 xxxii	Hydrocarbon (HC) detectors shall be installed near all potential leak sources of class "A" petroleum products i.e. tank dykes, tank manifolds and pump house manifold. These detectors shall be placed in a way that entire possible source of leaks and collection of products is continuously detected and alarm is set at 20% of lower explosive limit of class A.	<b>BPCL:</b>  <b>Suggestion:</b> 20 % of lower explosive limit of lowest LEL of Class A products handled by the terminal. Similar change required in 5.8.1 -ii.a	No change
97	3.3.1.1 ii (d)	Spark arrestors of the approved designed shall be welded with the exhaust in front of the vehicle. The vehicle shall have valid Explosive License and RTO certificate along with PESO approved drawings of the tank.	<b>Indian Oil- HSE Division:</b>  This arrangement is case of BS-IV and future models may not be required if exempted by PESO.	Modify the clause as below : Spark arrestors of the approved designed shall be welded with the exhaust in front of the vehicle. The vehicle shall have valid Explosive License and RTO certificate along with PESO approved drawings of the tank. This arrangement is case of BS-IV and future models may not be required if exempted by PESO.
98	3.3.1.1 iii	The Double pole master switch shall be put off immediately after parking the truck in the position. No electrical switch on the truck shall be turned "on" or "off" during the loading operation.	<b>Indian Oil- HSE Division:</b>  Word "loading" to be replaced with "transfer".	Modify the clause as below : The Double pole master switch shall be put off immediately after parking the truck in the position. No electrical switch on the truck shall be turned "on" or "off" during the loading/unloading operation.
99	3.3.1.1 iv	Wheel choke shall be placed at wheels to prevent accidental movement of the truck. Hand breaks should also be applied during the entire loading / unloading operation.	<b>Indian Oil- HSE Division:</b>  Spelling of "hand break" to be corrected to "Hand Brake"	Accepted
100	3.3.1.2 vii	Open vent cap of the Tank lorry.	<b>BPCL:</b>  <b>Correction:</b> Not part of approved SOP. Emergency vents are kept closed.	Accepted. To delete vii
101	3.3.1.2 x	Start the loading operations with initially loading rate shall not be exceed 1 m/s till fill pipe is completely submerged with petroleum products and there after gradually increased loading rate but shall not be exceed 6 m/s (should preferably not exceed 4 m/s).	<b>BPCL:</b>  <b>Correction:</b> Multiple guideline. Though 6 m/s limit is specified with shall , 4 m/s is also given as preferable. Guideline / standard needs to be specific without ambiguity.	Modify the clause as under : Start the loading operations with initially loading rate shall not be exceed 1 m/s till fill pipe is completely submerged with petroleum products and there after gradually increased loading rate but shall not be exceed 6 m/s.
102	3.3.1.2 xv	Trucks meant for loading may be inducted in line with approved acceptance checklist. Filling Checklist. Records need to be maintained	<b>BPCL:</b>  <b>Correction:</b> Approved acceptance and filling checklist. Wording needs to be rectified.	Modify the clause as below : Trucks meant for loading to be permitted in line with approved checklist. Records need to be maintained

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
103	3.3.2 iv	After the wagons have been placed at the gantry for loading / unloading breaks are to be applied before detaching the loco.	<b>Indian Oil- HSE Division:</b> Spelling of "break" to be corrected to "Brake"	Accepted
104	3.3.2 vii	Always use gantry platform for movement from one wagon to other wagon. Movement from wagon to wagon is prohibited.	<b>Indian Oil- HSE Division:</b> "Movement from wagon to wagon is prohibited" to be replaced with "if Fall Arrestor System (FAS) is not provided." <b>RIL:</b> Movement from wagon to wagon with adequate Fall protection system shall be permitted. <b>Essar Oil:</b> <b>To Modify:</b> Wagon to wagon movement with fall arrester should be allowed	<b>Modify the clause as under : Always use gantry platform for movement from one wagon to other wagon. Movement from wagon to wagon is prohibited. However, Movement from wagon to wagon with adequate Fall protection system / Safety harness shall be permitted.</b>
105	3.3.2 vii.	Always use gantry platform for movement from one wagon to other wagon. Movement from wagon to wagon is prohibited.	<b>BPCL:</b> <b>Correction:</b> Can be applicable for TW loading only. For both loading as well as unloading the wording can be changed to contain "Usage of Safety Harness"	
106	3.3.2 xvii	Vapour space of not less than 4.0 % of its capacity shall be kept in each wagon for dangerous product and 2.5% for non-dangerous product in each wagon.	<b>BPCL:</b> <b>Correction:</b> Old terminology - Dangerous and Non Dangerous Petroleum. Should specify the Class of product.	<b>Modify the clause as under : Minimum Vapour space for tank wagons carrying different classes of petroleum products shall be as given below <input type="checkbox"/> Petroleum Class A - 4%. <input type="checkbox"/> Petroleum Class B &amp; C - 2.5%.</b>
107	3.3.3	Handling & Unloading of Sick Tank Wagon	<b>BPCL:</b> <b>Correction:</b> Heading serial no to be changed to 3.3.3.1 and 3.3.3.2 shall be Sick Tank Wagon unloading to Slop Tank instead of 3.3.4	No change
108	3.3.3 vii	A dedicated drain header(s) for instantaneous unloading of such sick wagons. Alternately, the existing headers may be utilized for immediate decantation of product from sick wagons by providing suitable arrangements in the manifold.	<b>BPCL:</b> <b>Suggestion:</b> The prerogative here is unloading of sick TW. The following change is suggested in first line - Sick Tank Wagons to be instantaneously unloaded through dedicated drain header(s) or slop pipeline.	No change
109	3.4 iv	Seal the pressure relief lines of receipt nozzles of product tanks connected to the same common receipt header.	<b>BPCL:</b> <b>Addition:</b> Line up shall be started from the exchange pit end	No change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
110	3.4 vii	Product shall not be pumped beyond safe filling height of the tank. Necessary interlocks in the automation shall be put in place to ensure this.	<b>Indian Oil- HSE Division/Indian Oil - Pipeline Division:</b>  <b>To modify:</b> Product shall not be pumped beyond safe filling height of the tank. Necessary Alarms and interlocks in the automation shall be put in place to ensure this.	Modify the clause as under : Product shall not be pumped beyond safe filling height of the tank. Necessary Alarms and interlocks in the automation shall be put in place to ensure this.
111	3.5	Marine Loading / Unloading	<b>BPCL:</b>  <b>Gap:</b> Flow rate limitation for loading and unloading of Marine Tankers is not provided.	No change
112	3.5 vii	Vessel tanks nominated for loading petroleum products shall have oxygen content below 8% to ensure safe loading operation. This has to be ensured in all vessel tanks nominated for loading, before the any product loading can commence into any of the vessel tanks.	<b>BPCL:</b>  <b>Suggestion:</b> Practical implementation of ensuring 8% O2 level..? Instead IG tanks to be used can be specified or taken as compliance.	No change
113	3.5 xii a & b	a. Large differences between vessel and shore tank hourly quantity. b. Variation in product densities from the certified density of the product under operation.	<b>BPCL:</b>  <b>Suggestion:</b> a. Specific instruction as in Operations Manual may be incorporated as it is very vague. b. Density difference to be specified.	No change
114	3.6.1 i	Ethanol shall be received at depots in dedicated tank trucks. All care shall be taken to prevent ingress of water into the compartments during transportation	<b>Indian Oil- HSE Division:</b>  <b>To modify:</b> Ethanol shall be received at <b>installation / depots</b> in dedicated tank trucks. All care shall be taken to prevent ingress of water into the compartments during transportation.	Accepted
115	3.6.1 vi	Appropriate recommended dosage of Metal Deactivator and Corrosion inhibitor shall be added during the decantation of Ethanol from tank truck into the storage tank, so as to ensure homogeneity of additives with ethanol in the storage tank.	<b>BPCL:</b>  <b>Suggestion:</b> Metal Deactivator is no longer in use and it is mentioned under "shall" i.e. it is mandatory. Wording to be changed or to be removed.	Modify the clause as under : Appropriate recommended dosage of Corrosion inhibitor shall be added during the decantation of Ethanol from tank truck into the storage tank, so as to ensure homogeneity of additives with ethanol in the storage tank.
116	4.0 xv	A comprehensive testing procedure shall be developed which address the safety of all personnel and include the provision of specific work instructions and related training and induction for all personnel involved in testing operations. The testing must be supervised by trained and experience personnel. Coordination and team work between Construction, QA/QC, Safety, and Contractor is very important.	<b>Indian Oil - Pipeline Division:</b>  <b>To modify:</b> A comprehensive testing procedure shall be developed which address the safety of all personnel and include the provision of specific work instructions to be carried out by personnel involved in testing operations.	No Change
117	5.1.1 f	Carbon Dioxide System / Clean Agent Fire Fighting System / Dry Chemical Fire Fighting System	<b>Indian Oil - Pipeline Division:</b>  Omit from the clause	No change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
118	5.1.1 h	Clean Agent Protection System.	<b>Indian Oil - Pipeline Division:</b>  Omit from the clause	No change
119	5.1.2 i	Facilities shall be designed on the basis that city fire water supply is not available close to the installation. The Installation / Depot should have it's own independent Fire Fighting System.	<b>Indian Oil- HSE Division:</b>  <b>To Modify:</b> Facilities shall be designed on the basis that city fire water supply is not available close to the installation. The Installation / Depot should have it's own independent Fire Fighting System. <b>Pipeline installation co-located with Refinery I Marketing installation shall be covered by Fire fighting system of later and need not require independent fire fighting system.</b>  <b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Facilities shall be designed on the basis that city fire water supply is not available close to the installation. The Installation / Depot should have it's own independent Fire Fighting System. <b>However, Pipeline installation collocated with Refinery / Marketing installation shall be covered by Fire fighting system of later. Need not require independent fire fighting system.</b>	<b>Modify the clause as under :</b> <b>Facilities shall be designed on the basis that city fire water supply is not available close to the installation.</b> <b>The Installation / Depot should have it's own independent Fire Fighting System. Pipeline installation co-located with Refinery I Marketing installation may be covered by Fire fighting system of later and need not require independent fire fighting system.</b>
120	5.1.2 iv	The fire water system shall be based on single contingency for all locations where total storage capacity in the location is up to 30,000 KL (Including storage of Class C products if stored with Class A and / or Class B). Wherever water replenishment @ 50% or more is available, the storage capacity can be reduced to 3 hours aggregate rated capacity of main pumps.	<b>Indian Oil - Pipeline Division:</b> <b>To Modify:</b> The fire water system shall be based on single contingency for all locations where total storage capacity in the location is up to 30,000 KL (Including storage of Class C products if stored with Class A and / or Class B). <b>Wherever water replenishment @ 50% of fire water design flow rate or more is available</b> , the storage capacity can be reduced to 3 hours aggregate rated capacity of main pumps.  <b>RIL:</b>  It is recommended that fire water system should be designed fgor single largest fire contingency in line with recommendation of National/international codes on provision of fire fighting based on perception of risk as below:  <b>SHELL DEP 80.47.10.30-GEN</b> Requirement are based on the single fire contingency. <b>API RP 2001</b> recommends design flow rates for fighting based on a single fire event even for refineries , where the risk is perceptibly higher. <b>IS 15394: 2003-</b> Fire Safety in Petroleum refineries & fertilizer plants- Fire fighting at least 1 Major fire in the palant unless the refinery is large in which case 2 fires are considered.	The fire water system shall be based on single largest fire contingency for all locations. Wherever water replenishment @ 50% or more is available, the storage capacity can be reduced to 3 hours aggregate rated capacity of main pumps. Water requirement for Single largest fire contingency is recommended. <b>It is recommended considering international standards and provision of Tank Farm automation , RSFPS , HVLR , foam pourer system, etc.</b>



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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
121	5.1.2 v	<p>The fire water system shall be provided based on two largest fire contingencies simultaneously for all locations where total storage capacity in the location is above 30,000 KL (Excluding Class-C products stored in a separate dyke conforming to prescribed separation distances).</p> <p>Wherever water replenishment @ 50% or more is available, single fire contingency shall be considered for Fire water storage. This clause shall not be applicable for locations exclusively storing class C &amp; / or excluded products.</p>	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> The fire water system shall be provided based on two largest fire contingencies simultaneously for all locations where total storage capacity in the location is above 30,000 KL (Excluding Class-C products stored in a separate dyke conforming to prescribed separation distances). <b>Wherever water replenishment @ 50% of fire water design flow rate or more is available, single largest fire contingency shall be considered for 4 hours.</b> This clause shall not be applicable for locations exclusively storing class C &amp; / or excluded products</p>	<p>The fire water system shall be based on single largest fire contingency for all locations. Wherever water replenishment @ 50% or more is available, the storage capacity can be reduced to 3 hours aggregate rated capacity of main pumps. Water requirement for Single largest fire contingency is recommended. <b>It is recommended considering international standards and provision of Tank Farm automation , RSFPS , HVLR , foam pourer system, etc.</b></p>
122	5.1.2 xii	When Class A & B above ground storage tanks are placed in a common dyke, the fixed water spray system shall be provided on all tanks except for small installations as mentioned in (g) above.	<p><b>Indian Oil- HSE Division/Indian Oil - Pipeline Division:</b></p> <p>(g) to be replaced with (ix)</p>	Modify the clause as below :When Class A & B above ground storage tanks are placed in a common dyke, the fixed water spray system shall be provided on all tanks except for small installations as mentioned in (ix) above.
123	5.1.2 xv	The hydrants & monitors shall be located at a minimum distance of 15 m from the hazard (e.g TW&TT loading / unloading facilities) to be protected.	<p><b>HPCL:</b></p> <p>Hydrant line also should be located min. 15 m the hazard. Since hydrant line has not been mentioned, it is leading to confusion in the interpretation</p>	No change
124	5.1.2 xvii	The gantry shall be divided into suitable number of segments (each segment having min. length of 15 m length & width of 12 m) and three largest segments operating at a time shall be considered as single risk for calculating the water requirement. Accordingly, a provision shall be made to actuate the water spray system from a safe approachable central location i.e. affected zone and adjoining zones.	<p><b>RIL:</b></p> <p>This is applicable for Rail Wagon loading gantries only.</p> <p><b>BPCL:</b></p> <p><b>Correction:</b> Instead of The gantry wording to be Tank Wagon Gantry.</p>	xvi and xvii to be merged.

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
125	5.1.2 xxi	<p>xxi. Remote or manually operated high volume long range water cum foam monitors (capacity 500/750/1000 GPM and above) to fight tank fires shall be provided at petroleum installations. Numbers, Capacity of monitor or foam pourer shall be provided in such a way that the foam delivery rate from the monitors' meets requirement of foam application rate (8.1 LPM/m2) for full surface tank fire.</p> <p>xxvii. Additional monitors shall be provided in such a way that each tank is in the coverage area of at least two monitors.</p>	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b>  xxi. High volume long range water cum foam monitors shall be installed for storage tanks having class-A product.</p> <p>a) At locations having more than one dyke having storage tanks (capacity up to 10,000 KL) of Class A products in close proximity, the monitors should be positioned at suitably convenient location to provide protection to tanks located in different dykes. In such cases, the minimum stipulated requirement of two monitors dedicated for each dyke shall not be required.</p> <p>b) In tank farm having aggregate storage capacity more than 10,000 KL of Class A product, additional monitor/s should be provided to meet foam application rate of 8.1 LMP/m2 for the largest Floating Roof on Class A service in the dyke. Additional monitors shall be provided in such a way that each tank is in the coverage area of at least two monitors.</p> <p>HVLR monitors of fixed type shall be provided for the tank farms storing Class B/C products combined where safety distance as per norms is not met. In respect of installation storing exclusively Class-C product this provision shall not be applicable.</p>	HVLR to be used for fighting full surface fire on external floating roof tanks.
126	5.1.2 xxii	The location of HVLRs monitors shall be planned in such a way that the very purpose of these monitors is served and throw of the monitors is safely delivered at the aimed object. These high volume long range monitors shall be located at a distance of 15m to 45 m from the hazardous equipment subject to:	<p><b>Indian Oil- HSE Division:</b></p> <p><b>To be added:</b>  adherence to point no xxiii, xxiv, xxv below.</p>	To be re numbered as it is a part of xxii.
127	5.1.2 xxiv	The throw is directed on the inner upper surface of the tank and not in the middle of the tank to prevent splash over.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To delete:</b>  Clause to be deleted</p>	To be re numbered as it is a part of xxii.
128	5.1.2 xxviii	Provision for connecting / hooking the portable monitor shall be made in the hydrant system around the fixed roof tanks at various strategic points.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b>  Locations where HVLR monitors of fixed type are provided to cover both floating roof and fixed roof tanks, portable type HVLR monitor need not be provided.</p> <p>Provision for connecting / hooking the portable monitor shall be made where fixed type HVLRM is not available.</p>	No change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
129	5.1.2 xxx	For determining the total foam solution requirement, potential foam loss from wind and other factors shall be considered while designing.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> For determining the total foam solution requirement, potential foam loss from wind and other factors shall be considered while designing.</p> <p><b>Approx. 10% of total foam solution requirement w. r .t potential foam loss from wind and other factors shall be considered.</b></p>	No change
130	5.1.2 xxxii	Automatic actuated rim seal fire detection and extinguishing system shall be provided on all existing as well as new external floating roof tanks storing Class A petroleum. The detection and extinguishing system shall have following features:	<p><b>Indian Oil- HSE Division:</b></p> <p><b>To be added:</b> as listed out in point xxxiii, xxxiv , xxxv, xxxvi and xxxvii below.</p> <p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> Automatic actuated rim seal fire detection and extinguishing system shall be provided on all existing as well as new external floating roof tanks storing Class A petroleum having capacity <b>1000 Kl and above.</b></p>	Modify the clause as under : Automatic actuated rim seal fire detection and extinguishing system shall be provided on all external floating roof tanks storing Class A petroleum .The detection and extinguishing system shall have following features:

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
131	5.1.2 xxxii	<p>xxxii. Automatic actuated rim seal fire detection and extinguishing system shall be provided on all existing as well as new external floating roof tanks storing Class A petroleum. The detection and extinguishing system shall have following features:</p> <p>xxxiii. The system must detect fire in Rim Seal area immediately but not later than 10 seconds and extinguish the fire in its incipient stage i.e within 40 seconds of its indication.</p>	<p><b>RIL:</b></p> <p><b>To Modify</b> auto actuated foam flooding system with foam tanks outside the dyke.</p> <p>1. Fire detection system and Alternatively</p> <p>2. EFR Tanks provided with Dome Roofs.</p> <p>Recommendation as per point no. 1 above is in line with NFPA-11 requirements viz: a) A minimum foam discharge time of 20 minute (above seal injection ) 10 minutes ( below seal injection) respectively for fighting Rim fires to ensure that the fire is effectively killed and does not resurface.</p> <p>Recent revision of NFPA 11, recommends Compressed Air Foam System with minimum discharge duration of 5 minutes.</p> <p>All system recommended by NFPA 11 are extended discharge systems. Flexibility is provided to use either of the above systems for the open top floating roof tanks.</p> <p>Also, Last fire project undertaken by a consortium of 16 oil companies which undertakes studies for large storage tank fires recommended that extended discharge system is better option compared to the "one-shot" rim seal protection system.</p>	<p><b>Modify the clause as below :</b> <b>Automatic actuated rim seal fire detection and extinguishing system shall be provided on all existing as well as new external floating roof tanks storing Class A petroleum. The detection and extinguishing system shall have following features: a. The system must detect fire in Rim Seal area immediately but not later than 10 seconds and extinguish the fire in its incipient stage i.e within 40 seconds of its indication. b. The system must be robust viz., it should not be affected by environmental conditions like low/high ambient temperature, dust, external corrosion, hydrocarbon vapour, rain etc. c. The extinguishing foam must apply in the seal area @18 LPM per square meter in a uniform manner in maximum of 40 seconds. d. The detection and extinguishing system shall be coupled with fire control panel with audiovisual alarm for necessary fire alert. Alternatively, following system can be provided. a. The detection system shall detect the fire immediately but not later than 10 seconds. b. The actuation system shall be actuated immediately. c.</b></p>
132	5.1.2 xxxvi	<p>The detection and extinguishing system shall be coupled with fire control panel with audio-visual alarm for necessary fire alert.</p>	<p><b>Indian Oil- HSE Division:</b></p> <p><b>To be added:</b> The rim seal protection system shall be of linear hollow metallic tube type detectors with foam based extinguishing media or equivalent system like Two Wire Based Rim Seal Fire Detection with Automatic Foam Suppression. for existing, new installation as well as for replacements of existing system when due. These detection systems shall be listed and/or approved by any of the international agencies as listed in clause no. 5.2.6.iv.</p>	<p>No change</p>
133	5.1.2 xxxvii	<p>In addition, the individual components shall have certification from competent authority for suitability for applicable hazardous zone.</p>	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> In addition, the individual <b>Electrical / Electronics components/ pressure vessel</b> shall have certification from competent authority <b>recognized by PESO</b> for suitability <b>for applicable hazardous zone for Automatic actuated rim seal fire detection and extinguishing system.</b></p>	<p>No change</p>

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
134	5.1.3 i	If both locations are located within same premise then one largest fire scenario to be considered and water requirement shall be worked out accordingly. In case if the premises are separate, water requirement to be worked out for independent location.	<b>Indian Oil - Pipeline Division:</b>  <b>To delete:</b> Clause 5.1.3 I to be deleted	No change
135	5.1.3 iv	The pump house may be common / separate. In case common pump house is provided the control of the pump house shall remain with group whose premises pump house is situated.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> The pump house may be common / separate. In case common pump house is provided <b>the control of the pump house shall remain with group whose premises pump house is situated.</b>	No change
136	5.2.1 v	Fire water flow rate for TT&TW loading Gantry in a depot or terminal shall be calculated at a rate of @ 10.2 lpm / sq.m. The gantry shall be divided into suitable number of segments (each segment having min. length of 15 m length & width of 12 m) and three largest segments operating at a time shall be considered as single risk for calculating the water requirement. Design flow rate shall be largest of 5.2.1.a, 5.2.1.b, 5.2.1.c, 5.2.1.d and 5.2.1.e. Design flow rate for roof sinking case of largest tank shall be calculated. Where ever the design flow rate of roof sinking case is higher than single or two contingencies, as the condition applicable, the same shall be considered for calculating water requirement.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> v. Fire water flow rate for TT&TW loading Gantry in a depot or terminal shall be calculated at a rate of @ 10.2 lpm / sq.m. The gantry shall be divided into suitable number of segments (each segment having min. length of 15 m length & width of 12 m) and three largest segments operating at a time shall be considered as single risk for calculating the water requirement.  vi. <b>Design flow rate for roof sinking case of largest tank shall be calculated.</b>  vii. <b>Design flow rate shall be largest of 5.2.1.i, 5.2.1.ii, 5.2.1.iii, 5.2.1.iv ,5.2.1.v and 5.2.1.vi.</b>  Where ever the design flow rate of roof sinking case is higher than single or two contingencies, as the condition applicable, the same shall be considered for calculating water requirement.	No change
137	5.2.1 vi	Supplementary water: Fire water flow rate for supplementary streams shall be based on using 4 single hydrant outlets simultaneously. Capacity of each hydrant outlet as 36 kl/hr shall be considered at a pressure of 7 kg/cm2. The supplementary water stream requirement shall be in addition to the design flow rates.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> viii. Supplementary water: Fire water flow rate for supplementary streams shall be based on using 4 single hydrant outlets simultaneously. Capacity of each hydrant outlet as 36 kl/hr shall be considered at a pressure of 7 kg/cm2. <b>The supplementary water stream requirement shall be in addition to the design flow rates which is the largest of flow rates as calculated in 5.2.1.i, 5.2.1.ii, 5.2.1.iii, 5.2.1.iv ,5.2.1.v and 5.2.1.vi.</b>	No change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
138	5.2.3 v	Fire water pumps & storage shall be located far away from the potential leak sources / tankage are and shall be at least 60 M (minimum) away from equipment or where hydrocarbons are handled or stored.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> Fire water pumps &amp; storage shall be located far away from the potential leak sources / tankage are and shall be at least 30 M (minimum) away from equipment or where hydrocarbons are handled or stored.</p> <p><b>Essar Oil:</b></p> <p><b>To Modify:</b> Pump house distance can be reduced to 30M</p>	No change
139	5.2.3 viii	Jockey pump shall be provided for keeping the hydrant system /line pressurized at all times. The capacity of the pump shall be sufficient to maintain system pressure in the event of leakages from valves etc. Capacity of the jockey pump shall be 3% minimum and 5 % max of the designed fire water rate. Besides the main jockey pump the stand by pump of same capacity and type shall be provided.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> Jockey pump shall be provided for keeping the hydrant system /line pressurized at all times. The capacity of the pump shall be sufficient to maintain system pressure in the event of leakages from valves etc. <b>Fire hydrant net work shall be maintained in such away that the quantity of water required to maintain pressure in a fire hydrant network in case of leakage / seepage remains miniscule. The capacity of Jockey Pump shall be as follows</b></p> <p><b>a) Installation without Tank farm</b></p> <ul style="list-style-type: none"> <li>• Motor driven Jockey pump ( not more than 10M3 / Hr of water flow) may be installed to maintain the fire network pressure.</li> </ul> <p><b>b)Installation with Tank farm</b></p> <ul style="list-style-type: none"> <li>• Capacity of the Jockey pump in the shall be 3% minimum and 5% max of the maximum designed flow rate of single engine driven Fire water Main pump of highest capacity available in the installation.</li> </ul>	No change
140	5.2.5 vii	Double headed hydrants and monitors on suitably sized stand post shall be used. All hydrant outlets/monitor isolation valves shall be situated at workable height of 1.2 meter above ground or hydrant/monitor operating platform level.	<p><b>BPCL:</b></p> <p><b>Suggestion:</b> All hydrant outlets / monitor isolation valves and operative valves shall be situated at a workable height of 1.2 meter above ground or hydrant / monitor operating platform level.</p>	Modify the clause as below : Double headed hydrants and monitors on suitably sized stand post shall be used. All hydrant outlets/monitor isolation valves shall be situated at workable height from ground or hydrant/monitor operating platform level.
141	5.2.5 ix	Hydrants and monitors shall not be installed inside the dyked areas. However, as an additional requirement, oscillating monitors shall be provided in inaccessible area within the dyke with isolation valve or ROV outside the tank farm.(In cases inter distances between tanks in a dyke and/or within dykes are not meeting the requirements).	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> Hydrants and monitors shall not be installed inside the dyked areas. However, <b>as an additional requirement, Remote operated High volume Long Range Monitors ( RHVLR) / oscillating monitors shall be provided in inaccessible area within the dyke or at elevated platform within dyke, as per requirement for effective horizontal throw of Foam inside tank.</b> with isolation valve or ROV outside the tank farm.(In cases inter distances between tanks in a dyke and/or within dykes are not meeting the requirements</p>	No change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
142	5.2.6 iv	Monitors / High Volume Long Range Water Cum Foam Monitors (HVLR) / Rim seal :  a. Approved / listed by any of the international certifying agencies like UL, FM, VdS or LPC, BIS etc..	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Monitors / High Volume Long Range Water Cum Foam Monitors (HVLR) / Rim seal :  a. Approved / listed by <b>any of the international / national certifying agencies like UL, FM, VdS, BIS or LPC etc.</b>	<b>Modify the clause as below :</b> <b>Monitors / High Volume Long Range Water Cum Foam Monitors (HVLR) / Rim seal : a. Approved / listed by any of the international / national certifying agencies like UL, FM, VdS, BIS or LPC etc.</b>
143	5.2.6 vi b	Hose boxes, water monitors and hydrant outlets shall be painted with "Luminous Yellow" paint as per IS: 5	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Hose boxes, water monitors and hydrant outlets shall be painted with <b>"Fire red or post office red" color conforming to shade no 536 or 538 of IS 5.</b>	<b>No change</b>
144	5.3.1.2 ii	Where two or more pourers are required these shall be equally spaced at the periphery of the tank and each discharge outlet shall be sized to deliver foam at approximately the same rate. Tanks should be provided with foam discharge outlets/pourers as indicated below :- Tank diameter (In M) Requirement of Foam Pourer (Min. Nos.) - Above 18 & up to 20 2 Above 20 & up to 25 3 Above 25 & up to 30 4 Above 30 & up to 35 5 Above 35 & up to 40 6 Above 40 & up to 45 8 Above 45 & up to 50 10 In case foam pourers are provided on tanks having diameter up to 18 m, minimum 2 nos. foam pourers shall be provided	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Where two or more pourers are required these shall be equally spaced at the periphery of the tank and each discharge outlet shall be sized to deliver foam at approximately the same rate. Tanks should be provided with foam discharge outlets/pourers as indicated below :- Tank diameter (In M) Requirement of Foam Pourer (Min. Nos.) - Above 18 & up to 20 2 Above 20 & up to 25 3 Above 25 & up to 30 4 Above 30 & up to 35 5 Above 35 & up to 40 6 Above 40 & up to 45 8 Above 45 & up to 50 10 In case foam pourers are provided on tanks having diameter up to 18 m, minimum 2 nos. foam pourers shall be provided.  <b>The estimation of number of foam discharge outlet is based on pourer capacity of 1000 lpm at a pressure of 7 kg/cm2 (g) upstream of eductor. This can be suitably adjusted for different pourer capacity in accordance with section 5.3.1,1 (iii).</b>	<b>No change</b>
145	5.3.2.1 ii	The height of foam dam shall be at least 51 mm above the top of metallic secondary seal. In the case of Floating roof tank roof sinking, the application rate shall be considered as 8.1 lpm/ sqm. In determining total solution flow requirements, potential foam losses from wind and other factors shall be considered.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> The height of foam dam shall be at least 51 mm above the top of metallic secondary seal. In the case of Floating roof tank roof sinking, the application rate shall be considered as 8.1 lpm/ sqm. In determining total solution flow requirements, potential foam losses from wind and other factors shall be considered.  <b>Approx. 10% of total foam solution requirement w. r .t potential foam loss from wind and other factors shall be considered.</b>	<b>No change</b>

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
146	5.3.2.2 ii	Where the system's primary purpose is for spill fire protection such as dyked area and non dyked area (TT/TW etc) - 30 minutes.	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> Where the system's primary purpose is for spill fire protection such as dyked area and non dyked area (TT/TW/ Pipeline Petroleum Pump shed / Pipeline manifold etc) - 30 minutes</p>	No change
147	5.3.2.4	<p>The foam quantity requirement shall be based on the following :</p> <p>i. Foam solution application at the rate of 5 lpm/ sqm. for the liquid surface of the single largest cone roof tank.</p> <p>ii. Foam solution application rate of 12 lpm/ sqm. of seal area of the single largest floating roof tank.</p> <p>iii. Floating roof sinking case also shall be considered for foam compound requirement and storage. Application @ 8.1 lpm/sq.m by required Nos. HVLR of installed capacity. Min. aggregate foam storage shall be total of (i +ii) or iii) whichever is higher.</p> <p>iv. In case of Aviation Fuelling Stations where aggregate product storage capacity is less than 1000 KL, foam quantity for spill fire protection of 30 minutes shall be made.</p>	<p><b>Indian Oil - Pipeline Division:</b></p> <p><b>To Modify:</b> Foam quantity requirement</p> <p>1. For locations aggregate capacity upto 30,000 kl (Single contingency):</p> <p>i) Foam solution application at the rate of 5 lpm/ sqm for the liquid surface of the single largest cone roof tank.</p> <p>ii) Foam solution applicable at the rate of 12 lpm/ sqm of seal area of the single largest floating roof tank.</p> <p>iii) Floating roof sinking case also shall be considered for foam compound requirement and storage. Application by required Nos. HVLR of installed capacity.</p> <p>iv) Two hose streams of foam each with a capacity of 1140 lpm of foam solution.</p> <p>Min. aggregate foam storage shall be largest of i), ii) ,iii) &amp; iv) above</p> <p>2. For locations aggregate capacity more than 30,000 kl (Double contingency) (Assume, both cone roof tank farm and floating roof tank farms are the two largest simultaneous fire risk in a double contingency Installation for the purpose of foam requirement).</p> <p>i) Foam solution application at the rate of 5 lpm/ sqm for the liquid surface of the single largest cone roof tank.</p> <p>ii) Foam solution application rate of 12 lpm/ sqm of seal area of the single largest floating roof tank.</p> <p>iii) Floating roof sinking case also shall be considered for foam compound requirement and storage. Application @ 8.1 lpm/sq.m by required Nos. HVLR of installed capacity.</p> <p>iv) Two hose streams of foam each with a capacity of 1140 lpm of foam solution.</p> <p>Min. aggregate foam storage shall be total of i)+ ii) or iii) or iv) whichever is higher.</p> <p>v. In case of Aviation Fuelling Stations where aggregate product storage capacity is less than 1000 KL, foam quantity for spill fire protection of 30 minutes shall be made.</p> <p><b>Essar Oil:</b></p> <p><b>To Modify:</b></p>	No change
148	5.3.2.5	Foam compound storage	<p><b>BPCL:</b></p> <p><b>Suggestion:</b> Suggested to include the CFS philosophy as alternative with foam storage requirements as per CFS standards.</p>	No change



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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
149	5.3.2.5 i	Foam compound should be stored as explained in IS-4989 or equivalent standard. Type of foam compound to be used can be protein, fluro-protein or AFFF. Alcohol Resistant Foam shall be used for handling methanol/ ethanol or furfural fires. Minimum 1000 litres of Alcohol Resistant Foam compound shall be maintained at the installation to handle methanol/ethanol or furfural fire.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Foam compound should be stored as explained in IS-4989:2006/UL-162.	No change
150	5.3.2.5 iv	For details of type of tests & their periodicity, refer IS 4989 or equivalent Standard.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> For details of type of tests & their periodicity, refer IS 4989 / UL-162 Standard.	No change
151	5.3.2.5 v	Quantity of foam compound as calculated in 5.3.4 should be stored in the Installation. At locations where cluster of OMC exists, foam requirement can be uniformly distributed at respective location. The stored quantity shall be made available to needy company in case of any emergency	<b>Indian Oil- HSE Division:</b>  " foam requirement can be uniformly distributed at respective location." should be removed  <b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Quantity of foam compound as calculated in 5.3.4 should be stored in the Installation  <b>BPCL:</b>  <b>Correction:</b> Reference of 5.3.4 to be removed as there is no such point in the draft regulations.	Correct clause 5.3.2.4 to be mentioned in place of 5.3.4.
152	5.5	First aid fire fighting equipment	<b>BPCL:</b>  <b>Suggestion:</b> No mention of no of fire extinguishers in respective areas given nor is any reference to OISD 117 given which is provided in OISD 244. It is observed that there is no reference to OISD standards in PNGRB regulations hence details of placement of FEs may be given.	Table to be given
153	5.7	Motorable arrangement for towing / carrying mobile fire fighting equipment such as Foam trolleys, Portable water-cum-foam monitors etc should be made and available on sharable basis.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Motorable arrangement for towing / carrying mobile fire fighting equipment such as Foam trolleys, Portable water-cum-foam monitors etc should be available.	No change
154	5.8.1 vi c	Standard calibration kit must be available in the location for periodic performance test of hydrocarbon detectors.	<b>Essar Oil:</b>  <b>To add:</b> "Or calibration by competent agency" is to be added.	No change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
155	5.8.2 i	All the dyke valves will be fitted with a proximity switch / sensor for indication of the position of the valve. The valves of the Dyke shall remain in closed position. In case any valve is open then Audio alarm and visual indication shall come at control panel for suitable corrective measures.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> All the dyke valves of tanks having capacity 1000 Kl and above will be fitted with a proximity switch / sensor for indication of the position of the valve.	No change
156	5.8.3 i. c	c. Process Shutdown shall include the following: i. To stop loading pumps ii. Barrier gates to open	<b>BPCL:</b>  <b>Correction:</b> i. To stop product pumps  <b>Addition:</b> ii. Turnstile also to be mentioned.	Modify the clause as below : c. Process Shutdown shall include the following: i. To stop product pumps ii. Barrier gates to open
157	5.9 viii	Security staff should be trained as first responders for fire fighting and rescue operation along with plant operating personnel through oil industry approved reputed institute.	<b>BPCL:</b>  <b>Suggestion/Correction:</b> The term LIVE FIRE FIGHTING is avoided here whereas it has been mentioned in OISD 244 9.4.b.iii	Modify the clause as below : Security staff should be trained as first responders for fire fighting and rescue operation along with plant operating personnel .
158	5.10.	Fire emergency manual	<b>BPCL:</b>  <b>Correction:</b> Fire Emergency Manual / ERDMP (Emergency Response and Disaster Management Plan)	<b>Modify the clause as below :Fire Emergency Manual / ERDMP (Emergency Response and Disaster Management Plan)</b>
159	Schedule 1F		<b>HPCL:</b>  Only broad guideline and desired outcome w.r.t. M & I to be mentioned. Operator can decide the specifics. M & I requirements are dynamic in nature and require frequent updations. Only one specific area "INSPECTION OF FLOATING DECK OF INTERNAL FLOATING ROOF TANK" has been covered in detail.	<b>Accepted.</b>  <b>Delete "INSPECTION OF FLOATING DECK OF INTERNAL FLOATING ROOF TANK".</b>
160	6.1 i	Have written procedures covering operation, maintenance, and training.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Have manual/ Guidelines covering operation, maintenance, and training.	No change
161	6.2 i	Bulk handling, bottling operations, maintenance, inspection, fire protection facilities	<b>BPCL:</b>  <b>Correction:</b> LPG terminology - to be changed.	Modify the clause as below : Bulk handling, operations, maintenance, inspection, fire protection facilities
162	6.2 vii	Emergency preparedness and handling	<b>Indian Oil - Pipeline Division:</b>  <b>To delete:</b> Clause to be deleted	No change
163	6.5	Each facility operator shall ensure that when a component is served by a single safety device only and the safety device is taken out of service for maintenance or repair, the component is also taken out of service.	<b>BPCL:</b>  <b>Suggestion:</b> To include - Alternatively the single safety device shall be replaced with standby safety device if the component is critical necessity for day to day operations / safety requirements.	No change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
164	7.3 vi	Inspection personnel should be notified on time at which moment witness or hold points set.	<b>BPCL:</b>  <b>Correction:</b> No clarity - Meaning is not clear	No change
165	7.7	Well defined Roles & Responsibilities matrix should be available made for each machine as well as activity to be carried out in the workshop. The procedure for Audits and Review of the workshop shall be documented and adhered to.	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Well defined Roles & Responsibilities matrix should be available made for each machine as well as activity to be carried out in the workshop <b>where ever available on case to case basis as required during maintenance activity. Review of the workshop &amp; its audit shall be carried out.</b>	No change
166	8.1	INSPECTION OF FLOATING DECK OF INTERNAL FLOATING ROOF TANK	<b>BPCL:</b>  <b>Gap:</b> Covers - IFR , Normal Floating roof and Aluminium floating roof. Inspection procedure for Dome Roof tank where provision to enter the floating roof exists needs to be given.	To be deleted
167	8.1.2	New Clause	<b>Indian Oil- HSE Division:</b>  Procedure for checking PV valves (6 monthly) for IFRVT is necessary .	To be deleted
168	8.1.2 ii. iii.	Plan inspection when the product dip level in tank is near to maximum allowed filling height.	<b>BPCL:</b>  <b>Suggestion:</b> Height of tank in terms of percentage of gross height may be specified.	To be deleted
169	8.1.2 ii. xii.	Maintain two-way communication through an intrinsically safe VHF set between entrants and supervisor (on Fixed roof Top).	<b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Maintain two-way communication through an intrinsically <b>safe VHF / UHF/ or any other acceptable frequency band</b> set between entrants and supervisor (on Fixed roof Top).	To be deleted
170	9.1	Every entity shall develop, implement, and maintain a written training plan to instruct all Petroleum installation personnel with respect to the following:  a. Carrying out the emergency procedures that relate to their duties at the petroleum installation as set out in the procedure manual and providing first aid	<b>Indian Oil- HSE Division:</b>  <b>To be added :</b> "procedure manual" to be replaced with "procedure manual / Emergency Response Disaster Management plan (ERDMP)"  <b>Indian Oil - Pipeline Division:</b>  <b>To Modify:</b> Every entity shall develop, implement, and maintain a written training <b>guidelines</b> to instruct all Petroleum installation personnel with respect to the following: a. Carrying out the emergency procedures that relate to their duties at the petroleum installation as set out in the <b>Emergency Response Disaster Management Plan ( ERDMP)</b>	No change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
171	9.3	The Refresher programs for training of all personnel shall be conducted an interval not exceeding 2 years to keep personnel updated on the knowledge and skills.	<b>Indian Oil- HSE Division/Indian Oil - Pipeline Division:</b>  <b>To Modify: :</b> The Refresher programs for training of all personnel shall be conducted an interval not exceeding 3 years to keep personnel updated on the knowledge and skills.	Modify the clause as below : The Refresher programs for training of all personnel shall be conducted an interval not exceeding 3 years to keep personnel updated on the knowledge and skills.
172	9.8	Each entity shall utilize for operation or maintenance of components only those personnel who have demonstrated their capability to perform their assigned functions by successful completion of the training as specified an possess experience related to the assigned operation or maintenance function.	<b>Indian Oil- HSE Division:</b>  word "an" to be replaced with "and"	Accepted
173	10.1.1 ii	Age not less than 25 years with minimum of 3 years' experience of driving vehicles for which he or she is licensed to drive.	<b>BPCL:</b>  <b>Gap:</b> Upper age limit also to be mentioned from safety point of view.	No change. However to check MV act for min age for driving haz goods.
174	10.1.2 ii	Attended defensive driving course within last two years.	<b>Indian Oil- HSE Division:</b>  Defensive driving course- from whom.	No change
175	10.1.2 vi	Driver should attend daily/trip wise counselling on journey management.	<b>Indian Oil- HSE Division:</b>  Frequency to be changed to weekly	Accepted
176	10.2.2 ii	The continuous driving shall not exceed three hours. It should be followed by minimum 15 minutes rest. The rest must be taken on continuous block and either away from vehicle or, if taken in a sleeper cab , while vehicle shall be stationary.	<b>Indian Oil- HSE Division:</b>  Min 30 mins rest required after 3 hrs continuous driving	The continuous driving shall not exceed three hours. It should be followed by minimum 15 minutes rest. The rest must be taken on continuous block and either away from vehicle or, if taken in a sleeper cab , while vehicle shall be stationary. Alternatively, two drivers can be used with a monitoring system for rest after every three hours.
177	10.3 iii	The tank truck shall be fitted with an external engine cut-off device.	<b>Indian Oil- HSE Division:</b>  Position and certifying authority of external engine cut off device to be mentioned	No change
178	10.3 iv	The tank truck shall be fitted with audible reversing alarm.	<b>Indian Oil:</b>  Position and certifying authority of audible reversing alarm to be mentioned.	No change.
179	10.3 v	The tank truck operating in Zone 1 area must have vapor proof electrics, be fitted with master switch external to cab and have Bonding system (compatible with loading rack facilities).	<b>BPCL:</b>  <b>Compliance:</b> Compliance issue	Delete

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
180	10.3 x	Trailer tank to be fitted with overturn protection that gives effective protection to man lids in the event of vehicle roll-overs	<p><b>BPCL:</b></p> <p><b>Correction:</b> Terminology - man lids to be replaced with manhole cover</p>	Modify the clause as below : Trailer tank to be fitted with overturn protection that gives effective protection to manhole cover in the event of vehicle roll-overs
181	10.3 xii	In case of bulk fuel tankers, a spill kit capable of dealing with small spills.i.e. <10 liters.	<p><b>Indian Oil- HSE Division:</b></p> <p>Contents of spill kit to be specified.</p> <p><b>BPCL:</b></p> <p><b>Correction:</b> Replace bulk fuel tankers with tank truck. "Tank truck shall be provided with a spill kit capable of dealign with small spills &lt; 10 ltrs." Also clarity on spill kit to be given.</p>	Accepted
182	10.3 xiii	In case of Dangerous Goods , HGVs to be fitted with at least three number of dry powder fire extinguisher two of which are easily accessible on either side of tank and third in the driver's cab (size 9kg for external and 2kg for cab extinguisher).Co2 is an acceptable alternative for can extinguisher.	<p><b>BPCL:</b></p> <p><b>Correction:</b> Contradictory to existing stipulation of min 2 FEs which is also mentioned in point no.3.3.1.1.ii.c of draft regulations</p>	Modify the clause as under : In case of Dangerous Goods , HGVs to be fitted with at least three number of dry powder fire extinguisher two of which are easily accessible on either side of tank. Co2 is an acceptable alternative for can extinguisher.
183			<p><b>Indian Oil- HSE Division:</b></p> <p>Location of Vapour Recovery Unit (Interdistance norms) to be specified.</p>	Not required
184			<p><b>HPCL:</b></p> <p>All the equipment for Vapour Recovery System is flame proof. Depending upon the capacity distance norm to be specified for Vapour Recovery System.</p>	Not required
185			<p><b>BPCL:</b></p> <p><b>Additional Points:</b></p> <ol style="list-style-type: none"> <li>LEL / UEL limits are not covered in OISD 244 / 105 or other standards where the LEL is referred to. The LEL / UEL limits of commonly handled products may be covered in these regulations.</li> <li>Maximum flowrate in pipeline is not specifically mentioned in the regulations and also not available in OISD standards.</li> <li>Repairs of the tanks as per API 653 is not at all referred to in the regulations.</li> <li>The maximum operating pressures for loading / unloading / suction / discharge pipelines is not covered in the regulations.</li> <li>Navigator training requirements are not covered in the regulations. With navigator training the Vehicle Management System part will be complete in all respects.</li> </ol>	Not required

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
186			<p><b><u>Aegis Logistics:</u></b></p> <p><b>To be Excluded/Omitted:</b></p> <p>i. Regulation sr. no. 7 (since PESO is already monitoring.)</p> <p>ii. Following clauses which are already covered under Petroleum rules 2002 should not be duplicated hence omitted from proposed PNGRB rules</p> <p>Schedule 1A-</p> <p>1.2.2.2. C</p> <p>1.2.2.4. C</p> <p>1.2.2.5. b</p> <p>1.2.2.7. iii</p> <p>Schedule 1B</p> <p>2.0</p> <p>Schedule 1E</p> <p>5.1.2. v</p> <p>5.1.3</p>	Not required
187			<p><b><u>Aegis Logistics:</u></b></p> <p><b>To be Excluded:</b></p> <p>Following clauses which are not in Petroleum rules 2002 (were left to the discretion of the designers/operators), should not be added in proposed PNGRB rules</p> <p>Schedule 1 A</p> <p>(i) 1.2.2.5.c</p> <p>(ii) 1.2.2.5.g</p> <p>(iii) 1.2.2.5.h</p> <p>Schedule 1B</p> <p>(iv) 2.2.2</p> <p>(v) 2.7.1</p> <p>(vi) 2.7.2.iv to x</p> <p>(vii) 2.9.1. i</p> <p>(viii) 2.9.1. i</p> <p>(ix) 2.9.2.iii, iv, v, vii</p> <p>(x) 2.11.2</p> <p>Schedule 1C</p> <p>(xi) 3.2.ix</p> <p>(xii) 3.2.x</p> <p>(xiii) 3.2.xxxii</p> <p>(xiv) 3.2.xxxvii</p> <p>(xv) 3.4.iii</p> <p>(xvi) 3.5</p> <p>Schedule 1E</p> <p>(xvii) 5.8.1</p> <p>(xviii) 5.8.2</p>	Not required

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
188			<p><b><u>Aegis Logistics:</u></b></p> <p><b>To be Revised:</b> All schedules shall be revised based on Petroleum rules 2002</p> <ol style="list-style-type: none"> <li>1. Schedule 1A-Design and Layout</li> <li>2. Schedule 1B- Design Considerations</li> <li>3. Schedule 1C- Safe Operating Practices</li> <li>4. Schedule 1D-Commissioning / DE-commissioning of facilities</li> <li>5. Schedule 1E- Fire protection and prevention Facilities</li> <li>6. Schedule 1F- Maintenance and Inspection</li> <li>7. Schedule 1G- Competence Assurance and Assessment</li> <li>8. Schedule 1H- Vehicle Management System</li> <li>9. Schedule 1I-Safety Management System</li> </ol>	Not required
189			<p><b><u>HPCL:</u></b></p> <p><b>To Modify:</b> Capacity of jockey pumps shall be min 1% and max 1.5% of the designed flow rate or Slabwise capacity shall be defined based on the no. of hydrant/monitor points e.g. 0-50 points - capacity 10 M3/Hr, 50-150 nos.- 20 M3/hr etc.</p>	To be modified accordingly.

**Additional IOCL Comments**

S. No.	Clause No	Description of New Recommendations PNGRB	OISD 244 Contents	Problem anticipated
1	General	Requirements of PNGRB regulations shall apply to all existing and new Petroleum Installations.	While OISD 244 consider the pre standard location. It recommend to carry out the QRA and its mitigation measures where severe space constraint is a issue & not practicable to implement the Std	No change
2	1.1	Approaches from the highway / major road should be provided for normal / emergency movement with minimum road width of 3.5 mtrs for one way movement while. he turning radius at the gantry shall be designed to facilitate the smooth movement of the tank trucks (including trailer mounted). There is nothing specific for location prior to this guideline which OISD 244 consider.	<p>OISD 244 say two way road approach.</p> <p>For existing locations, wherever it is difficult or not practicable to implement due to severe space constraint, QRA shall be conducted and mitigation measures shall be implemented.</p>	NO Change

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
3	1.2.1 (ii)	Control Room should be situated at such a place in the layout from which most of the facilities/activities of the location are visible.d) The control room for Pipeline Tap off Point (TOP) (if applicable) at the same location of the same company, shall be in the same building where the Control room for Depot/installation is located.	This clause shall be applicable only to the locations conceived after the publication of this standard.	No Change
4	1.2.1(ix)	Rail loading / unloading facilities should be located along the boundary of the installation. In case Tank wagon (TW) unloading facilities are located outside of installation boundary that shall also have a boundary wall as per MOHA / Government Guidelines.	This clause shall be applicable only to the locations conceived after the publication of this standard. However, at existing locations, wherever implementation of this clause is feasible, the same must be complied.  Standalone unloading siding at existing locations wherever implementation of this clause is infeasible due to space constraint, at least suitable fencing to be provided in order to have access control. Alternately, Quantitative Risk Assessment (QRA) shall be carried out and suggested control / mitigation measures shall be implemented	No Change
5	1.2.1(xx)	Special precautions should be taken as required where ambient temperatures or the handling temperatures are higher than the flash point of the product or where product handled is artificially heated to a temperature above its flash point.		No Change
6	1.2.2.1	Dyked Enclosures: The height of tank enclosure dyke (including free board) shall be at least 1.0 M and shall not be more than 2.0 M above average inside grade level	However, construction of dyke exceeding 2 M may be considered where there is severe constraint on space availability subject to approval from PESO case to case basis. In such case, additionally following conditions must be fulfilled:  a. Total dyke capacity shall be based on containment of largest tank capacity. b. Monitors on raised platforms, if required, shall be provided so that throw of the monitors are not restricted. c. All the tanks inside such dyke shall be provided with sprinkler system, irrespective of the tank dia	Modified as per 36 above.
7	1.2.2.5 g(iv)	Proper sized TT parking area based on fleet size shall be provided with following facilities:  i. Well laid out hydrant system with alternate double headed hydrant post and water or water cum foam monitors covering the parking area. ii. Segregation of parking area through chain link fence/boundary wall. iii. Separate entry and exit gate with access control. iv. Parking lane demarcation / slotting to ensure independent & quick evacuation in emergency.	For existing locations, wherever the parking area is inadequate due to space constraint, proper monitoring of vehicle parking / movement shall be ensured in liaison with local administration.	No Change



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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
8	1.2.2.7	Separation Distances between tanks / offsite facilities- has to be followed by all locations	Separation distances as given in the enclosed tables in this Std. shall be applicable for all new and upcoming locations. For existing locations which do not meet the stipulated safety distances, following provisions & measures shall be in place:  1. Provision of sprinkler & fixed or semi fixed foam system for storage tanks -(Refer clause- 9.2.2.k). 2. For other facilities where inter distance is not meeting in existing locations, necessary Quantitative Risk Assessment (QRA) carried out and suggested control / mitigation measures shall be implemented	No Change
9		Excluded petroleum shall be stored in a separate dyked enclosure and shall not be stored along with Class-A, Class-B or Class-C petroleum.		Excluded petroleum shall be stored in a separate dyked enclosure and shall not be stored along with Class-A, Class-B or Class-C petroleum. In case stored in the same dyke, the requirements i.e. Fire fighting, interlocks, alarms, foam etc. shall be in line with the requirements for the Class of product stored in the same dyke.
10		Chemical Earth pit.		No Change

Other Recommendations				
S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
1	Definition	f. "design" includes drawings, calculations, specifications, models codes and all other details necessary for the complete description of the pressure vessel and its construction;		Delete
2	Definition	n. "fittings" means the safety fittings that are directly fitted on the pressure vessel including safety relief valves, excess flow valves and level measuring devices.		Delete

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
3	Definition	jj. "Slop" means off-specification products obtained from market, during any disturbance in operation and draining etc. from various equipment / tanks / pumps containing oil - water mixture are called slops. This does not include interface generated during pipe line transfer operations.		<b>To be modified as :</b>  jj. "Slop" means off-specification products obtained from market <b>i.e. Retail Outlet etc.</b> , during any disturbance in operation and draining etc. from various equipment / tanks / pumps containing oil -water mixture are called slops. This does not include interface generated during pipe line transfer operations.
4	Definition	nn. "Water capacity" means capacity in litres of the pressure vessel when completely filled with water at 150 C.		Delete
5	1.2.2.2(c)	Excluded petroleum shall be stored in a separate dyked enclosure and shall not be stored along with Class-A, Class-B or Class-C petroleum.		<b>To be modified as :</b>  Excluded petroleum shall be stored in a separate dyked enclosure and shall not be stored along with Class-A, Class-B or Class-C petroleum. In case, it is stored in the same dyke, the requirements i.e. Fire fighting, interlocks, alarms, foam etc. shall be in line with the requirements for the Class of product i.e. Class -A / Class -B / Class -C stored in the same dyke.
6	2.7.2(viii)	viii. This clause as above shall be applicable to all new locations and the storage tanks constructed after publication of this standard. In respect of the existing locations, provision shall be made for installing additional level instruments whenever the tanks are taken out of service for cleaning / maintenance schedule at the earliest opportunity.		Delete

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
7	2.9.2 (xii)	xii. Loading gantry shall be provided with at least one suitable explosion-proof telephone / paging device for communication with pump house in normal & emergency operations. In addition, operating personnel shall be provided with intrinsically safe walky-talky suitable for use in oil installations.		<b>To be Modified as:</b>  xii. Loading gantry <b>should</b> be provided with at least one suitable explosion-proof telephone / paging device for communication with <b>pump house, control room</b> etc. in normal & emergency operations. In addition, operating personnel shall be provided with intrinsically safe walky-talky suitable for use in oil installations.
8	2.9.2(xxviii)	xxviii. Sampling points shall be provided at the farthest end of the gantry as per requirement of Industry Quality Control Manual (IQCM).		<b>To be modified as :</b>  Sampling points shall be provided as per requirement of Industry Quality Control Manual (IQCM).
9	3.2 (vii)	vii. All the tanks inside such dyke shall have fire fighting system / water sprinkler system, irrespective of the tank diameter and the system shall be in operating condition. Ensure “No” chocking of water spray nozzles.		<b>To be modified and renumbered as :</b>  vii. All the tanks inside the dyke shall have fire fighting system in operating condition.  viii. Ensure “No” chocking of water spray nozzles.
10	3.2 (xxvi)	xxvi. Tank dip pipes shall be extending to tank bottom. If dip pipes are not provided, give a relaxation time of 30 minutes after receipt / discharge before sampling/gauging.		<b>To be Modified as:</b>  xxvii. Tank dip pipes shall be extending to tank bottom. If dip pipes are not provided, give a <b>settling</b> time of 30 minutes after receipt / discharge before sampling/gauging.
11	5.1.2 (iv)	iv. The water storage capacity shall be based on minimum 4 hours aggregate rated capacity of main pumps. Wherever water replenishment @ 50% or more is available, the storage capacity can be reduced to 3 hours aggregate rated capacity of main pumps.		Delete

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
12	5.1.2(viii)	viii. The hazardous areas shall be protected by a well laid combination of hydrants & monitors. The installations having aggregate above ground storage capacity of less than 1000 KL (Class A+B+C) other than AFS are exempted from this provision.		<b>To be modified as:</b>  viii. The hazardous areas shall be protected by a well laid combination of hydrants & monitors. The installations having aggregate above ground storage capacity of less than 1000 KL (Class A+B+C) are exempted from this provision.
13	5.1.2(xxi)	xxii. The location of HVLRs monitors shall be planned in such a way that the very purpose of these monitors is served and throw of the monitors is safely delivered at the aimed object. These high volume long range monitors shall be located at a distance of 15m to 45 m from the hazardous equipment subject to:		<b>To be modified as:</b>  xxi. The location of HVLRs monitors shall be planned in such a way that the very purpose of these monitors is served and throw of the monitors is safely delivered at the aimed object. These high volume long range monitors shall be <b>positioned</b> located at a distance of 15m to 45 m from the hazardous equipment subject to:
14	5.1.3(iii)	iii. The fire water requirement shall be based on single fire contingencies simultaneously in the combined facility and fire water storage capacity shall be fixed accordingly.		Delete
15	5.2.3(viii)	viii. Jockey pump shall be provided for keeping the hydrant system /line pressurized at all times. The capacity of the pump shall be sufficient to maintain system pressure in the event of leakages from valves etc. Capacity of the jockey pump shall be 3% minimum and 5 % max of the designed fire water rate. Besides the main jockey pump the stand by pump of same capacity and type shall be provided.		<b>To be modified as:</b>  viii. Jockey pump shall be provided for keeping the hydrant system /line pressurized at all times. The capacity of the pump shall be sufficient to maintain system pressure in the event of leakages from valves etc. Besides the main jockey pump the stand by pump of same capacity and type shall be provided.
RIL Comments				

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S No.	Clause No.	Original Clause	Views/Comment	Sub-Committee Recommendations
16	5.1.2 (xxi)	xxi. Remote or manually operated high volume long range water cum foam monitors (capacity 500/750/1000 GPM and above) to fight tank fires shall be provided at petroleum installations. Numbers, Capacity of monitor or foam pouter shall be provided in such a way that the foam delivery rate from the monitors' meets requirement of foam application rate (8.1 LPM/m <sup>2</sup> ) for full surface tank fire.		<b>To be modified as :-</b>  Fixed or mobile HVLRs shall be used for fighting full surface fire on external floating roof tanks.
17	5.1.2	xxvi. Water cum foam monitors shall be installed in such a way that all the tanks in the installation are within the horizontal range of foam throw.  xxvii. Additional monitors shall be provided in such a way that each tank is in the coverage area of at least two monitors.  xxviii. Provision for connecting / hooking the portable monitor shall be made in the hydrant system around the fixed roof tanks at various strategic points.  xxxi. Adequate foam drum/tank or reliable replenishment for foam induction system shall be provided.	<b>To be modified as:</b>  Positioning of Water cum foam monitors shall be planned to cater to full surface fire in EFR tank.  Position of the Water cum foam monitors shall be within the horizontal range of foam throw. No of monitors shall be based on site requirement for fighting full surface fire.  Provision for connecting / hooking both water and foam supply to above monitors shall be made in the hydrant / foam system.  Adequate foam drum/tank or reliable replenishment for foam shall be provided.	No change