तेल उद्योग सुरक्षा निदेशालय
OIL INDUSTRY SAFETY DIRECTORATE
ISO 9001:2015 certified

भारत सरकार, पैट्रोलियम और प्राकृतिक गैस मंत्रालय
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OISD/ENGG/GEN/22 30th April 2020

Subject: Views/ Comments on the draft PNGRB (Technical Standards and Specifications including Safety Standards for Refineries and Gas Processing Plants) Regulations, 2020.

Madam,

This has reference to the PNGRB communication No. PNGRB/Tech./8-T4SR&GP (2)/2019 dated 25th February 2020 seeking views/ comments on the subject PNGRB Draft Regulation.

2. It may be mentioned that Refineries and Gas Processing Plants, the target area for which the present Petroleum and Natural Gas Regulatory Board (Technical Standards and Specifications including Safety Standards for Refineries and Gas Processing Plants) Regulations, 2020 are proposed, are covered in 60 (out of total 121) of the extant OISD Standards which have been framed over the years and are implemented by the entire Oil & Gas Industry in India.

   10 out of these 60 OISD standards (OISD STD 105, OISD RP 108, OISD STD 114, OISD STD 116, OISD STD 118, OISD STD 128, OISD STD 129, OISD RP 149, OISD STD 150 and OISD GDN 178) are mandatory in nature by dint of their inclusion in various statutes like **the Petroleum Rules, 2002, the Static and Mobile Pressure Vessels (Unfired) Rules, 2016 and the Oil Mines Regulations, 2017**.

   In this regard, it may be mentioned that publication of duplicated and diluted version of OISD standards already included in various statutes of the country may lead to contradiction between two statutory authorities and create unnecessary confusion in the Industry which is highly undesirable in the larger interest of safety of the Industry.

3. In this context, we would like to mention that, to discuss the issue of duplication of already existing OISD standards in the entire gamut of P&NG industry viz. Refineries, Cross-country Pipelines, Marketing, Exploration & Production, LNG terminals etc., by PNGRB, a meeting was held under the Chairmanship of Joint Secretary (R), MoP&NG on 16th Oct, 2015.

   It may be mentioned that during the aforesaid meeting, it was deliberated that framing of another set of safety standards by PNGRB would not only result in duplication of efforts, but may also lead to confusion in the Industry about implementation of different standards.

   Representative from PNGRB was requested to convey such observations of MoP&NG to the Board i.e. PNGRB. During the deliberations in the said meeting Chaired by JS(R), it was also discussed that in case it is felt by PNGRB that there are gaps in the Safety Standards developed by OISD; the same can be intimated to OISD for modification instead of framing the same standards de-novo.

4. Further, the issue of duplication of OISD Standards by PNGRB was also discussed in the 34th Safety Council Meeting held on 14th September 2017, wherein, during the deliberations, it was observed that in the larger interest of Safety, duplication of already existing & in practice OISD Standards by PNGRB is not required as this may lead to confusion in so far as the operators are concerned.

Upon in depth deliberations in the aforesaid Safety Council Meeting, Secretary PNG and Chairman Safety council decided that Ministry shall again take up the matter with PNGRB and a separate meeting would be convened with the Board in near future.

5. It is to be noted that while submitting our comments on the PNGRB (Technical Standards and Specifications including Safety Standards for LPG Storage, Handling and Bottling Facilities) Regulations, 2017, similar concern has been forwarded to PNGRB vide our letter No. OISD/ENGG/GEN/22 dated 7th April 2018 **(Annexure-C)**, wherein, PNGRB has been requested to reconsider its decision of formulating a fresh set of Regulation for such Petroleum Installations.

6. It may be mentioned that Refineries are one of the most critical elements of the Oil & Natural Gas Industry. These Installations handle highly inflammable hydro-carbons and operates processes under high temperature and pressure with presence of Oxygen (air) and many a times active source of ignition.

   Further, these installations are equipped with state of the art very high hazard potential equipment viz. Special Furnaces like steam/ methane reformer furnace and pyrolysis/cracker furnace; Catalyst Cracking Reactors having the risk of runaway reactions; specialty equipment like Rich Gas/ Lean Gas hydrocarbon compressors operating at very high pressures; high rise columns etc. To address the aspects of siting, design, operations, maintenance, inspections, firefighting, and above all safety requirements of such equipment, a single document approach, which has been attempted in the present PNGRB document is not the right kind of approach and is not in line with the established International standards.

   In this regard, it may be mentioned that in line with the standards formulated by American Petroleum Institute (API), world's renowned body for framing standards for the Petroleum Sector, OISD has framed 60 different standards to cover various aspects of a Refinery. A table indicating various OISD standards applicable for Refineries and Oil/Gas Processing Plants is attached as **Annexure–A.**

   With regard to approach followed by PNGRB, it may be mentioned that the PNGRB in the present document, has randomly extracted text from various OISD standards and tried to condense requirements laid down in all the 60 OISD standards in a single document running in to 123 pages in all. OISD is the opinion that such an attempt by PNGRB is an exercise which could lead to omission of many critical safety related aspects for a Refinery set up; thereby leading to confusion at the Industry level in implementation by the Industry **as many aspects of safety of specialty equipment installed in a Refinery have either not been covered or coverage have been left grossly inadequate.**

7. To substantiate our observation as above we give below few examples of omissions:

   - ✓ The critical aspect of Process design and operating philosophies on Fired Process Heaters (Furnaces) and their Inspection has not been covered at all in the PNGRB proposed Regulations. These process heaters (Furnaces) are at the heart of any Petroleum Refinery and each Refinery has many such equipment installed therein and some of these heaters are latest technological equipment like steam/ methane reformer furnace and pyrolysis/cracker furnaces having special operations and inspection regime.

     In this regard, it may be mentioned that OISD has framed two standards namely OISD STD 111 on 'Process design and operating philosophies on fired process furnace' and OISD STD 133 on 'Inspection of fired heaters' dealing in detail with design & operations and Inspection requirements of such equipment respectively.

   - ✓ For selection, operation, maintenance and Inspection of critical equipment like compressors, pumps, turbines, diesel engines etc. used in a Refinery, OISD, following a prescriptive approach, has developed separate detailed document covering each such equipment and Industry at large has developed their Standard Operating Procedures based on detailed stipulations laid down in these documents. On the other hand, PNGRB present document has covered such critical equipment, in one or two pages in all and in some cases even in one paragraph in the entire document. OISD observes that such kind of possibly

goal based approach adopted by PNGRB towards the cause of safety in a Refinery set up is uncalled for and should be avoided.

- ✓ With regard to the design of Flare Knock Out Drums (KOD), installed in a Refinery, the document has reproduced part of the provisions about design considerations from OISD STD 106 on 'Pressure Relief & Disposal System', but while reproducing the clause, critical aspect of making provision for evacuation of KOD contents in case of power failure scenario, has been completely missed out. These KOD pumps, as per the stipulations laid in OISDSTD 106, must have provision of emergency drive (steam turbine or alternate source of power) so that these pumps can be operated during the failure of normal power supply. Non availability of these pumps in case of power failure can have disastrous consequences for any Refinery.

8. Some other observations are appended as **Annexure–B**. Please note that this is not a comprehensive list since there are various incomplete sentences, typographical errors also.

9. We would like to reiterate that OISD Safety Standards are developed for safety critical subjects and 121 of such standards have already been developed by OISD. These Standards/ Guidelines/ Recommended Practices for the Oil and Gas sector are developed thru a participative process involving all the stakeholders (including the public at large), drawing inputs from international standards and adapting them to Indian conditions by leveraging the experience of the constituents.

   These standards are developed by a Functional Committee of experts from the Industry; are duly adopted by Steering Committee, and are finally approved by the 'Safety Council' which is the Apex body headed by Secretary of the Ministry of Petroleum & Natural Gas as its Chairman, and includes the Joint Secretaries and Advisors in the Ministry of Petroleum & Natural Gas, the CEOs of all the stakeholder organizations of both PSU's as well as Private/JV Oil Companies, the Chief Controller of Explosives and Advisor (Fire) to the Government of India and the Director General of Factory Advice, Service and Labour Institutes as members.

10. In view of the foregoing, and in the larger interest of safety, it is requested that PNGRB may reconsider its decision of formulating a fresh set of Regulation for the same target areas where OISD Standards/ Recommendatory Practices/ Guidelines are already in place.

    In case it is felt by PNGRB that there are gaps in the Safety Standards developed by OISD; the same may please be intimated to OISD for modification instead of framing the same standards de-novo.

Sincerely Yours,

30/04/2020

(Arun Mittal)
Executive Director

Encl: As above

Ms Vandana Sharma
Secretary
Petroleum & Natural Gas Regulatory Board (PNGRB)
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cc: Joint Secretary (Refineries), MoP&NG, New Delhi.

Annexure–A

OISD Standards having applicability for Refineries & Oil/Gas Processing Plants			
#	**Standard /GDN/RP**	**Description**	**Brief Scope / Coverage**
1	OISD-STD-105	Work Permit System	The standard is applicable to all hydrocarbon processing / handling installations such as onshore / offshore oil and gas processing plants & platforms, drilling and workover rigs, crude oil and product installations, refineries, oil port terminals, pipelines & pipeline installations, marketing installations, LPG bottling plants, Lube Blending plants etc.
2	OISD-STD-106	Pressure Relief & Disposal System	The standard covers relieving devices and their discharge systems of vessels and equipment in the exploration & production installations and related oil & gas processing plants, refineries, petrochemical plants and storage & handling locations, which are designed for a maximum allowable working pressure of more than 1 Kg/Cm2g.
3	OISD-RP-108	Recommended Practices on Oil Storage and Handling	The document is applicable to safety in the design philosophies and operating procedures pertaining to the storage and handling of crude oil and petroleum products at crude oil exploration & production, refineries and pipelines installations which are normally stored in above ground atmospheric pressure or low pressure storage tanks and underground tanks. This does not cover the storage and handling of propane, LPG, butane etc. which requires pressurized/cryogenic storage.
4	OISD-STD-109	Process Design and Operating philosophies on blow down and sewer system	This document covers the design and operating philosophies for safe handling and disposal of liquid blowdown from various process equipment in the Refineries, Gas Processing & Petrochemical Plants and their storage facilities. Pressure relief of vapour/liquid and their disposal is not covered in this document for which OISD - 106 Standard on “Pressure Relief and Disposal System” should be referred to.
5	OISD-RP-110	Recommended Practices on Static Electricity	The purpose of this document is to assist oil and gas industry in reducing fire hazard due to static electricity by presenting a discussion on the nature and origin of static charges, the general methods of mitigation and recommendations in certain specific operations for its dissipation.
6	OISD-STD-111	Process design and operating philosophies on fired process furnace	This document covers safety provisions in fired process furnaces in Petroleum Refineries, Gas Processing Plants & Petrochemicals. This document does not include items like direct fired heaters of FCCU, SRU, incinerators and heater treaters for E&P installations.

OISD Standards having applicability for Refineries & Oil/Gas Processing Plants			
#	Standard /GDN/RP	Description	Brief Scope / Coverage
7	OISD-STD-112	Safe handling of air hydrocarbon mixtures and pyrophoric substances	The purpose of this document is to provide relevant technical standards for reducing fire hazards of air hydrocarbon mixtures and pyrophoric substances. The document also illustrates the nature and origin of air hydrocarbon mixtures and pyrophoric substances. The document is applicable to petroleum production, refining, petrochemical, Gas Processing Plants (GPP), pipelines and marketing installations.
8	OISD-STD-113	Classification of Area for electrical installations at Hydrocarbon processing and handling facilities	This standard is applicable to classification of hazardous areas for electrical installations in onshore processing, storage and transportation facilities handling flammable liquids, vapours or gases. . This standard does not cover offshore installations and also the provisions of this standard do not apply to Onshore Drilling and Workover Rigs as well as E&P Onshore Production Installations;
9	OISD-STD-114	Safe handling of Hazardous Chemicals	This standard deals with the hazardous chemicals used in Petroleum and Natural Gas exploration, production, processing, storage and transportation facilities, petrochemicals manufacturing and additives for lubricating oil blending & markers for checking the adulteration in products like kerosene in motor spirit etc.
10	OISD-GDN-115	Guidelines on Fire Fighting Equipment and Appliances in Petroleum Industry	This document provides guidelines for development of detailed procedures for specifications/ inspection and testing of various firefighting equipment, appliances and materials. It covers the petroleum industry as a whole.
11	OISD-STD-116	Fire Protection facilities for Petroleum Refineries and Oil/Gas Processing Plants	This standard covers the minimum design criteria and details of the various fire protection facilities to be provided in petroleum refineries and oil / gas processing plants.
12	OISD-STD-118	Layouts for Oil and Gas Installations	This document lays down minimum requirements of layouts within the plant boundary for petroleum refineries, Oil / Gas production and processing plants, LPG facilities, Pipeline installations / terminals, Lube oil installations and other Petroleum storage installations such as Crude oil gathering stations, Marketing depots and terminals, Aviation storage & fueling stations, Tank farm for storage of crude / products.
13	OISD-STD-119	Selection, Operation and Maintenance of Pumps	This document covers the safety aspects in selection, installation & commissioning and operation & maintenance of pumps and their associated systems in hydrocarbon industry.

OISD Standards having applicability for Refineries & Oil/Gas Processing Plants			
#	Standard /GDN/RP	Description	Brief Scope / Coverage
14	OISD-STD-120	Selection, Operation and Maintenance of Compressors	This document covers the safety aspects in selection, installation & commissioning and operation & maintenance of compressors and their associated systems in hydrocarbon industry.
15	OISD-STD-121	Selection, Operation, Inspection & Maintenance of Steam & Gas Turbines	This standard specifies the minimum requirements in selection, installation, commissioning, operation, inspection & maintenance of steam & gas turbines and their associated systems in both onshore as well as offshore areas of hydrocarbon industry.
16	OISD-RP-122	Selection, Operation and Maintenance of Fans, blowers, gear boxes, agitators & Mixers	This document covers the general considerations in Selection, Installation, Commissioning, Operation, Maintenance and Failure & Root Cause Analysis of Fans, Blowers, Gearboxes, Agitators & Mixers.
17	OISD-RP-123	Selection, Operation and Maintenance of rotary equipment components	This document covers the general considerations for Selection, Installation, Commissioning, Operation, Maintenance and Failure Analysis of Bearings, Couplings and Transmission Belts.
18	OISD-RP-124	Predictive Maintenance Practices	This document covers the methodology for management of a Predictive Maintenance Program for rotary equipment in hydrocarbon industry.
19	OISD-STD-125	Inspection and Maintenance of Mechanical Seals	This standard covers the minimum requirements for selection, operation, maintenance & failure analysis of Mechanical Seals and Sealing Systems installed on rotating equipment in hydrocarbon industry.
20	OISD-RP-126	Specific practices for installation and maintenance of rotating equipment	Specific maintenance practices for rotating equipment viz Equipment Protection & Change Management System; Lubricant and lubrication System; Safe Commissioning Practices; Root Cause Failure Analysis; Safe Utilization of Lifting Tools and Tackles and History Recording are covered in these guidelines.
21	OISD-STD-127	Selection operation inspection and maintenance of Diesel Engines	This standard specifies the minimum requirements in selection, installation, commissioning, operation, inspection & maintenance of diesel engines in hydrocarbon industry, both offshore & onshore.
22	OISD-STD-128	Inspection of unfired pressure vessels	This standard covers minimum inspection requirements, types of inspections, inspection frequencies, inspection procedures and repair methodology for unfired pressure vessels, including underground pressure vessels installed in hydrocarbon industry.
23	OISD-STD-129	Inspection of storage tanks	This standard covers the minimum inspection requirements for atmospheric and low-pressure storage tanks constructed as per standards IS-803, API-620, API 650, IS 10987 or equivalent.

OISD Standards having applicability for Refineries & Oil/Gas Processing Plants			
#	Standard /GDN/RP	Description	Brief Scope / Coverage
24	OISD-STD-130	Inspection of Piping Systems	This standard covers minimum inspection requirements, types of inspections, inspection frequencies, inspection procedures and repair methodology for metallic piping systems, including Pipes, Valves and Fittings installed in hydrocarbon industry.
25	OISD-STD-131	Inspection of Boilers	This standard covers the minimum inspection requirements for Fired & Unfired Boilers, and Auxiliary Equipment during operation and maintenance. Applicability of the standard is across the Oil & Gas Industry segment.
26	OISD-STD-132	Inspection of pressure relieving devices	This standard outlines the minimum inspection and testing requirements applicable to all pressure relieving devices including those for vacuum service used in the petroleum industry.
27	OISD-STD-133	Inspection of fired heaters	This standard covers the minimum inspection requirements for fired heaters used in petroleum industry.
28	OISD-STD-134	Inspection of heat exchangers	This standard covers minimum inspection requirements, types of inspections, inspection frequencies, inspection procedures and repair methodology for heat exchangers in hydrocarbon industry.
29	OISD-STD-135	Inspection of loading and unloading hoses for petroleum products	Inspection and testing requirements of various types of loading and unloading hoses including the marine hoses used in the petroleum Industry are covered in the standard.
30	OISD-STD-137	Inspection of electrical equipment	This standard specifies the minimum inspection requirements for the installed electrical systems in the Oil Industry, during their operation and maintenance with special reference to the safety aspects.
31	OISD-STD-140	Inspection of jetty pipelines	This standard provides the minimum inspection & maintenance requirements to assure the integrity for Jetty Pipelines used in transportation of crude oil, petroleum and petroleum related products.
32	OISD-STD-142	Inspection of firefighting equipment and systems	This standard covers the minimum design, construction, inspection and testing requirements of new and installed firefighting equipment and Installations in the petroleum Industry.
33	OISD-STD-145	Guidelines on Internal Safety Audits (Procedures and Checklist)	Detailed methodology along with frequencies for carrying out Internal Safety Audits in Oil & Gas Industry other than that the E&P Industry are enumerated in these guidelines.
34	OISD-STD-146	Preservation of idle electrical equipment	This document recommends minimum safe practices and procedures to be adopted for preservation of electrical equipment, which, after their repair/reconditioning, or overhaul are either

OISD Standards having applicability for Refineries & Oil/Gas Processing Plants			
#	Standard /GDN/RP	Description	Brief Scope / Coverage
			kept in storage or temporarily removed from service and kept at site.
35	OISD-STD-147	Inspection & safe practices during electrical installations	This document specifies the minimum inspection requirements and safe practices to be adhered to, in the case of new electrical installations during their erection stage itself.
36	OISD-STD-148	Inspection & safe practices during overhauling electrical equipment	This document recommends safe practices and procedures for overhauling major electrical equipment in the petroleum Industry.
37	OISD-RP-149	Design aspects for safety in electrical systems	This document recommends minimum requirements in the design and engineering of electrical installations in Refineries, Gas Processing Plants and Cross country Pipeline Installations with or without storage.
38	OISD-STD-150	Design and Safety Requirements For Liquefied Petroleum Gas Mounded Storage Facility	This standard lays down minimum requirements on safety, design, layout, installation, operation, maintenance and testing of aboveground fully mounded bulk vessels used for storage of Liquefied Petroleum Gas (LPG) installed in the refineries, gas processing plants, terminals, bottling plants and auto LPG dispensing stations otherwise falling under the scope of any of the OISD standards namely OISD-STD-144, OISD-STD-116, OISD-STD-118, OISD-GDN-169 and OISD-STD-210 as applicable.
39	OISD-STD-152	Safety instrumentation for process system in hydrocarbon industry	The document provides guidelines for minimum requirement of the Safety Instrumented System (SIS) for critical process functions / equipment involved typically in the widely used processing route of various processes. The document covers areas including process operations in onshore production facilities, gas processing units, refineries and petrochemical process plants.
40	OISD-STD-153	Maintenance & inspection of safety instrumentation in hydrocarbon industry	This standard covers safety instrumentation with pneumatic, hydraulic, electrical & electronic / microprocessor system used in oil & gas installations and which are responsible for pre-trip alarm and plant trip.
41	OISD-STD-154	Safety aspects in functional training	Safety aspects related to functional training in entire petroleum Industry is covered in this standard.
42	OISD-STD-155 (Part I)	Personal Protective Equipment : Part I Non-respiratory equipment	This standard is intended to serve largely as a guide for selection of appropriate PPE for different situations in the entire Oil & Gas Industry.
	OISD-STD-155 (Part II)	Personal Protective Equipment : Part II	

OISD Standards having applicability for Refineries & Oil/Gas Processing Plants			
#	Standard /GDN/RP	Description	Brief Scope / Coverage
		Respiratory Equipment	
43	OISD-STD-163	Process Control Room Safety	The requirements of this standard are applicable to Control Rooms in Petroleum Refineries, Oil/Gas Production & Process Plants, Marketing Terminals, LPG Filling Plants, Pipeline installations (including pumping/compressor stations) etc.
44	OISD-STD-164	Fire Proofing of Steel Supporting Structures in Oil & Gas Industry	This standard provides minimum requirements of passive fire proofing for steel supporting structures of on-shore installations for exploration & production, refineries, petrochemicals and marketing installations.
45	OISD-STD-166	Guidelines for Occupational Health Monitoring in Oil and Gas Industry	This document lays down minimum requirements for practicing Occupational Health Monitoring in petroleum refineries, oil/gas exploration / production/processing plants both offshore and onshore, cross country pipelines, LPG bottling plants and other petroleum handling facilities/installations.
46	OISD-STD-170	Inspection, Maintenance, Repairs and Rehabilitation of foundations and structures	This Recommended Practice (RP) intends to provide guidelines to the Oil Industry personnel with regard to the maintenance, inspection, repairs and rehabilitation of various civil structures and foundations.
47	OISD-STD-171	Preservation of Idle Static & Rotary Mechanical Equipment	This standard lays down the preservation procedures to be followed in oil and gas installations for various static and rotary idle mechanical equipment installed at plant and for the equipment/spares kept in stores.
48	OISD-STD-173	Fire Protection System for Electrical Installations	This document provides the minimum requirements for preventing fire hazard, containing and suppression of fire in the electrical installations in the petroleum, oil and gas sector. However, this standard does not cover off-shore oil installations and rigs. It also excludes onshore drilling rigs and well head installations.
49	OISD-STD-177	Inspection & Maintenance of Thermal Insulation	This standard lays down the minimum inspection/ maintenance practices and procedures adopted for external hot & cold insulation on static/ rotary and mobile equipment/vessels and pipelines in oil and gas industries.
50	OISD-GDN-178	Guidelines on Management Of Change	These guidelines describes the procedures to be adopted for systemic Management of Change in the entire Petroleum & Natural Gas Industry.
51	OISD-GDN-180	Lightning Protection	This document covers the lightning protection systems requirements in Oil and Gas industry with special references to safety aspects:

OISD Standards having applicability for Refineries & Oil/Gas Processing Plants			
#	Standard /GDN/RP	Description	Brief Scope / Coverage
52	OISD-GDN-192	Safety Practices During Construction	This document specifies broad guidelines on Health, Safety and Environment practices to be adhered to during construction activities including green field projects in oil industry.
53	OISD-GDN-196	Guidelines for Seeking Environmental Clearance of Development Projects in Petroleum Industry	The document is applicable to Oil Exploration, Drilling, Processing, Refining and Transportation Sectors.
54	OISD-GDN-197	Guidelines for Environmental Impact Assessment	The guidelines are applicable to all new/ development projects of oil drilling and gas extraction and processing facilities of onland and offshore areas of upstream petroleum sector, refining sector, LPG, LNG and other petroleum product facilities including marketing terminals of downstream sector including cross country pipeline (surface and sub-surface).
55	OISD-GDN-206	Guidelines on Safety Management System in Petroleum Industry	This document provides guidelines for development of detailed procedures for Safety Management System and covers the petroleum Industry as a whole.
56	OISD-GDN-207	Contractor Safety	This document covers broadly the guidelines on the HSE management system for enhancing the safety levels of the contractor workforce deployed in construction, maintenance and operation activities in the hydrocarbon industry.
57	OISD-GDN-211	Safety in Petroleum Laboratories	This document is applicable to the Quality Control, Quality Assurance and R&D laboratories of the Oil / Gas processing / handling industries viz. Refineries, Petrochemical complexes, gas processing plants, oil production, pipeline and marketing installations.
58	OISD-GDN-212	Guidelines on Environmental Audit in Downstream Petroleum Sector	The scope of these guidelines is limited to downstream petroleum sector facilities namely crude/product pipelines, oil refineries, gas processing plants and marketing installations. It does not cover the road / rail tanker transportation and retail outlets of oil and gas.
59	OISD-GDN-224	Monitoring & Control of Volatile Organic Compounds Emission	This document lays down guidelines for identification and control of fugitive VOC emissions.
60	OISD-GDN-228	Selection, Training & Placement of Fire Operators in Hydrocarbon & Petroleum Industry	The guidelines establish the requirements for developing and maintaining an effective program

Annexure–B

SN	Clause	Description in PNGRB standard	Relevant OISD Standard	OISD remarks
1	1.2 (o)	Location of emergency control center and alternate control center shall be identified and should be close to OHC, Fire control room and Security control center.	4.13.1 d of OISD-GDN-206	Emergency control room should be at safe area. In Refineries, generally ECR are set up outside battery area. Fire control rooms /OHCs are set up inside battery area. So condition of proximity of ECR to these facilities should be reviewed.
2	1.3.1 (c)	In case process units are operated in an integrated way and shutdowns are taken simultaneously, then it may be considered as a single block. Control room should be located in a non-hazardous area upwind of process plants / hydrocarbon storage and handling facilities. It shall not be located on a lower level than surrounding plants and tank farms. There shall be no structure that would fall on the control room in case of a blast	4.3 0f OISD-STD-163	Following Points may be added Control room shall be single storied building.
3	2.1.1.1 Installation of Safety Devices	(a) Inlet piping --------- inlet side. (b) The discharge side---------- safety valve. (c) Inlet and outlet of ---------- safety valve. (d) Inlet and outlet ---------- safety valve. (e) The discharge line ---------- pressure drop. (f) In vessels ---------- two-phase flow.	OISD-STD-106,clause no 6.3	Following points to be added: g) Isolation valves on the inlet and outlet of each safety valve shall be installed with some provision for keeping the isolation valves in open position with appropriate locking device. h) These isolation valves shall be installed with their stem pointing downwards or horizontal to avoid the possibility of a valve remaining stuck closed in case the stem becomes free.
4	2.1.1.4 Main Flare Knock-out Drum	Horizontal and vertical drums are both acceptable. The drums shall be sized to separate	Addition suggested in line with OISD-STD-	Horizontal and vertical drums are both acceptable. The drums shall be sized to separate out liquid droplets

SN	Clause	Description in PNGRB standard	Relevant OISD Standard	OISD remarks
		out liquid droplets of 300-600 microns size. The K.O. drums should be sized to provide liquid hold up of 20-30 minutes, which shall be recycled with the provision of pumps.	106,clause no 8.3.6	of 300-600 microns size. The K.O. drums should be sized to provide liquid hold up of 20-30 minutes, which shall be recycled with the provision of pumps. These pumps shall have provision of emergency drive (steam turbine or alternate source of power).
	2.2.1.1 Level:	Tanks shall be provided with at least two numbers of level instruments of which ~~one may be local and the other remote, located in control room or office~~. In addition, high/low level alarms with independent primary sensing device are recommended.	Changes suggested in line with OISD-STD-244,clause no 7.11 (ii)	Tanks shall be provided with at least two nos independent level instruments out of which one instrument shall be of radar gauge type and other one shall be either Servo type or radar type. In addition, high/low level alarms with independent primary sensing device are recommended.
6	3.1 Mechanical Completion of the Refinery projects Similarly, for 3.6.1 Activities in commissioning: First three activities below falls under pre-commissioning	Mechanical Completion activities consist of all non-operating activities. A typical list might be as follows --- --- Table given which includes responsibilities matrix also ---		Only list of activities to be kept. Responsibility matrix of contractor, operation and PMC to be removed as it all depends on the contract terms and may vary from company to company. It is not adding any safety to procedure.
7	7.3.2(iv)	Water flow rate requirements for firefighting in other major areas shall be calculated based on criteria *in terms of* lpm/ m2 given in section 5.9.		Section 5.9 is not related to the subject. Correct reference to be mentioned.
8	7.4.2	The capacity and number of main fire water pumps shall be fixed based on design fire water rate, worked out on the basis of design criteria as per section 5.2.		Section 5.2 is not related to the subject. Correct reference to be mentioned.

Legend – addition in green and deletion in red and strikethrough

SN	Clause	Description in PNGRB standard	Relevant OISD Standard	OISD remarks
	7.5.5(ii)	Fire water distribution ring main shall be sized for 120% of the design water rate. Design flow rates shall be distributed at nodal points to give the most realistic way of water requirements in an emergency. Several combinations of flow requirements shall be assumed for design of network. For large water requirement for floating roof tank (Annexure-VI), the network around tank farm shall be suitably designed		Annexure-VI is about the calculation of foam requirement not for water requirement
10	7.10.2	Provision of an automatic rim-seal protection system of foam flooding type shall be in line with the details mentioned at 4.2.3 and at Annexure-VII		Reference Annexure-VII mentioned is not available in TSS-Draft.
11	7.10.4	This can be suitably adjusted for different vapour seal chamber capacity in accordance with para 6.4 (iii).		Reference pr 6.4(iii) mentioned is not available in TSS-Draft.
12	7.10.10 Foam Compound Storage	Quantity of foam compound equal to 100% of requirement as calculated in 7.10.9 shall be stored in the Installation, subjected to a minimum of 60,000 litres. *However,* for installations having tankages larger than 60 M diameter, minimum of 77000 liters foam should be stored or foam sufficient to fight two major fires whichever is more.		Quantity of foam compound equal to 100% of requirement as calculated in 7.10.9 shall be stored in the Installation, subjected to a minimum of 60,000 (20000 in case of 1% foam) litres. *However,* for installations having tankages larger than 60 M diameter, minimum of 77000 (~26000 in case of 1% foam) liters foam should be stored or foam sufficient to fight two major fires whichever is more. (As 1% foam is considered, the minimum quantity of foam storage should be changed accordingly.)
13	9.2.1	Two types of Safety Audits are proposed to be carried out as below: (i) Internal Safety Audit		Two types of Safety Audits are proposed to be carried out as below: (i) Internal Safety Audit **(ii)** External Safety Audit

SN	Clause	Description in PNGRB standard	Relevant OISD Standard	OISD remarks
14	9.3.4	In Section-II of this document, detailed model Checklist covering important areas are given. It is suggested that oil industry members should adopt these model check lists for carrying out Internal Safety Audits.	5.4 of OISD-GDN-145	Reference section-II is not available in the document.
15	12.4.6	Permit authorization	OISD STD 105	Work permit authorization list shall be prepared and the same shall be approved by the operations head.
16	12.4.3	Permit to work system	OISD STD 105	Shall elaborate on who is the owner of the work permit?
		Issuer and receiver		Shall elaborate about roles and responsibilities of issuer and receiver

ANNEXURE - C

तेल उद्योग सुरक्षा निदेशालय
Oil Industry Safety Directorate
ISO 9001:2008 certified

तेल उद्योग सुरक्षा निदेशालय
OIL INDUSTRY SAFETY DIRECTORATE

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OISD/ENGG/GEN/22

07th April 2018

Subject: Views/Comments on the draft PNGRB (Technical Standards and Specifications including Safety Standards for LPG Storage, Handling and Bottling Facilities) Regulations, 2017.

Madam,

This has reference to the PNGRB communication No. Infra/T4S/LPG/3/2018 dated 26th March 2018 seeking views/ comments on the subject PNGRB Draft Regulation.

2. It may be mentioned that for the subject target area which is now being proposed by PNGRB, is a combination of following OISD standards which are already being followed by the entire Oil & Gas industry.

#	Standard	Description
1	OISD-STD-144	Liquefied Petroleum Gas (LPG) Installations.
2	OISD-GDN-169	Guidelines on Small LPG Bottling Plants (Design and Fire Protection facilities).
3	OISD-STD-150	Design and Safety Requirements for Liquefied Petroleum Gas Mounded Storage Facility.
4	OISD-RP-158	Recommended Practices on Storage and Handling of Bulk Liquefied Petroleum Gas.
5	OISD-STD-159	LPG Tank Trucks - Requirements of Safety on Design/ Fabrication and Fittings.
6	OISD-GDN-161	LPG Tank Truck Incidents: Rescue & Relief Operations.
7	OISD-STD-162	Safety in installation and maintenance of LPG cylinders manifold
8	OISD-STD-230	Unlined Underground Rock Cavern Storage for Petroleum Liquefied Petroleum Gas.
9	OISD-STD-236	Design, Layout, Operation & Maintenance of Refrigerated LPG Storage.

3. Among all the above mentioned standards, OISD-STD-144 & OISD-GDN-169 are already part of Gas Cylinder Rules, 2016 and OISD-STD-150 is a part of Static & Mobile Pressure Vessels (Unfired) Rules, 2016 and hence are already included in statutory regulations. Therefore, duplicated and diluted publication of PNGRB (Technical Standards and Specifications including Safety Standards for LPG Storage, Handling and Bottling Facilities) Regulations, 2017 will lead to contradiction between two statutory bodies, hence same does not serve any useful purpose to the industry.

4. In this context, we would like to mention that, to discuss the issue of duplication of already existing OISD standards in the entire gamut of P&NG industry viz. Refineries, Cross-country Pipelines, Marketing, Exploration & Production, LNG terminals etc., by PNGRB, a meeting was held under the Chairmanship of Joint Secretary (R), MoP&NG wherein the concerns of Ministry were conveyed to representative of PNGRB.

It may be mentioned that during the aforesaid meeting, it was deliberated that framing of another set of safety standards by PNGRB would not only result in duplication of efforts, but may also lead to confusion in the Industry about implementation of different standards.

Representative from PNGRB was requested to convey such observations of MoP&NG to the Board i.e. PNGRB. During the deliberations in the said meeting Chaired by JS(R), it was also discussed that in case it is felt by PNGRB that there are gaps in the Safety Standards developed by OISD; the same can be intimated to OISD for modification instead of framing the same standards de-novo.

5. Further, the issue of duplication of OISD Standards by PNGRB was also discussed in the 34th Safety Council Meeting held on 14th September 2017, wherein, during the deliberations, it was observed that in the larger interest of Safety, duplication of already existing and in practice OISD Standards by PNGRB is not required as this may lead to confusion in so far as the operators are concerned.

   Upon in depth deliberations in the aforesaid Safety Council Meeting, Secretary PNG and Chairman Safety council decided that Ministry shall again take up the matter with PNGRB and a separate meeting would be convened with the Board in near future.

6. It is to be noted that similar concern has been forwarded to PNGRB vide ref: EDS: OISD: MoP&NG: 01 dated 28.02.2018 (Annexure-A), regarding the duplication of OISD-STD-244, wherein PNGRB has been requested for reconsideration.

7. It is observed that OISD Standards cover various topics in much greater detail whereas the same is not there in T4S. For example, "LPG Tank Trucks: Requirement of safety on design / fabrication and fittings", "Piping Safety in installation and maintenance of LPG Cylinders Manifold" and "Small LPG Bottling Plants (Design and Fire Protection Facilities)" require in depth detailing in T4S to serve any useful purpose.

   It may be mentioned that "Piping Safety in installation and maintenance of LPG cylinders manifold" has been covered in a single page in the entire T4S which does not do justice to such installations which exist in residential complexes, restaurants and canteens located in malls, hotels, hospitals, nursing homes etc. On the other hand, OISD-STD-162, the document from which one page T4S has been derived, is meant for enhancing the safety of such installations is a very detailed document being followed by the sector extensively.

   In PNGRB T4S, heat detection based auto operated Sprinkler System with Deluge Valve has been prescribed only in case of LPG vessels and for all other areas T4S prescribes manual operated sprinkler system which is dilution of clause 5.9.1 of OISD-GDN-169. It may be mentioned that for small plants, bottling more than 20 MT LPG per day, latest amended OISD-GDN-169 prescribes heat detection based auto operated sprinkler system with deluge valve based fire protection for not only LPG storage vessels but also for other areas like LPG Sheds, TLD and LPG Pump & Compressor House etc. as there is definite time gap between manual mode and auto mode operation which can prove to be disastrous in case of fire.

   Receipt of bulk LPG through LPG pipeline in receiving location has not been covered in T4S. Whereas OISD specifies the regulations to be followed in OISD-STD-214: Cross Country LPG Pipelines.

8. We would like to reiterate that OISD Safety Standards are developed for safety critical subjects and 120 of such standards have already been developed by OISD. These Standards/ Guidelines/ Recommended Practices for the Oil and Gas sector are developed thru a participative process involving all the stakeholders (including the public at large), drawing inputs from international standards and adapting them to Indian conditions by leveraging the experience of the constituents.

   These standards are developed by a Functional Committee of experts from the Industry; are duly adopted by Steering Committee, and are finally approved by the 'Safety Council' which is the Apex body headed by Secretary of the Ministry of Petroleum & Natural Gas as its Chairman, and includes the Joint Secretaries and Advisors in the Ministry of Petroleum & Natural Gas, the CEOs of all the stakeholder organizations of both PSU's as well as Private/JV Oil Companies, the Chief Controller of Explosives and Advisor (Fire) to the Government of India and the Director General of Factory Advice, Service and Labour Institutes as members.

   In view of the foregoing, and in the larger interest of safety, it is requested that PNGRB may reconsider its decision of formulating a fresh set of Regulation for the same target areas where OISD Standards/ Recommendatory Practices/ Guidelines are already in place.

   In case it is felt by PNGRB that there are gaps in the Safety Standards developed by OISD; the same may please be intimated to OISD for modification instead of framing the same standards de-novo.

   Further, it may be mentioned that 21 OISD standards/ Guidelines/ Recommendatory Practices have been included in various statutes of the country viz the Petroleum Rules, 2002; the Gas Cylinder Rules, 2016; the Static & Mobile Pressure Vessels Rules, 2016 and the Oil Mines Regulations, 2017. It is suggested that on similar lines PNGRB may also like to notify relevant OISD standards in their Technical Standards and Specifications including Safety Standards (T4S) Regulations.

Sincerely Yours,

07/04/18.

(V J Rao)
Executive Director

Ms Vandana Sharma
Secretary
Petroleum & Natural Gas Regulatory Board (PNGRB)
First Floor, World Trade Centre
Babar Road, New Delhi – 110001

cc : Joint Secretary (Refineries), MoP&NG, New Delhi.