

Amendments in CGD IMS Regulations

Annexure-A

Ref: Public Notice No. PNGRB/Tech/13-IMSCGD/(1)/2019 dated 24.07.2020

SN in PN	Existing Clause No.	Existing Clause Description	Amendment proposed by PNGRB	GAIL's Comments with Justifications
	2. Definition	(d) "risk" means the risk as defined under the Petroleum and Natural Gas Regulatory Board (Codes of Practices for Emergency Response and Disaster Management Plan (ERDMP)) Regulations, 2010;	NA	<p>May be modified as:</p> <p>(d) "risk" means the measure of potential loss in terms of both the incident probability (likelihood) of occurrence and the magnitude of the consequences;</p> <p><i>In line with the amendments proposed by PNGRB in IMS for NG Pipelines, Regulations 2012, vide Public Notice no.: PNGRB/Tech/14-IMSNGPL/(1)/2019 dated 14.07.2020.</i></p>
	2. Definition	(e) "risk analysis" means the risk analysis as defined under the Petroleum and Natural Gas Regulatory Board (Codes of Practices for Emergency Response and Disaster Management Plan (ERDMP)) Regulations, 2010;	NA	<p>Proposed to be deleted</p> <p><i>In line with the amendments proposed by PNGRB in IMS for NG Pipelines, Regulations 2012, vide Public Notice no.: PNGRB/Tech/14-IMSNGPL/(1)/2019 dated 14.07.2020.</i></p>
	2. Definition	(f) "risk assessment" means the risk assessment as defined under the Petroleum and Natural Gas Regulatory Board (Codes of Practices for Emergency	NA	<p>May be modified as:</p> <p>(f) "risk assessment" means a systematic process in which potential hazards from facility operation are</p>

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		Response and Disaster Management Plan (ERDMP)) Regulations, 2010;		identified, and the likelihood and consequences of potential adverse events are estimated. Risk assessments can have varying scopes, and can be performed at varying levels of detail depending on the operator's objectives; <i>In line with the amendments proposed by PNGRB in IMS for NG Pipelines, Regulations 2012, vide Public Notice no.: PNGRB/Tech/14-IMSNGPL/(1)/2019 dated 14.07.2020.</i>
	2. Definition	(g) "risk management" means the risk management as defined under the Petroleum and Natural Gas Regulatory Board (Codes of Practices for Emergency Response and Disaster Management Plan (ERDMP)) Regulations, 2010;	NA	May be modified as: (g) "risk management" means an overall program consisting of identifying potential threats to an area or equipment; assessing the risk associated with those threats in terms of incident likelihood and consequences; mitigating risk by reducing the likelihood, the consequences, or both; and measuring the risk reduction results achieved; <i>In line with the amendments proposed by PNGRB in IMS for NG Pipelines,</i>

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				<i>Regulations 2012, vide Public Notice no.: PNGRB/Tech/14-IMSNGPL/(1)/2019 dated 14.07.2020.</i>
	2. Definition	--	--	A new definition is proposed to be added: (h) "sub transmission pipeline" means a high pressure pipeline connecting the main natural gas pipeline to the city gate station but is owned by the CGD entity;
2.	5. Objective	These Regulations outline the basic features and requirements for developing and implementing an effective and efficient integrity management plan for city gas distribution networks through -	These Regulations outline the basic features and requirements for developing and implementing an effective and efficient <i>integrity</i> management plan for making them reasonable and prudent operator of city gas distribution networks to manage its integrity and to continue providing safe and reliable delivery of natural gas to its customers through -	May be modified as: These Regulations outline the basic features and requirements for developing and implementing an effective and efficient management plan for making them reasonable and prudent operator of city gas distribution networks to manage its integrity and to continue providing safe and reliable delivery of natural gas to its customers through <i>Word integrity may be deleted to appropriate sentence meaning.</i>

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	6. Integrity Management System	Entity operating and maintaining CGD networks shall have the qualified manpower as indicated in Appendix III.	NA	<p>May be modified as:</p> <p>Entity operating and maintaining CGD network shall have a written plan / philosophy of deploying qualified and trained manpower at the installations based on activities required for compliance to this regulation.</p> <p><i>In line with the amendments proposed by PNGRB in IMS for NG Pipelines, Regulations 2012, vide Public Notice no.: PNGRB/Tech/14-IMSNGPL/(1)/2019 dated 14.07.2020.</i></p>
3.	8. Requirement under other statutes	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 the CGD networks.	It shall be necessary to identify and comply <i>list of</i> applicable statutory rules, regulations and Acts in force as applicable and requisite approvals shall be obtained from the relevant competent authorities for the CGD networks.	<p>May be modified as:</p> <p>It shall be necessary to identify and comply applicable statutory rules, regulations and Acts in force as applicable and requisite approvals shall be obtained from the relevant competent authorities for the CGD networks.</p> <p><i>Word 'list' of may be deleted to appropriate sentence meaning.</i></p>

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4.	Schedule 1	<p>Objective The objective of Integrity Management System (IMS) is to ensure the integrity of CGD networks at all times to ensure public protection of environment, maximum availability of CGD networks and also minimizing business risks associated with operations of gas network. The availability of the Integrity Management System will allow professionals and technicians in integrity tasks to ensure work plans and targets in the short, medium and long term horizon which in turn will improve their efficiency and satisfaction to attain them.</p>	<p>1.1. Objective The objective of Integrity Management System (IMS) <i>is to ensure the integrity of CGD networks at all times to ensure public protection of environment, optimal availability of CGD networks</i> and also minimizing <i>business</i> risks associated with operations of gas network. The availability of the Integrity Management System will allow professionals and technicians in integrity tasks to ensure work plans and targets in the short, medium and long term horizon which in turn will improve their efficiency and satisfaction.</p>	<p>May be modified as: 1.1. Objective The objective of Integrity Management System (IMS) is to ensure the integrity of CGD networks at all times to ensure protection of public and environment, optimal availability of CGD networks and also minimizing risks associated with operations of gas network. The availability of the Integrity Management System will allow professionals and technicians in integrity tasks to ensure work plans and targets in the short, medium and long term horizon which in turn will improve their efficiency and satisfaction.</p> <p>Sentence '<i>to ensure public protection of environment</i>' may be replaced as 'to ensure protection of public and environment' for clarity. Further word 'Business' may be considered for removal.</p> <p><i>Business Risk is having wide spectrum ranging from Economical, Financial,</i></p>

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				<i>Operation, Regulatory, Competition etc. The purpose of IMS System integrity requires commitment by all operating personnel using comprehensive, systematic, and integrated processes to safely operate and maintain pipeline systems (Reference ASME 31.8S & API 1160).</i>
5.	Schedule 1	<p>The IMS will enable the CGD operator to select an identified system for implementation such that the IMS will be uniform for all CGD entities within the country.</p> <p>An effective Integrity Management System shall be</p> <p>(d) optimizing the life of the CGD network with the inbuilt incident implementation of Integrity Management Plan (IMP) investigation and data collection including review by the entity.</p>	<p>The IMS will enable the CGD operator to select an identified system for implementation such that the IMS will be uniform for all CGD entities within the country.</p> <p>An effective Integrity Management System shall be</p> <p>(d) optimizing the life of the CGD network with <i>inbuilt incident implementation</i> of Integrity Management Plan (IMP) investigation and data collection including periodic review by the entity.</p>	<p>Sub Clause D may be modified as: An effective Integrity Management System shall be</p> <p>(d) Enhancing the life of the CGD network with implementation of Integrity Management Plan (IMP), Incident Analysis and data collection including periodic review by the entity.</p> <p><i>Meaning of inbuilt incident implementation is not defined.</i></p>

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	Schedule 4	<p>4.3 “Based on the development of CGD industry in India till date, the preparation of Prescriptive type Integrity Management System has been considered for implementation to all CGD networks in India.”</p> <p>... “a review mechanism may be considered by the Board for recommending a Performance Based Integrity Management System for CGD Networks.”</p>	--	<p>Existing sentences within quotations may be modified as:</p> <p>“However, Entity may adopt more rigorous IMP within a prescriptive IMP based on their in-house assessment.”</p> <p>.. “the Board may consider allowing a performance based IMP during subsequent revisions of IMS document for a network.”</p> <p><i>In line with the amendments proposed by PNGRB in IMS for NG Pipelines, Regulations 2012, vide Public Notice no.: PNGRB/Tech/14-IMSNGPL/(1)/2019 dated 14.07.2020.</i></p>
11	Schedule 6	Figure-1: CGD Network Integrity Management Plan - Flow Diagram	The updated flow diagram attached as Annexure-I .	A para on “Review assumptions used in Risk Assessment” and “Is risk assessment due or warranted based on review of assumptions?” may be provided in document for better understanding.
13.	Schedule 6	6.1.2 Identification of Threats: Gas pipeline incident data	6.1.2 Identification of Threats: Gas pipeline incident data analyzed and	Proposed to be categorized in accordance with Pipeline Research

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		<p>analyzed and classified by Pipeline Research Council International (PRCI) represents 22 root causes for threat to pipeline integrity. One of the causes reported by the operator is "unknown". The remaining 21 threats have been grouped into three groups based</p> <p>(III) Time independent Threats: 7) Third party /mechanical damage: i. Damage inflicted by first, second or third party (instantaneous /immediate failure) ii. Previously damaged pipe (delayed failure mode) iii. Vandalism iv. Rat bites v. Electric Arching</p>	<p>classified by Pipeline Research Council International (PRCI) represents 22 root causes for threat to pipeline integrity. One of the causes reported by the operator is "unknown". The remaining 25 threats have been grouped into three groups based</p> <p>(III) Time independent Threats: 7) Third party /mechanical damage: i. Damage inflicted by first, second or third party (instantaneous /immediate failure) ii. Previously damaged pipe (delayed failure mode) iii. Vandalism iv. Rat bites v. Electric Arching vi. Joint failures (particularly in PE pipeline) vii. AC / DC Interference</p>	<p>Council International (PRCI) to align with ASME 31.8S & API 1160. Sub threats may be covered under appropriate Section of Threat Category /'Unknown' based on the Incident Analysis by an entity.</p> <p><i>Electric Arching, Joint failures (particularly in PE pipeline) & AC / DC Interference may not be categorized as Third Party/Mechanical Damage</i></p>
	Schedule 6	<p>Besides the above, certain other threats may be applicable based upon the land pattern: i. Creek area effects</p>	--	<p><i>These can be clubbed with clause-9 as under:</i> 9) Weather related and outside force <i>i. Weather related</i></p>

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		ii. Muddy land effects iii. River bed movements		ii. <i>Lightening</i> iii. <i>Hydro technical: water-related threats including, but not limited to, liquefactions, flooding, channeling, scouring, erosions, floatation, breaches, surges, inundations, tsunamis, ice jams, frost heaves, and avalanches, creek area effects, river meandering, river bed / bank movement</i> iv. <i>Geotechnical: earth movement threats including, but not limited to, subsidence, extreme surface loads, seismicity, earthquakes, fault movements, mining, and mud and landslides, muddy land effects</i> v. <i>High wind</i> <i>In line with the amendments proposed by PNGRB in IMS for NG Pipelines, Regulations 2012, vide Public Notice no.: PNGRB/Tech/14-IMSNGPL/ (1)/2019 dated 14.07.2020.</i>
	Schedule 6	6.1.4 Probability rating – Probability rating may be determined by assigning appropriate scalable values for the probability of occurrence, based on industry experience	--	The existing para reproduced below is proposed to be deleted: ‘For example, a probability rating of scale 1 to 4, 1 to 5 or 1 to 6 may be applied, and probabilities may be characterized as weekly, monthly, half-

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		<p>and company's past experience.</p> <p>For example, a probability rating of scale 1 to 4, 1 to 5 or 1 to 6 may be applied, and probabilities may be characterized as weekly, monthly, half-yearly, yearly, etc. The rating shall be ascending for increasing probability of occurrence.</p>		<p>yearly, yearly, etc. The rating shall be ascending for increasing probability of occurrence'</p> <p><i>Entity may be given freedom to adopt one of the methodologies as suggested for Risk Assessment (Refer ASME 31.8 S). Such example may lead to confusion.</i></p>
14.	Schedule 6	<p>6.1.4 Risk Management and Risk Assessment Consequence rating – Consequence rating may be determined similarly by</p> <p>In the same way, business loss may be characterized in terms of increasing monetary impact. The rating shall be ascending for increasing impact.</p>	<p>6.1.4 Risk Management and Risk Assessment Consequence rating – Consequence rating may be determined similarly by</p> <p><i>In the same way, business loss may be characterized in terms of increasing monetary impact. The rating shall be ascending for increasing impact. An illustrative 6*6 matrix attached as Appendix IV may be used to carry out the risk assessment. A typical risk register is attached as Appendix V.</i></p>	<p><i>Word 'Business' may be replaced with the word 'Operational'.</i></p> <p><i>The Matrix as proposed seems to evaluate Enterprise Risk Assessment which is a holistic approach to identify the Business Risk. The methodology adopted through Risk Matrix does not represent the Pipeline Threats, which necessitate the development of Integrity Management System.</i></p> <p><i>This methodology may not be depicted as Prescriptive and Performance based type of Integrity Management System.</i></p>

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				<i>Entity may be given freedom to adopt one of the methodology as suggested for Risk Assessment (Refer ASME 31.8 S). Such example may lead to confusion.</i>
15.	Schedule 6	<p>6.1.4 Risk Management and Risk Assessment</p> <p>A company should carry out the following activities as part of risk assessment (a) Carry out Cathodic Protection system and CP adequacy survey for distribution pipelines and categorize the anomalies detected On the basis of risk levels; (b) Carry out periodic analysis to determine the level of risks to assets (as an input to asset replacement activity); (c) Risk analysis and assessment for all reported asset-related incidents and Findings (including incidental steel pipeline and MDPE exposures,</p>	<p>6.1.4 Risk Management and Risk Assessment</p> <p>.....</p> <p>Entity to Prepare, maintain and update a register of known risks to assets, including their risk rating.</p> <p>(a) For Stable threats</p> <p>(b) For Time Dependent and time Independent threats,</p> <p>Stable threats are normally threats which have fixed mitigation measures mostly are policy and procedural based and mostly global/generic in nature whereas Time dependent and time independent are dynamic in nature also they are specific to a section of pipeline or to the specific equipment. A typical risk register is attached as Appendix V. Prioritization involves</p>	Proposed to be reviewed in accordance with comments given at Reference Sr. 14.

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		<p>or excavation); (d) Prepare, maintain and update a register of known risks to assets, including their risk rating.</p> <p>Prioritization usually involves sorting risk ratings in decreasing order. For initial efforts and screening purposes, risk results could be evaluated simply on a "high-medium-low" basis or as a numerical value. When segments being compared have similar risk values, the failure probability and consequences shall be considered separately. Factors including line availability (flow stoppage options) and system throughput requirements can also influence prioritization.</p>	<p>sorting risk ratings in decreasing order. For initial efforts and screening purposes, risk results could be evaluated simply on a "high-medium-low" basis or as a numerical value. Identified high risk activities may be taken up as part of annual improvement plan (Also called asset integrity improvement plan) for close monitoring.</p>	
16	Schedule 6		<p>6.1.5.1 Integrity Assessment Tools ...</p> <p>(a) Direct assessment and evaluation</p>	<p>Name of the tool may be modified as</p> <p>(a) Direct assessment</p> <p><i>(correction as per name of the tool)</i></p>

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16	Schedule 6	Integrity Assessment Tools	<p>(h) Incident Investigations and Root cause analysis Entity shall record identity these failures Other proven integrity assessment methods for pipeline may exist for use in managing the integrity of pipeline. For the purpose of these regulations, it is acceptable for an operator to use these inspections as an alternative to pressure testing or direct assessment.</p>	<p>The para “Other proven as an alternative to pressure testing or direct assessment” may be moved under 6.1.5.1 as below:</p> <p>(c) Other Integrity Assessment Methodology: Other proven integrity assessment methods for pipeline may exist for use in managing the integrity of pipeline. For the purpose of these regulations, it is acceptable for an operator to use these inspections as an alternative to pressure testing or direct assessment.</p>
17.	Schedule 6	<p>6.1.6 Responses and Mitigation. This section covers the schedule of responses to the indications obtained by inspection, repair activities that can be affected to remedy or eliminate an unsafe condition, preventive actions that can be taken to reduce or eliminate a threat to the integrity of a CGD Network, and establishment of the future inspection intervals. Such</p>	<p>6.1.6 Responses and Mitigation. This section covers the schedule of responses to the abnormalities identified during inspections and maintenance activities as defined in the schedule 6.1.5.</p> <p><i>A tracker sheet may be developed</i> to capture the abnormalities, response plan and schedule for the closures remedy or eliminate an unsafe condition, and establishment of the</p>	<p>The existing Para “A Tracker following categories” may be modified as:</p> <p>A procedure should be developed to capture the abnormalities, response plan and schedule for the closures remedy or eliminate an unsafe condition, and establishment of the future inspection intervals. Such responses may be classified into the following categories.</p>

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		<p>responses may be immediately implemented, scheduled over a period of time or the system may be simply monitored based on the inspection outcome. Some of the mitigation actions are listed below</p> <p>(a)..... (b)..... (c).....</p>	<p>future inspection intervals. Such responses may be classified into the following categories</p> <ul style="list-style-type: none"> • Immediately implemented • Scheduled over a period of time • Simply monitored based on the inspection outcome. <p>Some of the mitigation actions are listed below</p> <p>(a)..... (b)..... (c).....</p> <p>A typical tracking sheet is attached as Appendix VI.</p>	<p><i>A procedure for Responses and Mitigation is mandatory which requires capturing the abnormalities, repose plan, actions etc. It may be in form of Tracker Sheet.</i></p>
18.	Schedule 6	<p>6.2 Performance Plan. A list of items is provided below in developing a company integrity management and performance evaluation programme</p> <p>9) Periodic internal audits shall</p>	<p>6.2 Performance Plan A list of items is provided below in developing a company integrity management and performance evaluation programme</p> <p>9) <i>Periodic internal audits shall be conducted to evaluate the</i></p>	<p>Para may be modified as:</p> <p>9) Periodic internal audits shall be conducted to evaluate the effectiveness of the integrity management plan and identify the improvement areas, if any. The compliance of internal audits recommendations should be ensured in time bound manner.</p>

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		be used to provide an effective basis for Evaluation of the integrity management program.	<i>effectiveness of the integrity management plan. The findings of this audit shall be used to further upgrade the integrity management plan to enhance its effectiveness.</i>	
19.	Schedule 6	6.4 Management of Change Plan. Formal management of change procedures shall be developed in order to identify and consider the impact of changes to CGD network systems and their integrity.	6.4 Management of Change Plan. Formal management of change procedures shall be developed in order to identify and consider the impact of changes to CGD network systems and their integrity. <i>Change should also include the changes in specification of materials used for either network or equipment's.</i>	Para may be modified as: 6.4 Management of Change Plan. Formal management of change procedures shall be developed in order to identify and consider the impact of changes to CGD network systems and their integrity. This documented procedure should include systemic management of <ul style="list-style-type: none"> • Change of process / technologies, • Changes of personnel, • Change of operating procedures, • Change in working environment
20.	Schedule 6	6.5 Quality Control Plan (3) Prepare standard operation procedures and guidelines for critical processes (e.g. operation, maintenance, projects etc);	6.5 DOCUMENTATION, RECORDS AND CONTROL (3) Prepare standard operation procedures and guidelines for critical processes including Non-routine	Para may be modified as : (3) Prepare standard operating procedures and guidelines for critical processes including Non-routine, maintenance, projects etc.;

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			operating processes (e.g. operation, maintenance, projects etc);	
	Schedule 9	Review of The Integrity Management System		<i>Existing Schedule 9 may be adopted in line with the amendments proposed by PNGRB in IMS for NG Pipelines, Regulations 2012, vide Public Notice no.: PNGRB/Tech/14-IMSNGPL/(1)/2019 dated 14.07.2020.</i>
	Schedule 10	Adequacy of Manpower positioned at different stage of project		<i>Existing Schedule 10 may be adopted In line with the amendments proposed by PNGRB in IMS for NG Pipelines, Regulations 2012, vide Public Notice no.: PNGRB/Tech/14-IMSNGPL/(1)/2019 dated 14.07.2020.</i>
	Appendix			An Appendix for “ SUGGESTIVE CHART FOR SELECTION OF INTEGRITY ASSESSMENT / MANAGEMENT METHODS* WITH RESPECT TO SPECIFIC THREAT ” (only those applicable for CGD network) may be added similar to the one <i>proposed by PNGRB in IMS for NG Pipelines, Regulations 2012, vide Public Notice no.: PNGRB/Tech/14-IMSNGPL/(1)/2019 dated 14.07.2020</i>