

		Amendments in CGD IMS Regulations		
Sr. No.	Clause No.	Existing clause	Proposed clause	GGL comments
1	2. Definitions	add	(h) "Shall" indicates that the provision in which it occurs is mandatory; (i) "Should" Indicates that the provision in which it occurs is recommendatory but not mandatory;	Agreed Definitions for "risk", "risk assessment" and "risk management" to be aligned in line with the definitions in proposed amendment of IMS NGPL.
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 integrity 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 -	These Regulations outline the basic features and requirements for developing and implementing an effective and efficient integrity management plan for making them reasonable responsible 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 -
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 list of 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.	It shall be necessary to identify and comply with all list of 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.
4	SCHEDULES-1	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.	1.1. 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, optimal 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.	Agreed
5	SCHEDULES-1	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. An effective Integrity Management System shall be - (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.	1.2. 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. 1.3. An effective Integrity Management System shall be - (d) optimizing the life of the CGD network with inbuilt incident implementation of Integrity Management Plan (IMP) investigation and data collection including periodic review by the entity.	1.2.The IMS will enable the CGD operator to select an identified system for implementation such that the framework of IMS will be uniform for all CGD entities within the country. 1.3.An effective Integrity Management System shall be - (a) ensuring the quality-integrity of CGD network and associated facilities integrity in all areas which have potential for adverse consequences; (b) promoting a more rigorous and systematic management of CGD network integrity and mitigate the risk; (c) Increasing the general confidence of the public in operation of CGD network; (d) Optimizing-enhancing the life of the CGD network with the inbuilt incident /failure implementation of Integrity Management Plan-(IMP) investigation and data collection including[a6] periodic review by the entity.

6	SCHEDULE 2	<p>2.3 Such a comprehensive integrity management system essentially comprises of the following elements -</p> <p>(a) Integrity Management Plan (IMP): This encompasses collection and validation of data, assessment of spectrum of risks, risk ranking, assessment of integrity with reference to risks, risks mitigation, updation of data and reassessment of risk;</p> <p>(b) Performance evaluation of Integrity Management Plan: This is a mechanism to monitor the effectiveness of integrity management plan adopted and for further improvement;</p> <p>(c) Communication Plan: This covers a structured plan to regulate information and data exchange within and amongst the internal and external environment;</p> <p>(d) Management of Change: This is the process to incorporate the system changes (technical physical, procedural and organization changes) in to integrity management plan to update the integrity management plan;</p> <p>(e) Quality Control: This is the process to establish the requirements of quality in execution of the processes defined in the integrity management plan.</p> <p>These elements are further detailed in Schedule 6.</p>		Agreed
7	SCHEDULE 3	<p>3.1 Physical description. Description of CGD Network should include specific description of the primary networks, secondary and tertiary networks with respect to design specifications, length, major installations details such as:</p> <p>3.1.1 Sub Transmission Pipeline (STPL) 3.1.2 City Gas Station (CGS) 3.1.3 Odorization System 3.1.4 Steel pipeline networks 3.1.5 Secondary PE networks 3.1.6 Tertiary networks, PE, GI and/ or copper 3.1.7 District Regulating Station (DRS) 3.1.8 Isolation Valves (Steel, PE) 3.1.9 CNG station-Mother, Online, Daughter Booster Station (DBS) 3.1.10 Individual Pressure Regulating Station (IPRS), Common Pressure Regulating Station (CPRS), Metering Station (MRS) 3.1.11 Control room and/or Master Control Station (if any) 3.1.12 Instrumentation and Electrical systems 3.1.13 Supervisory Control and Data Acquisition (if any) 3.1.14 Safety Equipments 3.1.15 Customer base (PNG, CNG, Industrial and Commercial)</p>	<p>3.1 Physical description. Description of CGD Network should include specific description of the primary networks, secondary and tertiary networks with respect to design specifications, length, major installations details such as:</p> <p>3.1.1 Sub Transmission Pipeline (STPL) 3.1.2 City Gas Station (CGS) 3.1.3 LNG/ LCNG dispensing stations 3.1.4 Odorization System 3.1.5 Steel pipeline networks 3.1.6 Secondary PE networks 3.1.7 Tertiary networks, PE, GI and/ or copper 3.1.8 District Regulating Station (DRS) 3.1.9 Isolation Valves (Steel, PE) 3.1.10 CNG station-Mother, Online, Daughter Booster Station (DBS) 3.1.11 Compressor at CNG stations 3.1.12 Cascade & Cascade Transport Vehicle (CTV) 3.1.13 Individual Pressure Regulating Station (IPRS), Common Pressure Regulating Station (CPRS), Metering Station (MRS) 3.1.14 Control room and/or Master Control Station (if any) 3.1.15 Instrumentation and Electrical systems 3.1.16 Supervisory Control and Data Acquisition (if any) 3.1.17 Safety Equipments 3.1.18 Customer base (PNG, CNG, Industrial and Commercial)</p>	<p>3.2 Physical description. Description of CGD Network should include specific description of the primary networks, secondary and tertiary networks with respect to design specifications, length, major installations details such as:</p> <p>3.2.1 Sub Transmission Pipeline (STPL) 3.2.2 City Gas Station (CGS) 3.2.3 LNG/ LCNG dispensing stations 3.2.4 Odorization System 3.2.5 Steel pipeline networks 3.2.6 Secondary PE networks 3.2.7 Tertiary networks, PE, GI and/ or copper 3.2.8 District Regulating Station (DRS) 3.2.9 Isolation Valves (Steel, PE) 3.2.10 CNG station-Mother, Online, Daughter Booster Station (DBS) 3.2.11 Compressor at CNG stations 3.2.12 Cascade & Cascade Transport Vehicle (CTV) 3.2.13 Individual Pressure Regulating Station (IPRS), Common Pressure Regulating Station (CPRS), Metering Station (MRS) 3.2.14 Control room and/or Master Control Station (if any) 3.2.15 Instrumentation and Electrical systems 3.2.16 Supervisory Control and Data Acquisition (if any) 3.2.17 Safety Equipments Customer base (PNG, CNG, Industrial and Commercial installations)</p>

8	SCHEDULE 3	<p>3.2 Other description.</p> <p>3.2.1 Interfaces with other Geographical Area / pipeline / Facilities (if available);</p> <p>3.2.2 Incident reporting;</p> <p>3.2.3 Information on Documentation Relating to design, construction, operations, maintenance, etc.;</p> <p>3.2.4 Statutory requirements.</p>	<p>3.2 Other description.</p> <p>3.2.1 Interfaces with other Geographical Area / pipeline / Facilities (if available);</p> <p>3.2.2 Information on Documentation Relating to design, construction, operations, maintenance, etc.;</p>	Agreed
9	SCHEDULE 4	<p>4.2 Though subsequent schedule in these regulations apply to both prescriptive and performance based type of Integrity Management System, present regulations mainly focus on prescriptive aspects in absence of adequate historical Integrity Management System data.</p>	<p>4.2 Though subsequent schedule in these regulations apply to both prescriptive and performance based type of Integrity Management System, present regulations mainly focus on prescriptive aspects in absence of adequate historical Integrity Management System data. However, the industry can adopt the performance based typed of Integrity Management System based on analysis of the baseline data and subsequent trends.</p>	Agreed
10	SCHEDULE 5	<p>SCHEDULE 5</p> <p>Integrity Assessment Tools</p> <p>Some of the tools for Integrity assessment are provided below. The operator should use as many support systems necessary to achieve the Integrity Management Plan for CGD networks. It may be noted that the baseline data for specific measurement should be available with the operator as a ready-reckoner:</p> <p>.....</p> <p>.....</p> <p>Such other methods for integrity assessment may be also adopted by the CGD entity as it thinks fit, apart from the above mentioned ones.</p>	Removed and added in Schedule 6.1.5	Agreed
11	SCHEDULE 6	<p>Figure-1: CGD Network Integrity Management Plan - Flow Diagram</p>	The updated flow diagram attached as Annexure-I .	<p>Rename as Schedule 5.</p> <p>Flow (Yes/No) from decision box not mentioned.</p>
12	SCHEDULE 6	<p>6.1.1 Initial data gathering, review and integration.</p> <p>.....</p> <p>.....</p> <p>Four aspects should be visualized during data collection:</p> <p>1) Data alignment</p> <p>Integration of disparate data sources to a common location. This helps in pinpointing risks to be attended.</p>	<p>6.1.1 Initial data gathering, review and integration.</p> <p>.....</p> <p>.....</p> <p>Four aspects should be visualized during data collection:</p> <p>1) Data alignment</p> <p>Integration of disparate data sources to a common location (GIS). This helps in pinpointing risks to be attended.</p>	<p>Re-number as 5.1.1</p> <p>Re-numbering of further schedules to be done accordingly.</p>

13	SCHEDULE 6	<p>6.1.2 Identification of Threats: Gas pipeline incident data 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>.....</p> <p>.....</p> <p>(III) Time independent Threats:</p> <p>7) Third party /mechanical damage:</p> <p>i. Damage inflicted by first, second or third party (instantaneous /immediate failure)</p> <p>ii. Previously damaged pipe (delayed failure mode)</p> <p>iii. Vandalism</p> <p>iv. Rat bites</p> <p>v. Electric Arching</p>	<p>6.1.2 Identification of Threats: Gas pipeline incident data 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 25 threats have been grouped into three groups based</p> <p>.....</p> <p>.....</p> <p>(III) Time independent Threats:</p> <p>7) Third party /mechanical damage:</p> <p>i. Damage inflicted by first, second or third party (instantaneous /immediate failure)</p> <p>ii. Previously damaged pipe (delayed failure mode)</p> <p>iii. Vandalism</p> <p>iv. Rat bites</p> <p>v. Electric Arching</p> <p>vi. Joint failures (particularly in PE pipeline)</p> <p>vii. AC / DC Interference</p>	Agreed
14	SCHEDULE 6	<p>6.1.4 Risk Management and Risk Assessment</p> <p>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</p> <p>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. 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.</p>	<p>6.1.3 It is proposed to add paragraph on additional measures for “potential impact areas” like Enhancing safety awareness and Do’s and Don’ts in case of gas smell and their role in prevention of damage to the pipeline network. Increasing the frequency of odorant smell check, leak detection, patrolling in potential impact areas etc.</p>

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 -</p> <p>(a) Carry out Cathodic Protection system and CP adequacy survey for distribution pipelines and categorize the anomalies detected on the basis of risk levels;</p> <p>(b) Carry out periodic analysis to determine the level of risks to assets (as an input to asset replacement activity);</p> <p>(c) Risk analysis and assessment for all reported asset-related incidents and findings (including incidental steel pipeline and MDPE exposures, or excavation);</p> <p>(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>6.1.4 Risk Management and Risk Assessment</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 where as 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.</p> <p>Prioritization 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. Identified high risk activities may be taken up as part of Annual improvement plan (Also called asset integrity improvement plan) for close monitoring.</p>	Agreed
16	SCHEDULE 6	<p>A plan shall be developed to address the most significant threats/risks as per previous section and determine appropriate integrity assessment methods to assess the integrity of the CGD Network. The following methods can be used for Integrity Assessment -</p> <p>(a) Hydro testing at test pressure as per T4S standards;</p> <p>(b) External Corrosion Direct Assessment(ECDA);</p> <p>(c) Cathodic protection system surveys etc.</p> <p>Brief description of various Integrity Assessment methods has been also provided in Schedule 5 of these regulations.</p>	<p>6.1.5.1 Integrity Assessment Tools</p> <p>Some of the tools for Integrity assessment are provided below. The operator may use either of the methods a or b for integrity assessment techniques and and as many monitoring tools support systems necessary from c to h to achieve the Integrity Management Plan for CGD networks, maintaining the compliance with PNGRB T4S regulations It may be noted that the baseline data for specific measurement should be available with the operator as a ready-reckoner:</p> <p>(a) Direct assessment and evaluation</p> <p>Direct assessment is an integrity assessment method utilizing a structured process through which the operator is able to integrate knowledge of the physical characteristics and operating history of a pipeline system or segment with the results of inspection, examination, and evaluation, in order to determine the integrity.</p>	Agreed

<p>External Corrosion Direct Assessment (ECDA) can be used for determining integrity for the external corrosion threat on CGD network segments. The entity may use NACE SP0502 to conduct ECDA. The ECDA process integrates facilities data, and current and historical field inspections and tests, with the physical characteristics of a pipeline. Nonintrusive (typically aboveground or indirect) inspections are used to estimate the success of the corrosion protection. The ECDA process requires direct examinations and evaluations. Direct examinations and evaluations confirm the ability of the indirect inspections to locate active and past corrosion locations on the pipeline. Post-assessment is required to determine a corrosion rate to set the reinspection interval, reassess the performance metrics and their current applicability, and ensure the assumptions made in the previous steps remain correct. The External Corrosion Direct Assessment process has the following four components :</p> <ul style="list-style-type: none"> (a) Pre-assessment (b) Inspections (c) Examinations and evaluations (d) Post-assessment <p>While implementing External Corrosion Direct Assessment and when the pipe is exposed, the company is advised to conduct examinations for threats other than that for external corrosion also (like mechanical and coating damages)</p>	
<p>(b) Pressure testing</p> <p>Pressure testing is appropriate for integrity assessment when addressing certain threats, at the pre-commissioning stage and subsequent testing after a pipeline has been put in service. Pressure testing shall comply with the requirements of applicable Petroleum and Natural Gas Regulatory Board regulations.</p> <p>6.1.5.2 Monitoring Tools (O&M)</p> <p>(c) Thickness assessment and periodic review against baseline values</p> <p>Periodic thickness assessment for all CGD network skids, station piping and pressure vessels and comparison to baseline values shall be done once a year. In absence of baseline data first recorded data or design data shall be taken as baseline value with a sound engineering judgment to ensure that the data are within the specified limits as per the design.</p>	<p>Agreed</p>

<p>Whenever a pipeline is exposed, the entity shall take opportunity to examine the coating and pipe condition by conducting Visual examination, thickness testing and other NDT methods as suitable which can be recorded in GIS/SAP or as suitable. The examination may not be repeated for a similar pipeline segment (but after long time gap, if opportunity exist on same segment then examination can be repeated) . The preparation of segments may be carried out as per Table 5 Example of Integrity Management Plan for Hypothetical Pipeline Segment (Segment Data: Line 1, Segment 3) of ASME B31.8S.</p> <p>(d) Patrolling Patrolling along the Right of Use which includes valve locations and other pipeline facilities, helps to observe pipeline markers, surface conditions, construction activity performed by external agencies, encroachments, soil washouts and any other factors affecting the safety and operation of the pipeline and other specific indication marks along the pipeline</p>	
<p>(e) Leakage Surveys Operating company must have an effective method to identify and locate leakages in the system. Any one or combination of methods described in ASME B 31.8, Appendix M can be adopted based on their effectiveness for the specific areas Leakage Surveys using gas detectors shall be done in accordance with the requirements of ASME B 31.8. Gas detectors, duly calibrated, shall be available at all times in ready use conditions for emergency surveys and use.</p> <p>(f) Cathodic protection systems surveys Cathodic Protection adequacy survey shall be carried out so as to cover the entire steel network of pipelines so as to detect insufficient Cathodic Protection levels and other irregularities and anomalies in the steel pipeline. Suitable procedures shall be established by the operator to account for adequate Cathodic Protection levels to pipeline extensions and new projects.</p>	<p>Agreed</p>

		<p>(g) Annual maintenance plan covering the following activities</p> <p>PNG maintenance</p> <ul style="list-style-type: none"> • Service regulators • Domestic connections • GIRiser maintenance <p>CNG/LNG/ LCNG Maintenance</p> <ul style="list-style-type: none"> • Compressors • Pumps • Dispensers • Cascade cylinder testing (inline with gas cylinder rule) 	<p>(g) Annual operation & maintenance plan covering the following activities</p> <p>PNG maintenance</p> <ul style="list-style-type: none"> • Service regulators • Domestic/Commercial/Industrial connections as per defined battery limit • GIRiser maintenance <p>CNG/LNG/ LCNG Maintenance</p> <ul style="list-style-type: none"> • Compressors • Pumps • Dispensers • Cascade cylinder testing (inline with gas cylinder rule)
		<p>Network Maintenance</p> <ul style="list-style-type: none"> • Functional testing of CPRS/DPRS/DRS (Periodic stream changeover) • Calibrations of critical inspection, measuring and test instruments (Entity to identify a set of their own safety critical equipment's) • Valve chamber Maintenance • Greasing and operations of valves • Operation and maintenance of Odorant system • Cathodic protection monitoring • Inspection of casings at crossings • Monitoring of Anode Junction box, cathode junction box, Transformer rectifier unit, Insulation Joint • Monitoring of HT crossing, river crossing, foreign pipeline crossing • On/Off PSP monitoring of the CP 	<p>Network Maintenance</p> <ul style="list-style-type: none"> • Functional testing of CPRS/DPRS/DRS / IPRS (Periodic stream changeover) • Calibrations of critical inspection, measuring and test instruments (Entity to identify a set of their own safety critical equipment's) • Valve & valve chamber Maintenance • Greasing and operations of valves • Operation and maintenance of Odorant system • Cathodic protection monitoring & maintenance <ul style="list-style-type: none"> • Inspection of casings at crossings • Monitoring of Anode Junction box, cathode junction box, Transformer rectifier unit, Insulation Joint • Monitoring of HT crossing, river crossing, foreign pipeline crossing • On/Off PSP monitoring of the CP
		<p>(h) Incident Investigations and Root cause analysis</p> <p>Entity shall record high potential asset damage and failures to identify repetitive failures leading to initiation of investigation/RCA such failures can be recorded in GIS/SAP or as suitable. Performance indicators can be used as a source to identify these failures</p> <p>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>Such other methods for integrity assessment may be also adopted by the CGD entity as it thinks fit, apart from the above mentioned ones.</p>	<p>Agreed</p>

17	SCHEDULE 6	<p>6.1.6 Responses and Mitigation.</p> <p>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 responses may be immediately implemented, scheduled over a period of time or the system may be simply monitored based on the inspection outcome.</p> <p>Some of the mitigation actions are listed below - (a)..... (b)..... (c).....</p>	<p>6.1.6 Responses and Mitigation.</p> <p>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>A tracker sheet may 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> <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 - (a)..... (b)..... (c).....</p> <p>A typical tracking sheet is attached as Appendix VI.</p>	Agreed
18	SCHEDULE 6	<p>6.2 Performance Plan.</p> <p>.....</p> <p>A list of items is provided below in developing a company integrity management and performance evaluation programme - </p> <p>9) Periodic internal audits shall be used to provide an effective basis for evaluation of the integrity management program.</p>	<p>6.2 Performance Plan</p> <p>.....</p> <p>A list of items is provided below in developing a company integrity management and performance evaluation programme - </p> <p>9) Periodic internal audits shall be conducted to evaluate the 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.</p>	Suggestive list of performance indicators may be provided.
19	SCHEDULE 6	<p>6.4 Management of Change Plan.</p> <p>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.</p>	<p>6.4 Management of Change Plan.</p> <p>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.</p> <p>Change should also include the changes in specification of materials used for either network or equipment's.</p>	Agreed
20	SCHEDULE 6	<p>6.5 Quality Control Plan</p> <p>.....</p> <p>(3) Prepare standard operation procedures and guidelines for critical processes (e.g. operation, maintenance, projects etc); </p>	<p>6.5 DOCUMENTATION, RECORDS AND CONTROL</p> <p>.....</p> <p>(3) Prepare standard operation procedures and guidelines for critical processes including Non-routine operating processes (e.g. operation, maintenance, projects etc); </p>	Agreed

21	SCHEDULE 7	<p>Approval of Integrity Management System (IMS)</p> <p>A CGD networks Integrity Management System is a management plan in the form of a document that explains to operator's employees, customers, regulatory authorities, etc., how the operator and its assets are managed, by stating:</p> <p>(a)..... (e).....</p> <p>The document shall be agreed at Board level of the entity, constantly and systematically reviewed and updated.....</p>	<p>Approval of Integrity Management System (IMS)</p> <p>A CGD networks Integrity Management System is a management plan in the form of a document that explains to operator's employees, customers, regulatory authorities and all those who will be directly or indirectly affected by our activities, how the operator and its assets are managed, by stating:</p> <p>(a)..... (e).....</p> <p>The document shall be agreed at Board level of the entity, periodically reviewed and updated.....</p>	Agreed
22	SCHEDULE 7	<p>7.1 Management Approval.</p> <p>.....</p> <ul style="list-style-type: none"> • Step#3: Provisionally approved by Head of Operation team of the entity • Step#4: Conformity of Integrity Management System document with the Regulation by Third Party Inspection Agency (TPIA) and duly approved by CEO or Full time Director of the Entity <p>7.2 Acceptance by Petroleum and Natural Gas Regulatory Board.</p> <ul style="list-style-type: none"> • Step#5: Acceptance by Petroleum and Natural Gas Regulatory Board 	<p>7.1 Management Approval.</p> <p>....</p> <ul style="list-style-type: none"> • Step#3: Provisionally approved by Head of Operation /Maintenance team of the entity • Step#4: Verification of Conformity of Integrity Management System document with the Regulation by Third Party Inspection Agency (TPIA) and duly approved by CEO or Full time Director of the Entity • Step#5: Approval of Integrity Management System document for implementation by the Board of the entity for the first time and approval of subsequent periodic review by CEO or Full-time Director of the entity 	<p>7.1 Management Approval.</p> <p>....</p> <ul style="list-style-type: none"> • Step#3: Provisionally approved by Head of Operation /Maintenance team of the entity • Step#4: Verification of Conformity of Integrity Management System document with the Regulation by Third Party Inspection Agency (TPIA) and duly approved by Head-Operations, CEO or Full time Director of the Entity Step#5: Approval of Integrity Management System document for implementation by the Board of the entity for the first time and approval of subsequent periodic review by CEO or Full-time Director of the entity
23	SCHEDULE 7	<p>7.3 Approval for Implementation.</p> <ul style="list-style-type: none"> • Step#6: Approval of integrity management system document for implementation by the Board of the entity for the first time and approval of subsequent periodic review by CEO or Full time Director of the entity. <p>Note: A certificate regarding the approval of integrity management system document duly approved as specified at clause no. 7.1 above shall be submitted to the Petroleum and Natural Gas Regulatory Board that the CGD network integrity management system is in line with the requirements of the various regulations issued by the Petroleum and Natural Gas Regulatory Board from time to time and has been approved by the CEO or Full time Director of the company.</p>	<p>Step#6: Submission of approved IMS document along with confirmation from entity of its implementation to PNGRB.</p>	Agreed
24	SCHEDULE 8	<p>2 Preparation of Integrity Management System document and approval by Head of Operation team of the entity.</p> <p>1 year from date of notification of the Petroleum and Natural Gas Regulatory Board (Integrity Management System for City or Local Natural Gas Distribution Networks) Regulations, 2013</p>	<p>2 Preparation of Integrity Management System document and approval by Head of Operation team of the entity.</p> <p>1 year from the date of first gas commissioning of the GA</p>	Agreed

25	SCHEDULE 8	3 Conformity of Integrity Management System document with regulation by TPIA authorized by Petroleum and Natural Gas Regulatory Board. 3 months from the approval by Head of Operation team of the entity.	3 Conformity of Integrity Management System document with regulation by TPIA authorized by Petroleum and Natural Gas Regulatory Board. 3 months from the approval by Head of Operation/ Maintenance of the entity.	Agreed
26	SCHEDULE 8	4 Submission of Integrity Management System document to Petroleum and Natural Gas Regulatory Board with timelines for the actions 1 month from the conformity of Integrity Management System by TPIA		Agreed
27	SCHEDULE 8	5 Approval by Petroleum and Natural Gas Regulatory Board for implementation by the entity Within 3 months from submission of Integrity Management System document to Petroleum and Natural Gas Regulatory Board	4 Approval for implementation by Board the entity for the first time and approval of subsequent periodic review by CEO or Full-time Director of the entity Within 3 months from the conformity assessment by Third Party Inspection Agency (TPIA).	4 Approval for implementation by Board the entity for the first time and approval of subsequent periodic review by Head-Operations , CEO or Full-time Director of the entity Within 3 months from the conformity assessment by Third Party Inspection Agency (TPIA).
28	SCHEDULE 8		5 Start of Implementation Immediately after approval at Sr. No. 4 above	Agreed
29	SCHEDULE 8		6 Submission of Integrity Management System document to Petroleum and Natural Gas Regulatory Board 1 month from the approval as mentioned at Sr. No. 4 above	Agreed
30	SCHEDULE 8	6 Submission of Compliance Statement to Petroleum and Natural Gas Regulatory Board Immediately after approval at Sr. No. 4 above	7 Submission of Compliance Statement to Petroleum and Natural Gas Regulatory Board Shall be submitted every year to Petroleum and Natural Gas Regulatory Board	Agreed
31	SCHEDULE 8	Note: Steps for implementation to be followed as described in Schedule 7		Agreed
32	SCHEDULE 9	9.2 Review of Internal and External Audit (a) Internal Audit as per the checklist for CGD Networks provided by Petroleum and Natural Gas Regulatory Board shall be carried out by the CGD entity every year; (b) External Audit (EA) by third party, approved by the Board, as per the methodology specified by the Petroleum and Natural Gas Regulatory Board once every 3 years.	9.2 Review of Internal and External Audit (a) Internal Audit shall be carried out by the CGD entity every year; (b) External Audit (EA) shall be carried out though PNGRB empaneled third party agency once in every 3 years.	Agreed

33	APPENDIX I		<p>References</p> <p>.....</p> <p>9) ASME B16.34 - Valves - Flanged, Threaded, and Welding End</p> <p>10) API 6D – Specification for Pipeline valves</p> <p>11) Gas Cylinders Rules, 2016</p> <p>12) NACE requirements for Direct Assessment –</p> <p>a. SP0206-2016-SG, Internal Corrosion Direct Assessment Methodology for Pipelines Carrying Normally Dry Natural Gas (DG-ICDA)</p> <p>b. SP0502-2010, Pipeline External Corrosion Direct Assessment Methodology</p> <p>13) OISD 179 – Safety requirements in compression, storage, handling & refueling of natural gas (CNG) for use in automotive sector</p> <p>14) OISD 226 – Natural gas transmission pipelines and city gas distribution networks</p> <p>15) ISO 11120 - Gas cylinders - Refillable seamless steel tubes of water capacity between 150 l and 3000 l- Design, construction and testing</p> <p>16) ISO 4437 – Buried Polyethylene (PE) pipes for the supply of gaseous fuels</p> <p>17) ISO 1239 – Steel tubes, tubulars and other steel fittings - specification</p>	Agreed
34	APPENDIX II	<p>List of Critical Activities In CGD Network</p> <p>6 Integrity inspection system for Galvanized Iron and copper piping forming part of tertiary network and the Last Mile Connectivity</p> <p>6 months</p>	<p>List of Critical Activities In CGD Network</p> <p>Integrity inspection system for Galvanized Iron and copper piping forming part of tertiary network and the Last Mile Connectivity for domestic customers</p> <p>6 months</p>	Agreed
35	APPENDIX II		<p>7 Integrity inspection system for IP line Connectivity for Commercial and Industrial customers to identify unsafe installation and communicate customers for taking necessary action to make the installation good for carrying gas</p> <p>Once in a year</p>	<p>7 Integrity inspection system for IP line Connectivity for Commercial and Industrial customers to identify unsafe installation and communicate customers for taking necessary action to make the installation good for carrying gas</p> <p>Once in a year 1 year</p>
36	APPENDIX IV		An illustrative 6*6 matrix is attached as Annexure-II.	Agreed
37	APPENDIX V		A typical risk register is attached as Annexure-III.	Agreed
38	APPENDIX VI		A typical tracking sheet is attached as Annexure-IV.	Agreed
39	APPENDIX III	Minimum Qualifications and experience for personnel involved in various CGD activities		<p>2. b) i) Joints/Technician – 10th standard with Internal Training (Training Modules) and practical assessment or at least 1 year relevant experience</p> <p>3. vi. Maintenance supervisor - Diploma in engineering (mechanical/ electrical)/ ITI Technician with minimum 3 years of relevant experience</p> <p>4. ii. Valve Maintenance – 1 fitter (ITI mechanical); 1 supervisor (internal trained having 1 year relevant experience); 2 helpers (internal trained)</p>