Annexure-I

PETROLEUM AND NATURAL GAS REGULATORY BOARD

NOTIFICATION

New Delhi, the 7th June, 2010

G.S.R. 476(E).---In exercise of the powers conferred by Section 61 of the Petroleum and Natural Gas Regulatory Act, 2006 (19 of 2006), the Petroleum and Natural Gas Regulatory Board hereby makes the following regulations, namely:-

1. Short title and commencement.

(1) These regulations may be called the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Regulations, 2010.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. Definitions.

(1) In these regulations, unless the context otherwise requires,-

(a) "Act" means the Petroleum and Natural Gas Regulatory Board Act, 2006;

(b) "appointed day" means the date of October 1, 2007 when the Central Government notified the establishment of the Petroleum and Natural Gas Regulatory Board;

(c) "Board" means the Petroleum and Natural Gas Regulatory Board established under sub-section (1) of section 3 of the Act;

(d) "capacity assessment group" means a group comprising representatives of two transporters other than the entity of which the pipeline system capacity is to be certified and a representative of the Board, as decided by the Board on case to case basis or any agency or entity or authorized person or any approved third party authorized by the Board for determining the capacity of the petroleum, petroleum products and natural gas pipeline;

(e) "critical customer" means a customer whose withdrawal conditions in the pipeline system could affect the capacity of the pipeline;

(f) "extension of pipeline" means increase in length of pipelines in either direction for transportation of natural gas from an existing transmission or trunk pipeline or sub-transmission pipeline or spur line to another geographical location without increase in authorized capacity of the pipeline;

(g) "expansion of pipeline" means increase in the capacity of existing pipeline beyond its previously authorized capacity due to installation of additional facilities such as compression facilities, addition of compressor stations or loop lines or extension to new sources of gas to tap additional volumes etc. Expansion of pipeline may also include extension of the existing pipeline in either direction

as long as it increases the capacity of the pipeline and in that case it may be treated as expansion of the pipeline not extension;

(h) "marginally higher pressure" means an entry point pressure at any intermediate location in the pipeline system which is higher than the system pressure at that location so that flow from new source can commence without disturbing existing upstream conditions in the pipeline system;

(i) "Natural Gas Pipeline" means the pipeline as defined under the Petroleum and Natural Gas Regulatory Board (Authorizing Entities to Lay, Build, Operate or Expand Natural Gas Pipelines) Regulations, 2008;

(j) "petroleum, petroleum products pipeline" means any pipeline including a branch or spur line for transport of petroleum, petroleum products and includes all connected infrastructure such as pumps, metering units, storage facilities at originating, delivery, tap off points, terminal station and the like connected to the common carriers or contract carriers including line balancing tanks and tankage required for unabsorbed interface essential for operating a pipeline system but excluding pipelines:

which are dedicated for supply of petroleum products to a specific consumer which are not for resale;

Provided that the transporter may own, hire, outsource or use on hospitability basis such connected facilities on non discriminatory basis;

Provided further for the purpose of capacity determination, these regulations shall apply to all petroleum, petroleum products pipelines including dedicated pipelines;

(k) "capacity for the pipeline system" means the maximum quantity of petroleum, petroleum products or natural gas that can be injected into the system or off taken from the system at specific points, meeting all the technical and operational parameters fixed in each pipeline section in a steady state conditions , that is, all parameters like flow, pressure, temperature are in harmony and vary only along the length of pipeline but not with time;

(l) "declared capacity of pipeline" means the volume of natural gas in MMSCMD (million standard cubic meters per day) that a pipeline is capable of transporting under the steady state operating conditions. For liquid pipeline the declared capacity of pipeline shall be the quantity of petroleum, petroleum products in MMTPA [1][(Million Metric Tonne Per Annum), the pipeline is capable of transporting under the operating steady state conditions. Provided that the capacity has been determined based on the approved flow equation and the selected software package;

[1] Subs. by Cl. (i) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

(m) "section" means a portion of pipeline between any entry point to any exit point or any other entry point in the direction of flow. Provided the computation of successive section shall start from second entry point and so on;

(n) "selected software package" means the software package used by the entity for determination of capacity of the pipeline system or the pipeline section;

(o) "spur-line" means a pipeline necessarily originating or branching out from the trunk or transmission pipeline or sub-transmission line or another spur line or from a terminal station on the existing transmission or trunk pipeline with diameter and capacity not greater than the trunk or transmission pipeline but having no compression facility for supply of natural gas to one or more consumers. Any pipeline having a separate gas source or a compressor shall not be treated as a spur-line. The length of spur-line may not depend upon the length of the trunk pipeline. A spur-line must use the capacity of trunk pipeline in order to transport gas. Spur line includes branch line also;

(p) "section capacity" means the capacity of a particular section of the pipeline which contains a supply source or a delivery source or both. In other words, the section capacity is the maximum flow that could be handled by the specific section without disturbing the connected supply or delivery condition of the shippers;

(q) "steady state condition" means calculation carried out based on time-invariant pressure, temperature and flow profiles throughout a pipeline using specified boundary conditions. In other words, the steady-state run calculates the hydraulic state of a pipeline system operating at equilibrium with input and output balance;

(2) Words and expressions used and not defined in these regulations, but defined in the Act or in the rules or regulations made thereunder, shall have the meanings respectively assigned to them in the Act or in the rules or regulations, as the case may be.

3. Applicability.

(1) These regulations shall apply to an entity:-

(a) which is laying, building, operating or expanding or which proposes to lay, build, operate or expand a petroleum, petroleum products and natural gas pipeline;

(b) which proposes to lay a dedicated pipeline or is directed by the Board to convert a dedicated pipeline for supply of petroleum, petroleum products and natural gas into a common or contract carrier petroleum, petroleum products and natural gas pipeline; or

(c) which proposes extension or expansion of pipeline resulting into increase in capacity of the petroleum, petroleum products and natural gas pipeline.

(2) These regulations cover the procedure, parameters both constant and variable and frequency of declaration of pipeline capacity in MMSCMD for Natural Gas pipeline or in MMTPA for petroleum and petroleum products pipeline.

4. Intent.

(1) It is intended to apply these regulations to all new and existing petroleum, petroleum products and natural gas pipelines including dedicated pipelines for the purpose of [2][determination or] declaration of capacity of the pipeline under steady state conditions.

(2) [3][****]

(3) [4][****]

5. Determining capacity of a Petroleum, Petroleum Products and Natural Gas Pipeline.

(1) The determination of capacity for the pipeline system and for each section of the petroleum, petroleum products and natural gas pipeline shall be based on selected software package and flow equation approved by the Board under this regulation. It is not necessary for the entities to buy and install any specific software package. As long as the software supports the flow equation approved by the Board, the entities may continue to use or operate the system based on the previously installed software but shall have to determine the capacity of the system based on the flow equation approved by the Board in any of the compatible software package for the purpose of these regulations.

(2) The entity while submitting the capacity of the pipeline system to the Board shall furnish a declaration that the capacity has been calculated using the approved flow equation. The entity shall also submit the detailed calculations of the capacity and the software used for the purpose within thirty days of the notification of these regulations and thereafter as per the periodicity for determining capacity of a Petroleum, Petroleum Products and Natural Gas pipeline defined in regulation 7 of these regulations.

(3) The parameters for the steady state simulation for determining the pipeline capacity shall be considered as given below, namely: -

(a) **Constant parameters** in the unit as specified in the approved flow equation as per sub-clause (v) of this clause.

(i) **Internal diameter** – The internal diameter shall be determined based on weighted average of internal diameters based on different pipe thicknesses used in different sections in the pipeline system.

*(ii)***Length** – The actual length (for already installed pipeline) or proposed length (for yet to be installed pipeline) of the pipe in the pipeline system.

[2] Ins. by Sub. Cl. (a) of Cl. (ii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).
[3] The words specified sub-clause (2) & (3) are omitted by sub-cl (b) of Cl. (ii) of Reg. (2), the Petroleum and Natural Gas Regulatory Board (Authorising Entities to Lay, Build, Operate or Expand City or Local Natural Gas Distribution Networks) Amendment Regulations, 2022 (w.e.f. 18.11.2022).
[4] The words specified sub-clause (3) are omitted by Supra 3 (w.e.f. 18.11.2022).

*(iii)***Roughness** – This is a fixed value for a pipe which determines the unevenness inside a pipe. Depending on the pipe material the below given value for roughness factor shall be used :

Type of Material	Roughness (micron)
Steel – New Pipe	
- With internal coating	10-15
- Without internal coating	35-40
Steel – old Pipe (more than ten years)	
- With internal coating	15-20
- Without internal coating	40-45

For old pipelines already operating, roughness factor shall be determined by duly calibrating actual field data in the approved flow equation. These factors shall be assessed by the capacity assessment group. For new pipelines, roughness factor used shall be decided keeping in view the operating conditions and pipeline feature like bends, valves, or any other restrictions present in the system:

Provided that the entity shall declare in advance the roughness factor considered for the pipes with relevant operating data to support the value chosen in case it is different from the above values.

(iv) **Efficiency factor** –Efficiency factor within the range of 0.85 to 1.0 shall be used. For old pipelines already operating, efficiency factor shall be determined by duly calibrating actual field data in the approved flow equation. These factors shall be assessed by the capacity assessment group. For new pipelines efficiency factor used shall be decided keeping in view the operating conditions and pipeline feature like bends, valves, life of pipeline or any other restrictions present in the system:

Provided that the entity shall declare in advance the efficiency factor considered for the pipes with relevant operating data to support the value chosen in case it is different from the above values giving complete analysis. The Board may direct the entity to improve upon such design.

(v) **Formula** – For determination of friction factor in the pipeline the following flow equation shall be used;

Type of Pipeline	Name of Flow equation
Natural Gas	Panhandle Modified Panhandle A for Pipe size ≤ 24" Panhandle B for Pipe size > 24"
Petroleum and Petroleum Products	Colebrook White

Explanation: For the determination of capacity of petroleum and petroleum products pipelines, the roughness factor shall be used. For natural gas pipelines, the efficiency factor shall be used.

(vi) **Velocity** – The maximum allowable velocity of natural gas or petroleum product in the pipeline shall be 20 m/sec in case of natural gas pipeline and [5][3 m/sec] in case of petroleum product pipelines or as per relevant regulations on Technical Standards and Specifications including Safety Standards whichever is lower, if specified.

(vii) **STP** – [6][****]:

Standard pressure	:	1.01325 bar.
Standard temperature	:	15 ^{0}C

(viii) [7][(viii) Maximum Allowable Operating Pressure (MAOP) - The pipeline capacity shall be determined at the designed MAOP or de-rated MAOP due to any condition, for the petroleum, petroleum products or natural gas pipelines.]

(b) Variable parameters-

(i) **Operating temperature** – This is the actual temperature that a pipe is exposed to throughout the year. This temperature will be considered, for the purpose of determining capacity, as per the table below:

Country Region	**Temperature (ºC)**	
	Winter	**Summer**
Tropical area such as North and North West India	20	30
Rest of India	30	30

(ii) **Inlet temperature** – This is the inlet temperature of the petroleum, petroleum products and natural gas from the source into the pipeline.

(iii) **Outlet temperature** – This is the outlet temperature of the petroleum, petroleum products and natural gas at the delivery point.

(iv) **Inlet pressure** – The maximum pressure that is available at the entry point to the pipeline system.

[5] Subs. by Sub. Cl. (a) of Cl. (iii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

[6] The words specified are deleted by Sub. Cl. (b) of Cl. (iii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

[7] Ins. by Sub. Cl. (c) of Cl. (iii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

(v) **Outlet pressure** – The minimum pressure that is required by the customer at the delivery or exit point as per access arrangement entered into by the shipper and the transporter.

(vi) **Source Supply flow -** This is the maximum flow that can be available from the source.

(vii) **Delivery flow** – This is the maximum flow that is required by the customer at the exit point as per access arrangement entered into by the shipper and the transporter.

(viii) **Elevation difference** – Depending on the terrain of the ground profile, this factor will be considered from the mean sea level of the area.

(ix) **Gas composition** – The gas composition indicating all components totaling 100% by volume is to be given with the level of impurities as per Schedule II of the Petroleum and Natural Gas Regulatory Board (Access Code for common or contract carrier Natural Gas Pipelines) Regulations, [8][2008]. From this, necessary input to the flow equation shall be worked out.

In case of more than one source, the weighted average composition of comingled natural gas beyond the second source of entry point shall be considered. Notwithstanding interdependency of various parameters, the gas parameters as described in Schedule II of regulations of Access Code shall be declared before hand with reference to gas properties.

[9]["In case of natural gas pipeline, the gas quality at exit point shall be as per the Petroleum and Natural Gas Regulatory Board (Access Code for common or contract carrier Natural Gas Pipelines) Regulations, 2008."]

(x) [10][]In case of petroleum products, the entry point parameters shall be such that the deliveries of products at delivery point or tap off point or exit points shall be as per the prevalent BIS specifications applicable.

(4) All entities shall declare to the Board the constant parameters and the variable parameters for the pipeline: -

(i) On first working day of April [11][every year for next financial year.]; or

[8] Subs. by Sub. Cl. (d) of Cl. (iii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).
[9] Ins. by Sub. Cl. (d) of Cl. (iii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).
[10] Del. by Sub. Cl. (e) of Cl. (iii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).
[11] Subs. by Sub. Cl. (a) of Cl. (iv) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

(ii) Whenever there is any addition or deletion of the supply source of petroleum, petroleum products or natural gas.

[12][The entities shall also provide on first working day of April every year (for next financial year) the hydraulic gradient and system flow diagram for the pipeline.

(5) The methodology for calculation of pipeline capacity shall be as under:

(a) Natural Gas Pipelines:

(i) The entire pipeline system shall be configured in the selected software package operating offline. The steady state condition of the pipeline hydraulics with contractual flow parameters (pressure, temperature and flow) at entry and exit points shall be simulated in the selected software package.

(ii) At the originating point and at intermediate points in the direction of flow, set the pressure as a fixed parameter corresponding to the maximum allowable operating pressure (MAOP) or available compression facilities and compute the maximum pressure at all exit points with contractual flow.

*(iii)*Thereafter, assuming gas at the entry point (single source of gas) is unlimited, the selected software will be run till any customer connected to the system reaches limiting condition of pressure required at the respective exit point or maximum flow capacity is reached at entry or intermediate compressor stations (if installed in the system) or the velocity of natural gas reaches limiting value as defined in these regulations. The capacity at this juncture would be the maximum system capacity achievable in the pipeline system and the customer at the exit point where pressure becomes limiting shall be the critical customer.

(iv) Now simulate the flow from any other source considering the entry should take place at the pressure marginally higher than the available at that section. The exercise carried above shall be repeated to get threshold pressure limit at any location to calculate the flow exiting from each point in the entire pipeline system and the sum total of these flows shall be the pipeline capacity as determine by the approved flow equation and selected software. This would be the system capacity for multi source pipeline system.

(v) The section wise capacity of the pipeline system shall be computed between an entry point and exit points. In case of multi entry, the section wise capacity may also be determined taking into account flow from each of the input points. Thus the first section is from first entry point to first exit point and second section shall be from first entry point to second exit point and another section and so on. This exercise shall be repeated for each of the entry point. However, in a real time working, the effect of each source will have to be workout on the pipeline capacity and the flow parameters at intermediate points shall not be

[12] Subs. by Sub. Cl. (b) of Cl. (iv) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

allowed to reduce the system or section capacity. The procedure mentioned above shall be applicable for determining the capacity of specific section of the pipeline.

(vi) In a real time model of pipeline system, the flow at specific entry point shall be the actual available flow from that source. The gas supply from various sources at entry points and delivery at exit points shall be scheduled to optimize the pipeline system capacity.

(vii) The obligatory or contractual requirement of pressure at any exit point shall determine the possible capacity within a particular section serving that exit points. Provided further that maintainability of a particular steady state hydraulics condition at any exit point shall be mutually determined between capacity determining authority and the transporter within the flexibility available in the system. The section wise capacity thus calculated with single or multiple entry and exit points shall be run with the approved flow equation and selected software package offline in the steady state operation of the system to arrive at capacities of various sections.

(viii) This exercise shall be continued for computing section wise capacity of the pipeline system including the spur lines. In case of spur lines the tap off point shall be designated as the source point or entry point for spur line and computable (to be fed to the flow computing formula) or contractual hydraulics shall be allowable pressure at that point after accounting for the pressure drop from the tap off point to the consumer point of the spur line or branch line.

(ix) For determining, de-rated MAOP of an existing pipeline, results based on the Instrumented pig survey shall be considered to calculate de-rating factor. In absence of results of the intelligent pig survey (IPS) in any pipeline, hydro testing shall be carried out to establish MAOP of that pipeline as per provisions in the relevant regulations on Technical Standard and Specifications including Safety Standards. Provided that in absence of hydro testing the entity may put up proposal for de-rating based on random thickness survey of the pipeline. Board reserves the right to check such survey data.

(x) The entity shall submit the details of maximum achievable system capacity and section wise capacity of the natural gas pipeline so determined, under the steady state simulation with the details of variable [13][and] constant parameters, to the Board in the specified format at Schedule A along with the hydraulic gradient and system flow diagram for the pipeline system including compressor stations, metering and regulating stations as applicable.

(b) Petroleum Product Pipelines:

(i) In a multi-product pipeline, the maximum achievable capacity shall be determined based on the characteristics of High Speed Diesel (HSD) whereas

[13] Subs. by Sub. Cl. (a) of Cl. (v) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

for pipelines dedicated for transportation of single product like LPG, Naphtha or ATF etc., characteristics of that product only shall be considered.

(ii) The entire pipeline system shall be configured in the selected software package operating offline. The steady state of hydraulics of the pipeline shall be entered into the system.

(iii) At the originating point and at intermediate points in the direction of flow set the pressure as a fixed parameter corresponding to maximum allowable operating pressure (MAOP) or pumping facilities available at these locations, as the case may be, and compute the maximum possible flow in the pipeline system. This shall be the capacity of the pipeline system under prevailing facilities and conditions.

(iv) Thereafter, assuming products at the entry points as unlimited, the Station Discharge Head (SDH) at the pump station equal to Maximum Allowable Operating Pressure (MAOP) of the pipeline, the entire pipeline system shall be configured in the selected software package operating offline. The steady state of hydraulics of the pipeline shall be entered into the system for computing the maximum achievable flow in the pipeline system using the selected software and approved flow equation

(v) At the first and subsequent withdrawal points in the direction of flow getting the required pressure or SDH as a fixed parameter, the maximum possible flow within that section shall be computed based on the methodology specified above. Similarly, the possible volume flow shall be calculated from section to section and tabulated up to the last exit point taking into account the quantity available from other injection points.

(vi) If the capacity of a pipeline have been downgraded or decreased due to de-rating of the MAOP of the pipeline due to factors like metal loss, the de-rated capacity of such pipelines shall be determined considering results of Instrumented pig survey. In the absence of results of IPS in any pipeline, hydro testing shall be carried out to establish MAOP of that pipeline as per provisions in the relevant regulations on Technical Standard and Specifications including Safety Standards. Provided that in absence of hydro testing the entity may put up proposal for de-rating based on random thickness survey of the pipeline. Board reserves the right to check such survey data.

(vii) The requirement of a pressure or SDH at any exit point shall determine the possible capacity within a particular section serving that exit points. Provided further that maintainability of a particular hydraulics condition at any exit point shall be mutually determined between capacity determining authority and the transporter within the flexibility available in the system. The section wise capacity thus calculated with single or multiple entry and exit points shall be run with the selected software package offline in the steady state operation of the system to arrive at capacities of various sections.

(viii) The entity shall submit the maximum achievable pipeline capacity as well as section wise capacity of the product pipeline so determined, under the steady

state simulation with the details of variable [14][and] constant parameters, to the Board in the specified format at Schedule B along with the hydraulic gradient and system flow diagram for the pipeline system.

(c) In case the contractual pressure at any entry and exit point is within a band, the arithmetic mean rounded up to first decimal point shall be considered.

(d) The annual capacity of pipeline system and sections shall be as per the operation days specified in the Access Code for respective system.

(e) [15][The capacity of integrated or interconnected pipeline network shall be determined in line with methodology as specified above.

(f) Reduction of pipeline capacity shall not be permitted except in case of de-rating with prior approval from Board.

(g) Wherever there is any change in the capacity of natural gas pipeline in the past or in future due to reason(s) as approved by the PNGRB's Board, in such cases entity shall submit the revised capacity of the natural gas pipeline, separately due to each such reasons, to PNGRB in terms of these regulations for capacity determination and approval of the Board.]

6. Declaring capacity of Petroleum, Petroleum Products and Natural Gas pipeline by the Board.

(a) The Board, after having satisfied with the data submitted by the entity regarding capacity of the pipeline, shall decide-

(i) to reject the capacity so determined and direct the entity to revise the capacity calculations based on the revised parameters; or

(ii) to go ahead with the proposal with or without modification:

(b) The capacity so determined shall be declared by the Board as the declared capacity of pipeline system and specific sections and the same shall be available to the shippers or consumers. The Board shall declare the section wise capacity of the system in the format specified at Schedule C.

(c) The entity, after declaring the pipeline capacity and section wise capacities by the Board, shall publish the same in line with the provisions of the relevant regulations on the Access Code for such pipeline as and when notified, on their website.

7. Periodicity for determining capacity of a Petroleum, Petroleum Products and Natural Gas pipeline.

[14] Subs. by Sub. Cl. (b) of Cl. (v) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).
[15] Ins. by Sub. Cl. (c) of Cl. (v) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

(i) The capacity of a pipeline shall be determined on first working day of April every year [16][for next financial year"] or whenever [17][there is an aggregate change of plus or minus 10% in capacity due to the following factors] -

(a) there is a major change in the injected quantity or off taken quantity of petroleum, petroleum products and natural gas;

(b) contract carrier quantity period expires;

(c) there is a change of plus or minus ten percent in gas composition or product quality or in other operating parameters from the operating conditions of the pipeline system within the parameters defined under the relevant regulations on the access code [18][];

(d) there is addition or deletion of entry or exit point; or

(e) there is addition or deletion of facilities, for example, compressor or pumping station, loop lines or any other facility;

(ii) The entity shall submit the details of the so re-determined capacity of the pipeline [19][(as per regulation 5)] to the Board in line with the provisions of these regulations for the purpose of declaration of capacity.

8. Provisions relating to dedicated pipelines for transport of Petroleum, Petroleum Products and Natural Gas.

(1) In respect of existing dedicated pipelines, the following provisions shall apply, namely:-

(a) entity having dedicated pipeline to transport petroleum, petroleum products and natural gas to a specific customer and which is not for resale before the appointed day shall submit details of the pipeline capacity as determined based on the provisions of these regulations to the Board within thirty days of notification of these regulations;

(b) the Board may, based on the examination of the information received, declare the capacity of such pipeline as capacity of dedicated pipeline.

9. Miscellaneous.

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[16] Ins. by Pt. (i) of Sub. Cl. (a) of Cl. (vi) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

[17] Ins. by Pt. (ii) of Sub. Cl. (a) of Cl. (vi) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

[18] Omitted by Sub. Cl. (b) of Cl. (vi) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

[19] Ins. by Sub. Cl. (c) of Cl. (vi) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

[20][(1) If any question arises as to interpretation of these regulations, the same shall be decided by the Board.]

(2) The Board may, either suo moto or on a complaint, refer the issue of determination of the capacity in a pipeline, to any external consultant or expert. Cost in this regard shall be borne by the entity or the complainant or as deemed fit by the Board on a case specific basis. However, the recommendation of the consultant or expert shall be advisory in nature to the Board and shall not be binding;

(3) The Board may validate the computed capacity with actual capacity as per the flow regime of the pipeline with actual flow conditions as and when desired.

[20] Subs. by reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2014, for sub reg. 1 of reg. 9, (w.e.f. 01.01.2015).

Schedule A

[see regulation 5(5)(a)(x)]

Format for furnishing information regarding determining capacity of Natural Gas Pipeline

[21][Financial Year: 20…. - 20….]

1	Name of Entity	
2	Address & Contact details of Entity	
3	Name of Natural Gas Pipeline	
4	Name of Software package used	
5	Approved Flow equation used (mention name of flow equation)	
6	Details of injection/entry point and delivery/exit points and sections on the pipeline	
7	Composition of natural gas	
8	Entity agrees to have considered the Technical standards, specifications and safety standards as specified by the Board	Yes/ No
9	Entity agrees to have considered the relevant provisions of Petroleum and Natural Gas Regulatory Board Regulations	Yes/ No
10	Constant and variable parameters used under steady state conditions for determining capacity of the pipeline	
11	Capacity of the pipeline under existing operating conditions	
12	Maximum achievable Capacity of the pipeline under steady state conditions as determined under [22][regulation5] of these regulations	
13	Section wise maximum achievable capacity of the pipeline as determined under [23][regulation] 5 of these regulations	
14	Expected addition of entry points and exit points scheduled in near future	

Note: [24][(i) Submit the system flow diagram, hydraulic gradient and simulation files of software package used for capacity determination.

[21] Ins. by Sub. Cl. (a) of Cl. (vii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

[22] Subs. by Sub. Cl. (b) of Cl. (vii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

[23] Subs. by Sub. Cl. (b) of Cl. (vii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

[24] Subs. by Sub. Cl. (c) of Cl. (vii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

(ii) Above information shall be approved by person authorized by the board of entity."]

Schedule B

[see regulation 5(5)(b)(viii)]

Format for furnishing information regarding determining capacity of Petroleum and Petroleum Products Pipeline

[25][Financial Year: 20…. - 20….]

1	Name of Entity	
2	Address and Contact details of Entity	
3	Name of Petroleum and Petroleum Products Pipeline	
4	Name of Software package used for determining capacity	
5	Approved Flow equation used (mention name of flow equation)	
6	Details of injection/entry point and delivery/exit points and sections on the pipeline	
7	Quality of various products being transported in the pipeline	
8	Constant and variable parameters used under steady state conditions for determining capacity of the pipeline	
9	Entity agrees to have considered the Technical standards, specifications and safety standards as specified by the Board	Yes/ No
10	Entity agrees to have considered the relevant provisions of Petroleum and Natural Gas Regulatory Board Regulations	Yes/ No
11	Quality specifications considered for the purpose of capacity determination	
12	Capacity of the pipeline under existing operating conditions	
13	Maximum achievable Capacity of the pipeline under steady state conditions as determined under [26][regulation] 5 of these regulations	
14	Section wise maximum achievable capacity of the pipeline as determined under [27][regulation] 5 of these regulations	
[28][15]	Expected addition of entry points and exit points scheduled in near future	

[25] Ins. by Sub. Cl. (a) of Cl. (viii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

[26] Subs. by Sub. Cl. (c) of Cl. (viii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

[27] Subs. by Sub. Cl. (c) of Cl. (viii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

[28] Ins. by Sub. Cl. (d) of Cl. (viii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

Note: [29][(i) Submit the system flow diagram, hydraulic gradient and simulation files of software package used for capacity determination.

(ii) Above information shall be approved by person authorized by the board of entity."]

[29] Subs. by Sub. Cl. (b) of Cl. (viii) of Reg.2, the Petroleum and Natural Gas Regulatory Board (Determining Capacity of Petroleum, Petroleum Products and Natural Gas Pipeline) Amendment Regulation, 2022, (w.e.f. 18.11.2022).

Schedule C

[see regulation 6(b)]

Format for declaring capacity of Petroleum, Petroleum Products and Natural Gas Pipeline by the Petroleum and Natural Gas Regulatory Board

Date of declaration of capacity by the Board: ……

1	Name of Entity	
2	Address and Contact details of Entity	
3	Name of Pipeline	
4	Details of injection/entry point and delivery/exit points and sections on the pipeline	
5	Name of the software package used by the entity	
6	Flow equation used for the purpose	
7	Product Quality specifications/gas Parameters considered for the purpose of capacity determination	
8	Maximum achievable capacity of the pipeline under steady state conditions	
9	Section wise maximum achievable capacity of the pipeline	

Secretary
Petroleum and Natural Gas Regulatory Board

[F. No. S-Admn/II/8/2010]
RATAN P. WATAL, Secy.

Foot Note: Principal regulations were notified *vide* G.S.R. 476(E) dated 07/06/2010 and amended vide F. No. L-MISC/VI/I/2007 dated 01.01.2015 and F. No. PNGRB/Tech/10-Cap/NGPL&PPPL/(2)/2022(P-3745) dated 18th November, 2022.