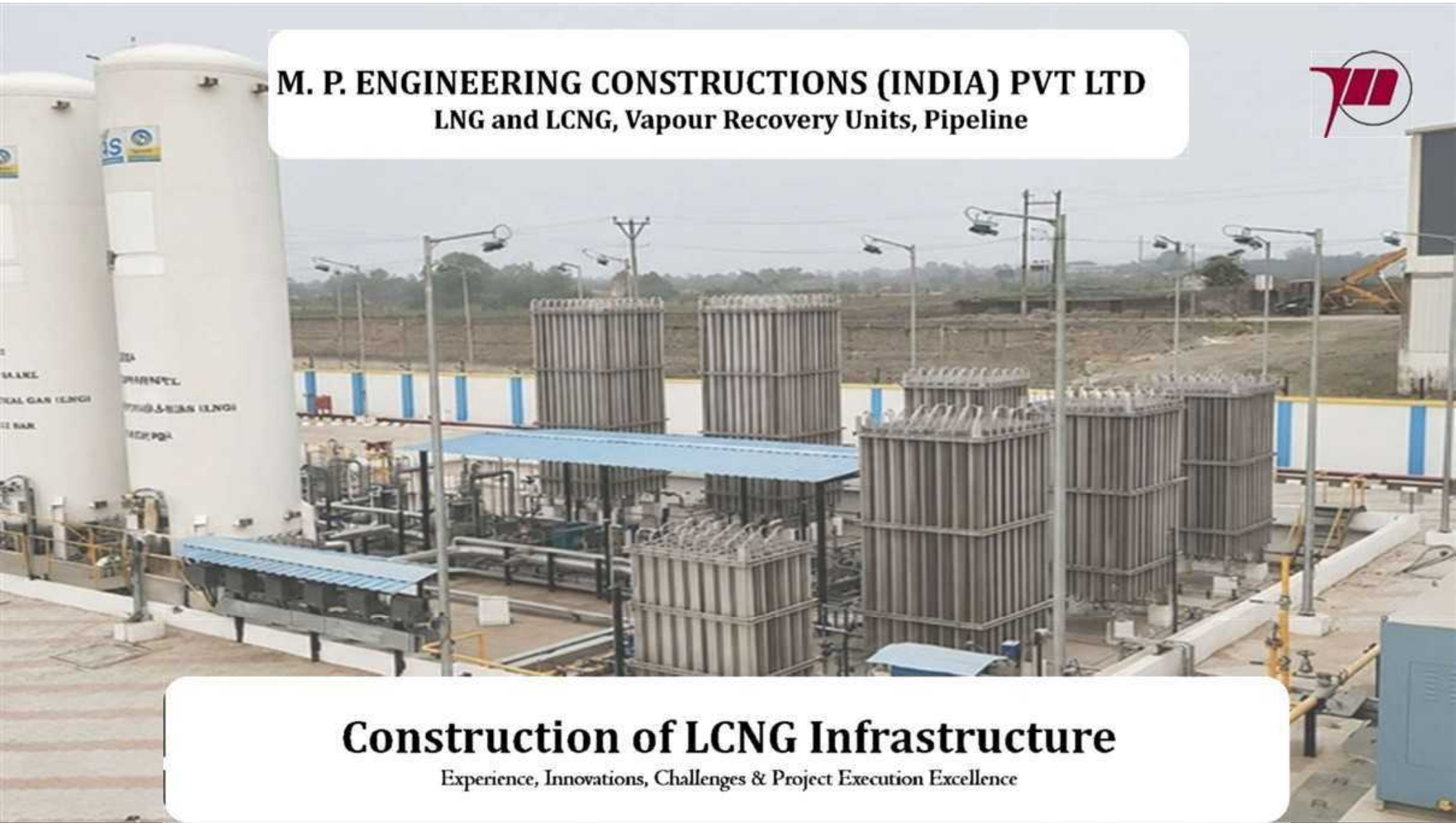


M. P. ENGINEERING CONSTRUCTIONS (INDIA) PVT LTD

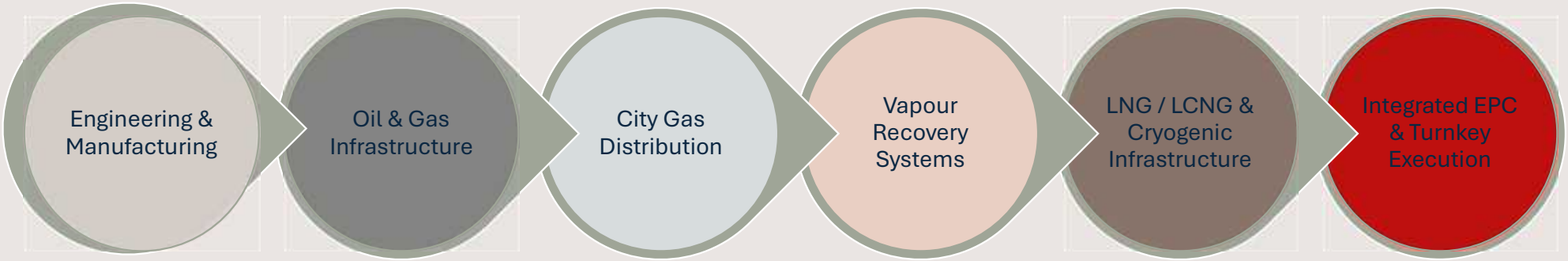
LNG and LCNG, Vapour Recovery Units, Pipeline

Construction of LCNG Infrastructure

Experience, Innovations, Challenges & Project Execution Excellence

M.P. ENGINEERING- ENGINEERING ENERGY INFRASTRUCTURE SINCE 1984

Our Expertise



Our Strength

Engineering Capability | Manufacturing | Site Execution | Commissioning | Lifecycle Support (O & M CAMC)

Head Office — Mumbai | Manufacturing Facilities — Maharashtra & Goa

ENGINEER | MANUFACTURE | BUILD | COMMISSION | SUPPORT

CERTIFICATIONS & CREDENTIALS — VALIDATING OUR COMMITMENT TO EXCELLENCE

CERTIFICATE

TÜV AUSTRIA

Management system as per
EN ISO 9001:2015

In accordance with TÜV AUSTRIA procedures, it is hereby certified that

M. P. Engineering Constructions India Pvt. Ltd.

Office: 1003/1004, Lodha Supremus III,
Think Techno Campus, Kanjurmarg (East),
Mumbai - 400042, Maharashtra, INDIA

Factory I: Plot No. D/39, Anand Nagar, MIDC Industrial Area,
Additional Ambernath, Ambernath (E),
Dist. Thane - 421 506, Maharashtra, INDIA

Factory II:Plot No. 251/254/255,
Kundaim Industrial Estate, Kundaim,
Goa - 403 115, INDIA

applies a management system in line with the above standard for the following scope

Design, Fabrication, Erection and Commissioning of Vapour Recovery Unit, Hydrant Refueling System, LPG storage and bottling unit, Pressure Vessel, Foam Tanks, Filters, Strainers, In plant Piping System, Cross Country Piping, City Gas Distribution System, Fire Fighting System, Cathodic Protection System, Civil, Mechanical, Structural, Electrical & Instrumentation Works, Metering and Regulating Stations (MRS, DRS), Additive Dosing Systems, LNG Storage tank & LCNG Stations

Certificate Registration No. 20100173002768

Valid until 2029-09-25
Initial certification: 2017-09-26

Certification Body
at TÜV AUSTRIA GMBH

Vienna, 2025-08-11

This certification was conducted in accordance with TÜV AUSTRIA auditing and certification procedures and is subject to regular surveillance audits.
TÜV AUSTRIA GMBH Deutschstraße 10 · A-1230 Wien www.tuv.at

ZERTIFIKAT | CERTIFICATE | CERTIFICADO | СЕРТИФИКАТ | 認證 | 認証

Certificate of Registration

This is to certify that the Environment Management System of

M P ENGINEERING CONSTRUCTIONS (INDIA) PRIVATE LIMITED

Office Add.:- 1003/1004, Lodha Supremus III, I Think Techno Campus, Opp. JVLR, Kanjurmarg (East), Mumbai -400 042, India
Factory Add.:- Plot No: D/39, Anand Nagar,MIDC Industrial Area, Additional Ambernath, Ambernath East, Dist.Thane, Maharashtra- 421506, India

has been assessed and registered by TNV as conforming to the requirements of

ISO 14001:2015
(Environment Management System)

For the following Scope

"Design, Fabrication, Erection & commissioning of Vapour Recovery Unit, Hydrant Refuelling System, LPG Storage & Bottling unit, Pressure Vessels, Foam Tanks, Filters, Strainers, In plant piping System, Cross Country Piping, City Gas Distribution System, Fire Fighting System, Cathodic Protection System, Civil, Mechanical, Structural, Electrical & Instrumentation works, Metering & Regulating Stations.(MRS,DRS), Additive Dosing Systems, LNG Storage Tank & LCNG Stations"

TNV is accredited by United Accreditation Foundation (UAF). Status of Certificate can be verified on www.iaindia.org & www.uafcertsearch.org

Certificate Number	240323029101	Initial Registration Date	23rd Mar. 2024
Current Issue Date	23rd Mar. 2024	Validity of this Certificate	22nd Mar. 2027
1st Surveillance Date	23rd Feb. 2025	Recertification due on	22nd Mar. 2027
2nd Surveillance Date	23rd Feb. 2026	Revision No./Date	00
		IAF Code	17, 19 & 28

CB-MS-2206

Pragyesh Singh, Director
TNV Certification Pvt. Ltd
(LEI No. 335800HYTDNMOBCYP01)

MANAGEMENT SYSTEM CERTIFICATE

Certificate of Compliance

CE

This is to certify that the technical documentation/inspection/test results comply with the requirement of General product safety directive (GPSD) # 2001 / 95 / EC manufactured by:

NAME: M. P. ENGINEERING CONSTRUCTIONS INDIA PVT. LTD.
ADDRESS: OFFICE: - 1003/1004, LODHA SUPREMUS III, THINK TECHNO CAMPUS, KANJURMARG (EAST), MUMBAI-400042, MAHARASHTRA, INDIA
FACTORY 1:- PLOT NO. D/39, ANAND NAGAR, MIDC INDUSTRIAL AREA, ADDITIONAL AMBERNATH, AMBERNATH (E), DIST. THANE-421 506, MAHARASHTRA, INDIA
FACTORY 2:- PLOT NO. 251/254/255, KUNDAIM INDUSTRIAL ESTATE, KUNDAIM, GOA-403115.

PRODUCTS: DESIGN, FABRICATION, ERECTION AND COMMISSIONING OF VAPOUR RECOVERY UNIT, PRESSURE VESSEL, LNG STORAGE TANK AND LCNG STATIONS.

COMPLIES WITH THE REQUIREMENTS APPLICABLE TO IT

The Certification Body has performed an independent audit of the above product quality system covering the design, manufacture and final inspection of the certified product. The quality system has been assessed, approved and is subject to continuous surveillance according to the General product safety directive (GPSD) # 2001 / 95 / EC.

THIS CERTIFICATE IS ISSUED UNDER THE FOLLOWING CONDITIONS:

1. It applies only to the quality system maintained by the manufacturer of above referenced models and it does not substitute the design or type-examination procedures, if requested.
2. The certificate remains valid until the manufacturing conditions or the quality systems are changed.
3. The certificate validity is conditioned by positive results of surveillance audits.
4. After fulfilling the relevant EC legislation, the manufacturer shall affix to each device of the above referenced models:
5. The CE mark as shown above can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of conformity and compliance with all relevant EC Directives. The statement is based on a single evaluation of one sample of above mentioned product. It does not imply an assessment of the whole production.

Certification Calendar:

Client Id: 30957

Certificate No: CM-34376/0625

Initial Registered Date: 10.06.2025 — Issuance Date: 10.06.2025

Date of Expiry: 09.06.2028

1st Surv. Due: 09.06.2026 — 2nd Surv. Due: 09.06.2027

Authorized Signatory

CERTIFICATIONS & CREDENTIALS — VALIDATING OUR COMMITMENT TO EXCELLENCE

Certificate of Compliance

This is to certify that the products manufactured by:

M. P. ENGINEERING CONSTRUCTIONS INDIA PVT. LTD.

OFFICE:- 1003/1004, LODHA SUPREMUS III, THINK TECHNO CAMPUS, KANJURMARG (EAST), MUMBAI-400042, MAHARASHTRA, INDIA

FACTORY 1:- PLOT NO. D/39, ANAND NAGAR, MIDC INDUSTRIAL AREA, ADDITIONAL AMBERNATH, AMBERNATH (E), DIST. THANE-421 506, MAHARASHTRA, INDIA.

FACTORY 2:- PLOT NO. 251/254/255, KUNDAIM INDUSTRIAL ESTATE, KUNDAIM, GOA-403 115, INDIA

has been independently assessed by PQC and found to comply with the requirements of

ISO/IEC 80079-34:2018

Explosive atmospheres Part 34: Application of quality management systems for Ex Product manufacture

Certification Scope:

DESIGN, FABRICATION, ERECTION AND COMMISSIONING OF VAPOUR RECOVERY UNIT, PRESSURE VESSEL, LNG STORAGE TANK AND LCNG STATIONS

Certification Calendar:

Client Id: 50937

Certificate No: CM-54377/0625

Initial Registered Date: 10.06.2025 Issuance Date: 10.06.2025

Date of Expiry: 09.06.2028

1st Surv. Due: 09.06.2026 2nd Surv. Due: 09.06.2027

Authorized Signatory

PARAMOUNT QUALITY CERTIFICATIONS

Certificate of Registration

This is to certify that the Occupational Health and Safety Management System of

M P ENGINEERING CONSTRUCTIONS (INDIA) PRIVATE LIMITED

Office Add.:- 1003/1004, Lodha Supremus III, I Think Techno Campus, Opp' IVLB, Kanjurmarg (East), Mumbai -400 042, India

Factory Add.:- Plot No: D/39, Anand Nagar,MIDC Industrial Area, Additional Ambernath, Ambernath East, Dist.Thane, Maharashtra- 421506, India

has been assessed and registered by TNV as conforming to the requirements of

ISO 45001:2018

(Occupational Health and Safety Management System)

For the following Scope

"Design, Fabrication, Erection & commissioning of Vapour Recovery Unit, Hydrant Refuelling System, LPG Storage & Bottling unit, Pressure Vessels, Foam Tanks, Filters, Strainers, In plant piping System, Cross Country Piping, City Gas Distribution System, Fire Fighting System, Cathodic Protection System, Civil, Mechanical, Structural, Electrical & Instrumentation works, Metering & Regulating Stations,(MRS,DRS), Additive Dosing Systems, LNG Storage Tank & LCNG Stations"

TNV is accredited by United Accreditation Foundation (UAF). Status of Certificate can be verified on www.tnvindia.org & www.uafcertsearch.org

Certificate Number	240323039101	Initial Registration Date	23rd Mar. 2024
Current Issue Date	23rd Mar. 2024	Validity of this Certificate	22nd Mar. 2027
1st Surveillance Date	23rd Feb. 2025	Recertification due on	22nd Mar. 2027
2nd Surveillance Date	23rd Feb. 2026	Revision No./Date	00
		IAF Code	17, 19, 28

CB-MS-2208

Pragyesh Singh, Director
TNV Certification Pvt. Ltd

MANAGEMENT SYSTEM CERTIFICATE

Controller of Explosives
For A. Chief Controller of Explosives
Mumbai

मुख्य मुख्य विस्फोटक नियंत्रक (For Chief Controller of Explosives)

नोट/Note:- यह सिस्टम जनरेटेड दस्तावेज है इसमें हस्ता क्षर की आवश्यकता नहीं है।
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WHY LCNG CONSTRUCTION IS DIFFERENT

Four construction conditions must be controlled together

CRYOGENIC

Very low temperature systems require material, insulation and cleanliness discipline.

HIGH PRESSURE

HP piping and equipment demand rated components, controlled testing and safe isolation.

INTERFACES

Civil, equipment, piping, E&I and HSE must align before work fronts are released.

READINESS

Testing, punch closure and documentation determine whether the facility is truly ready.

Construction objective: safe integration → predictable testing → confident commissioning

WHY LCNG CONSTRUCTION IS DIFFERENT

Where Cryogenics, High Pressure, Precision & Safety Meet Construction

1 CRYOGENIC CONDITIONS

LNG is at –162°C. Requires special materials, insulation & installation practices.

EXAMPLE

Damage to VJ pipe vacuum or improper insulation installation can lead to heat ingress, boil off gas & loss of efficiency.

CRYOGENIC DISCIPLINE AT EVERY STEP

2 HIGH PRESSURE SYSTEMS

CNG operates at high pressure up to 250 bar. No compromise on pressure integrity.

EXAMPLE

Wrong pressure rated valve or fitting can cause leakage, failed testing & serious safety hazard.

HIGH PRESSURE, HIGH RESPONSIBILITY

3 PRECISION INTERFACES

Every nozzle, connection & routing must match exactly.

EXAMPLE

A small change in nozzle orientation can change entire piping route → isometric → fabrication → rework → cost & schedule impact.

GETTING INTERFACES RIGHT SAVES TIME, COST & REWORK

4 SAFETY CRITICAL

Construction quality today directly impacts safe operation for decades.

EXAMPLE

Incorrect equipment location or poor access can affect maintenance, emergency response & safety.

SAFETY IS DESIGNED, BUILT & VERIFIED

5 COMMISSIONING READY APPROACH

Installation ≠ Completion. Systems must be tested & ready for commissioning.

EXAMPLE

Instrument installed is not "ready" until wired, calibrated, loop checked & functionally tested.

WE BUILD IT RIGHT THE FIRST TIME – COMMISSION FASTER & SAFER

ONE SMALL ERROR CAN TRIGGER A CHAIN REACTION

SMALL ERROR → INTERFACE CONFLICT → REWORK → COST & TIME IMPACT → COMMISSIONING DELAY

THAT'S WHY LCNG NEEDS PRECISION FROM DAY ONE

PLAN THE INTERFACE • BUILD WITH PRECISION • TEST SYSTEMATICALLY • COMMISSION SAFELY

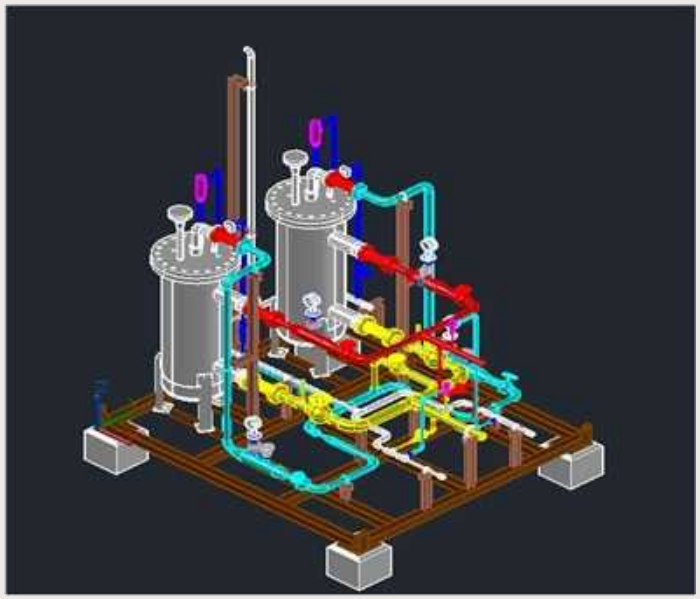
BUILD SAFE. BUILD RIGHT. BUILD READY.

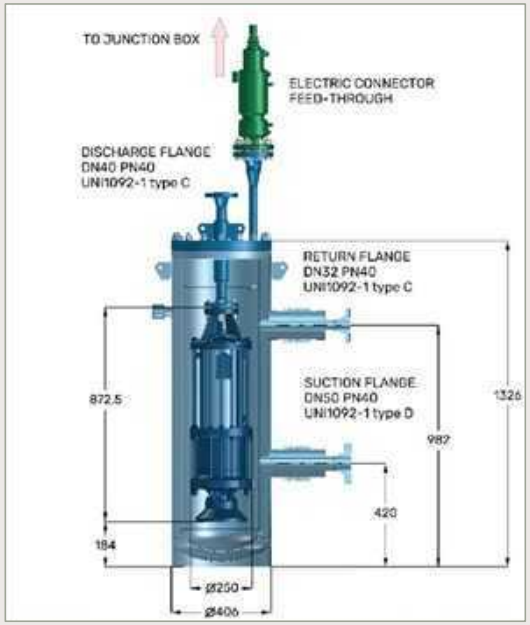
LCNG STATION – KEY EQUIPMENT & SYSTEMS

Cryogenic Storage Tank – 21KL / 40 KL / 56 KL / 114 KL / 213 KL & higher — Vacuum-insulated storage system designed for safe, low-loss LNG storage at cryogenic temperature

LCNG STATION – KEY EQUIPMENT & SYSTEMS

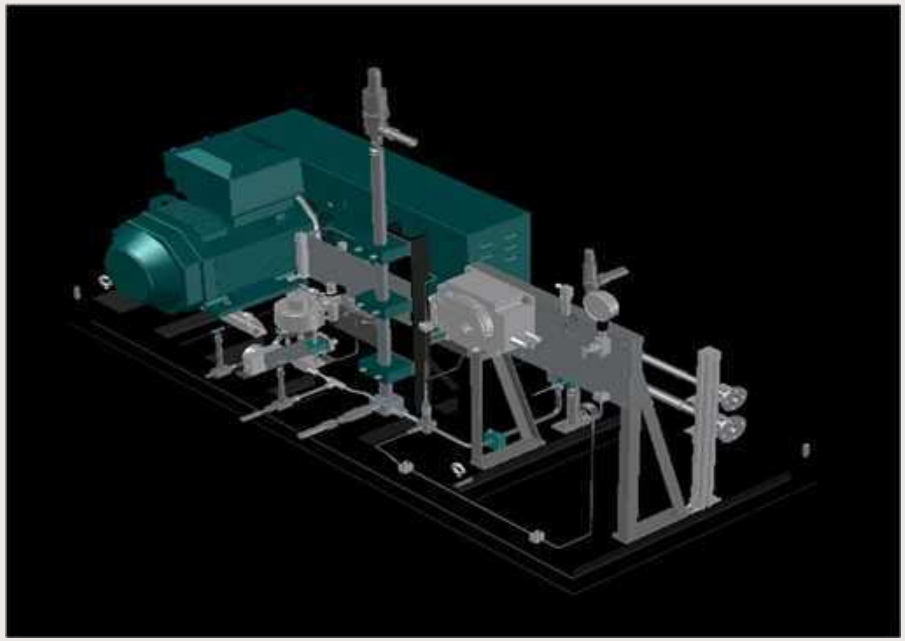
LNG Unloading Pump Skid- Up to ~350 LPM — Safe and controlled transfer of LNG from transport tanker to storage tank through **submersible/centrifugal pump systems**





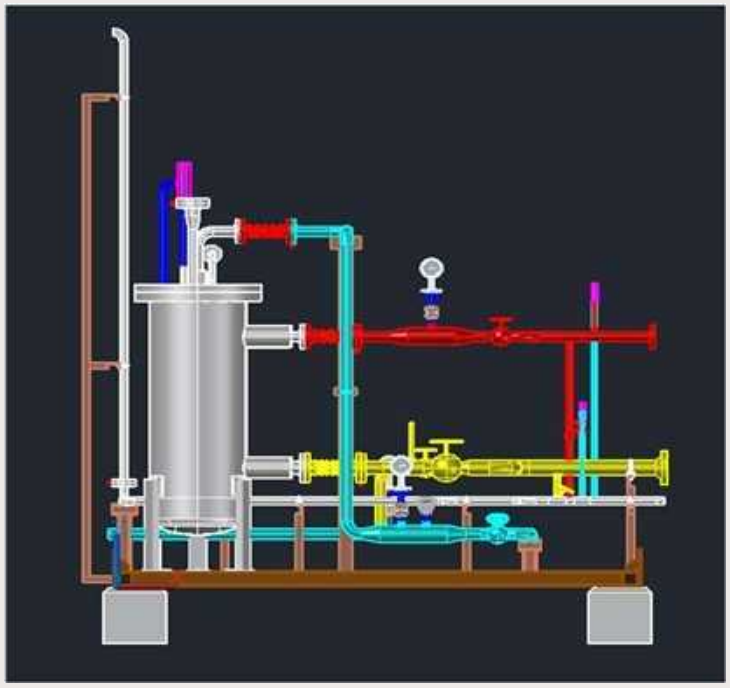
LCNG STATION – KEY EQUIPMENT & SYSTEMS

High-Pressure Pump — **High-pressure LNG boosting** — Raises LNG pressure to the required level for efficient vaporization and high-pressure CNG generation.



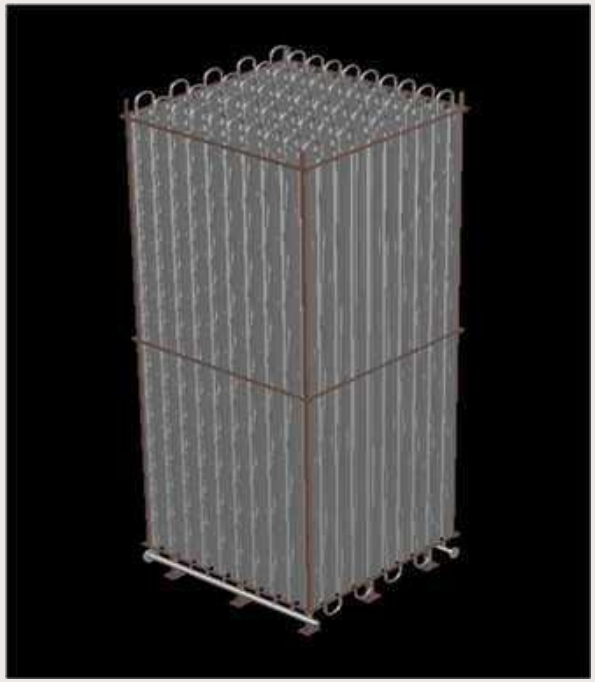
LCNG STATION – KEY EQUIPMENT & SYSTEMS

Medium-Pressure Pump— **Submersible / Reciprocating** — Provides controlled LNG flow and pressure for medium-pressure vaporization and process requirements.



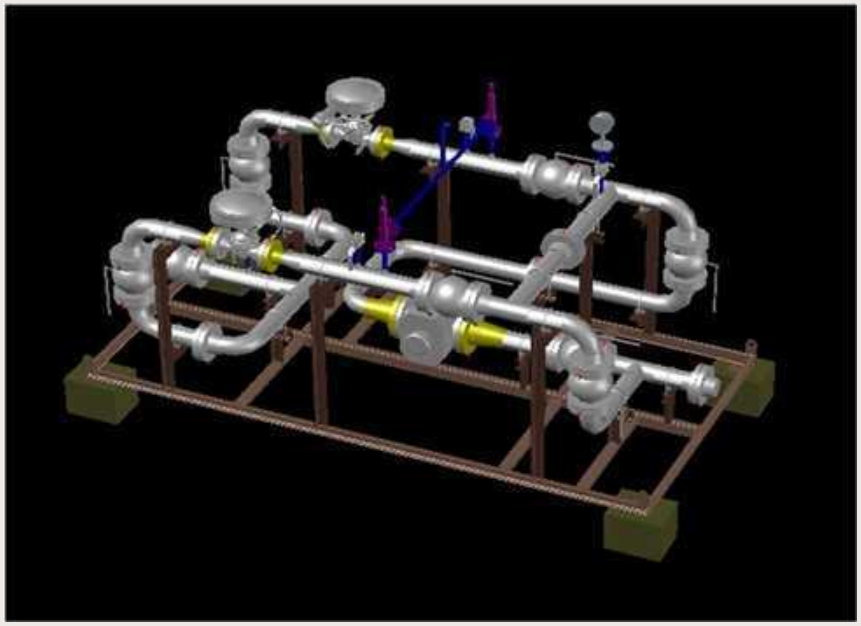
LCNG STATION – KEY EQUIPMENT & SYSTEMS

Ambient Vaporizer— LP / MP / HP Vaporization — Converts high-pressure liquid LNG into natural gas using atmospheric heat, eliminating external heating requirements.



LCNG STATION – KEY EQUIPMENT & SYSTEMS

Pressure Regulating Skid / DRS — **Pressure Management & Control** — Regulates and stabilizes gas pressure to meet downstream CNG/process requirements safely and accurately.

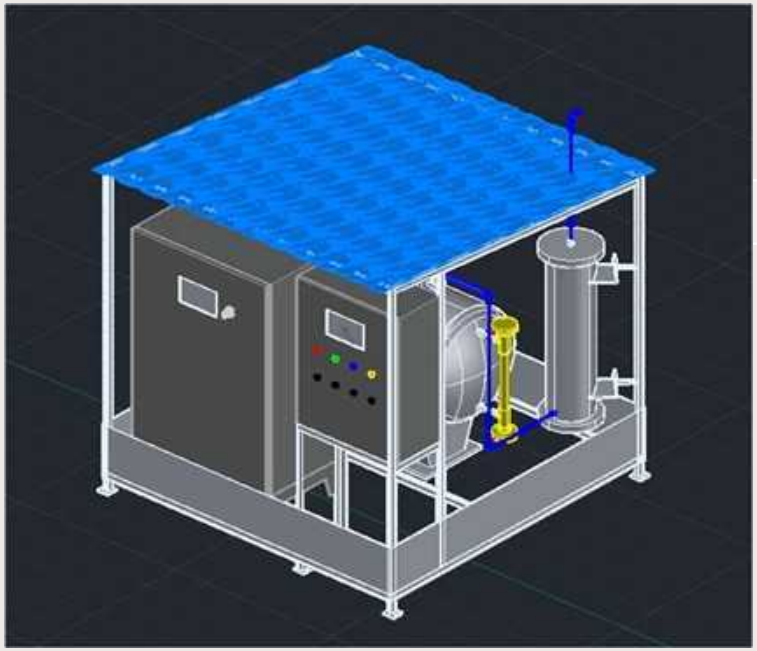


LCNG STATION – KEY EQUIPMENT & SYSTEMS

Priority Panel — **Smart Gas Distribution** — Automatically prioritizes and manages gas supply to cascades, storage banks and dispensing points for optimized station operation.

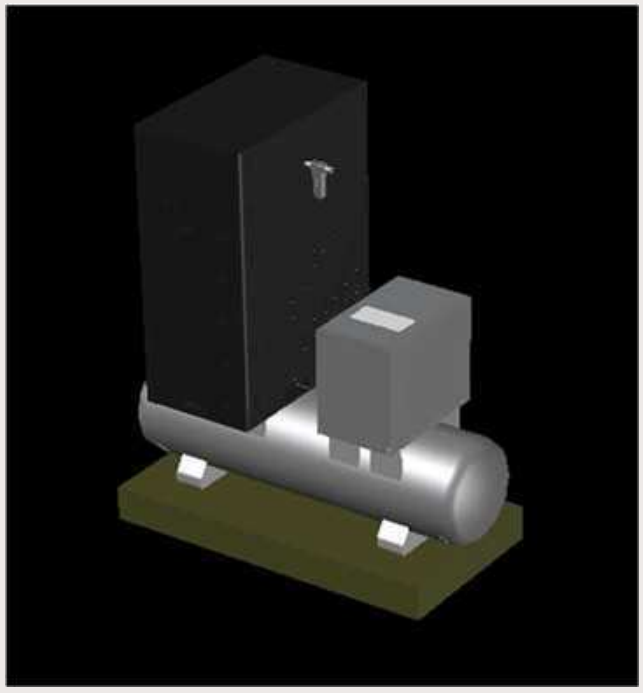
LCNG STATION – KEY EQUIPMENT & SYSTEMS

Odorization System— Injects the required **odorant into natural gas** to enable rapid leak detection and enhance operational safety.



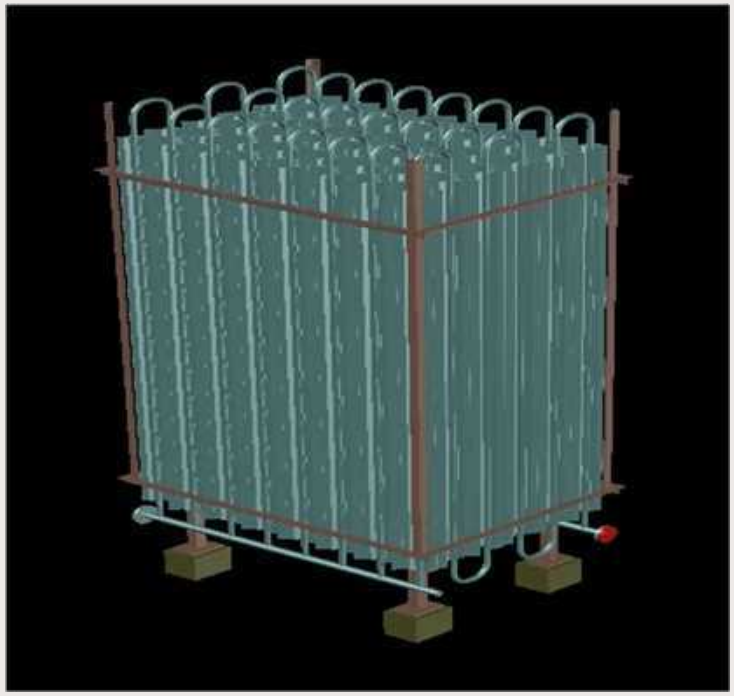
LCNG STATION – KEY EQUIPMENT & SYSTEMS

Air Compressor System— Provides reliable instrument/control air for pneumatic valves, actuators and other station automation systems.



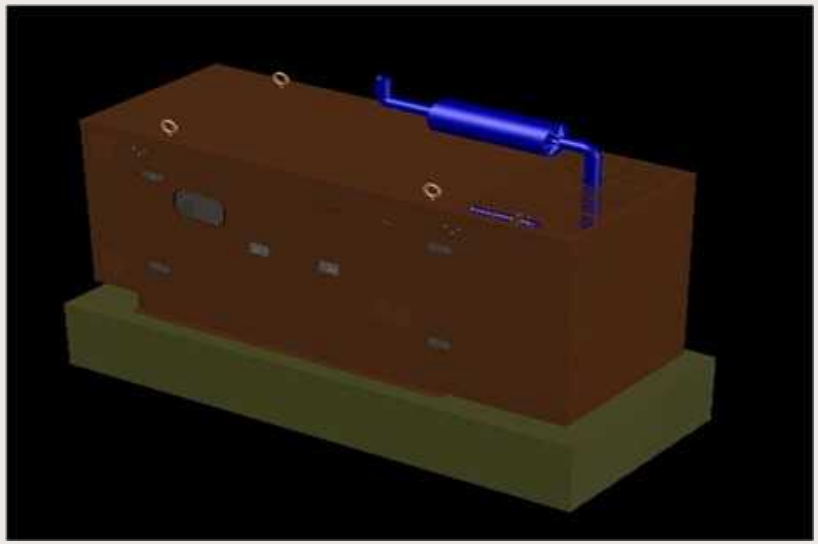
LCNG STATION – KEY EQUIPMENT & SYSTEMS

BOG Management System— **Boil-Off Gas Recovery & Utilization** — Manages tank pressure and utilizes BOG through **gas generator / controlled consumption**, minimizing LNG losses.



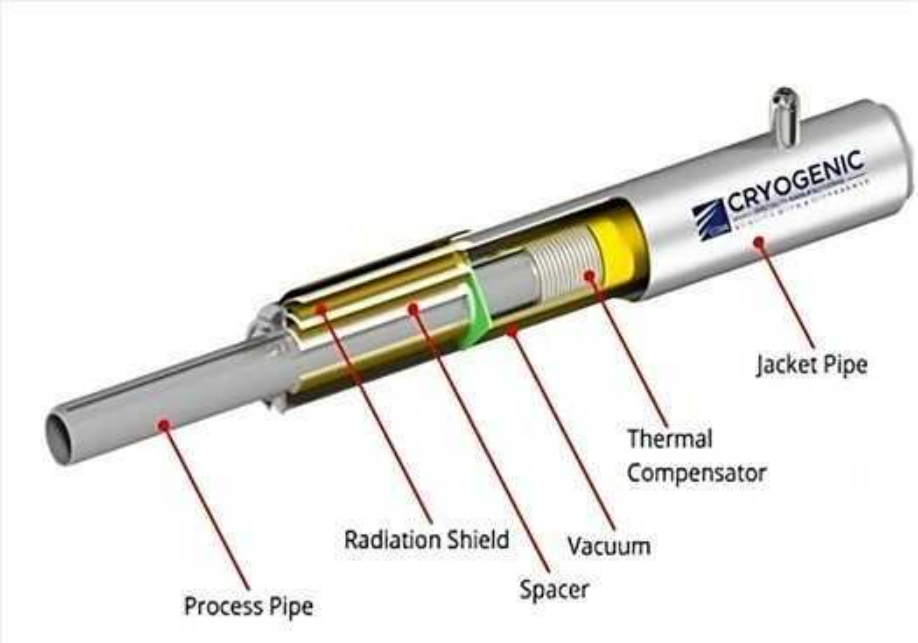
LCNG STATION – KEY EQUIPMENT & SYSTEMS

BOG Management & Gas Utilization System— Captures and controls Boil-Off Gas (BOG) generated from LNG storage and process systems. BOG is safely routed for gas utilization converting otherwise wasted gas into useful electrical energy and reducing LNG losses, venting and operating cost.



LCNG STATION – KEY EQUIPMENT & SYSTEMS

Vacuum Jacketed (VJ) Pipeline— **Cryogenic Transfer Network** — High-efficiency insulated piping designed for minimum heat ingress and reliable LNG transfer with low boil-off.



LCNG STATION – KEY EQUIPMENT & SYSTEMS

LNG & CNG Dispenser — **Final Dispensing Interface** — Precision dispensing system for safe, accurate and controlled LNG/CNG fueling of vehicles.

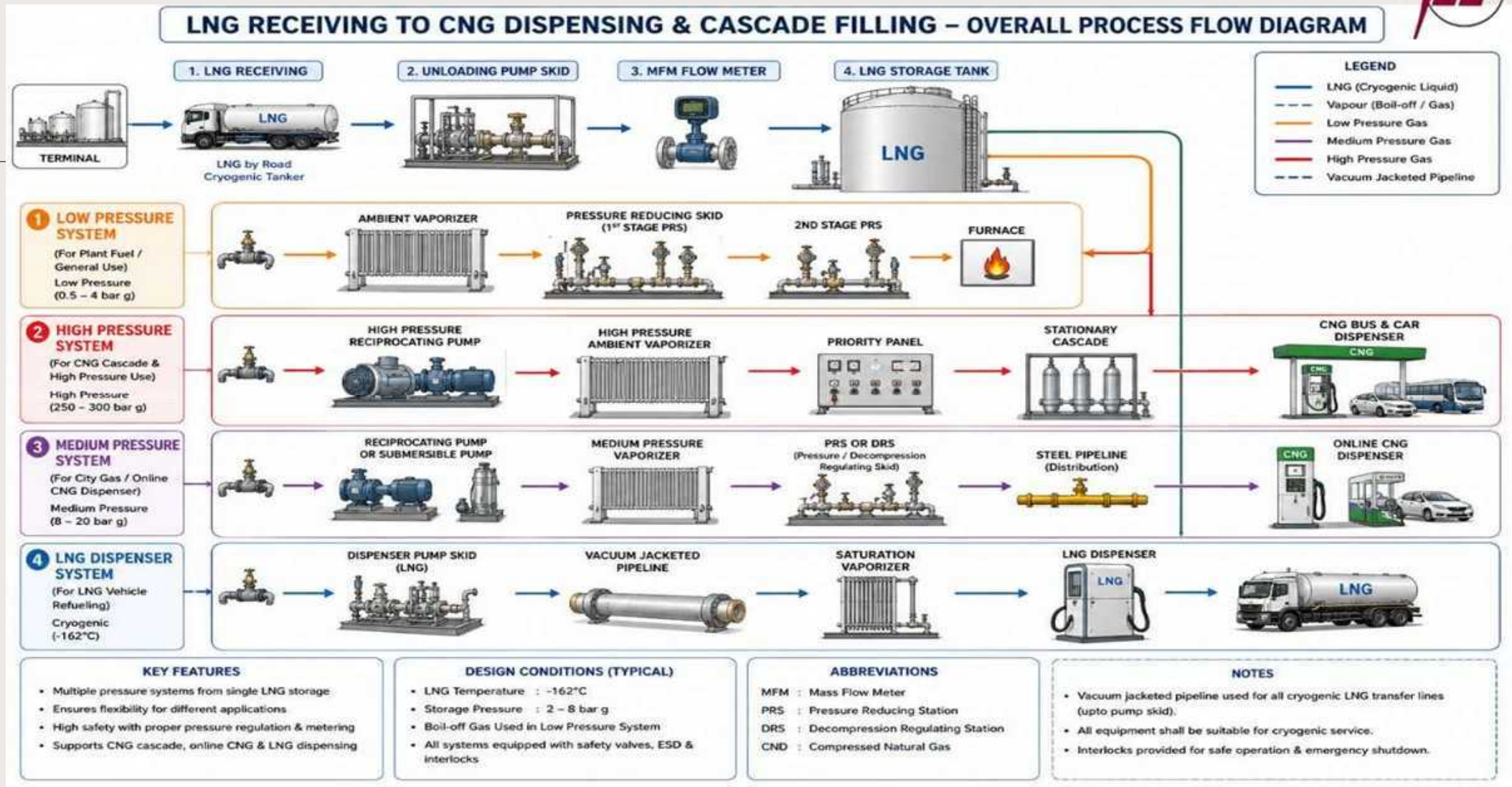
CNG Dispenser FOR CAR AND BUS

LNG Dispenser FOR BUS AND TRUCKS

LCNG STATION – KEY EQUIPMENT & SYSTEMS

Instrumentation & Safety System — **Monitor** → **Detect** → **Protect** — Level, pressure, DP, temperature, gas & flame detection, pressure gauges and safety instruments provide continuous process and safety monitoring.

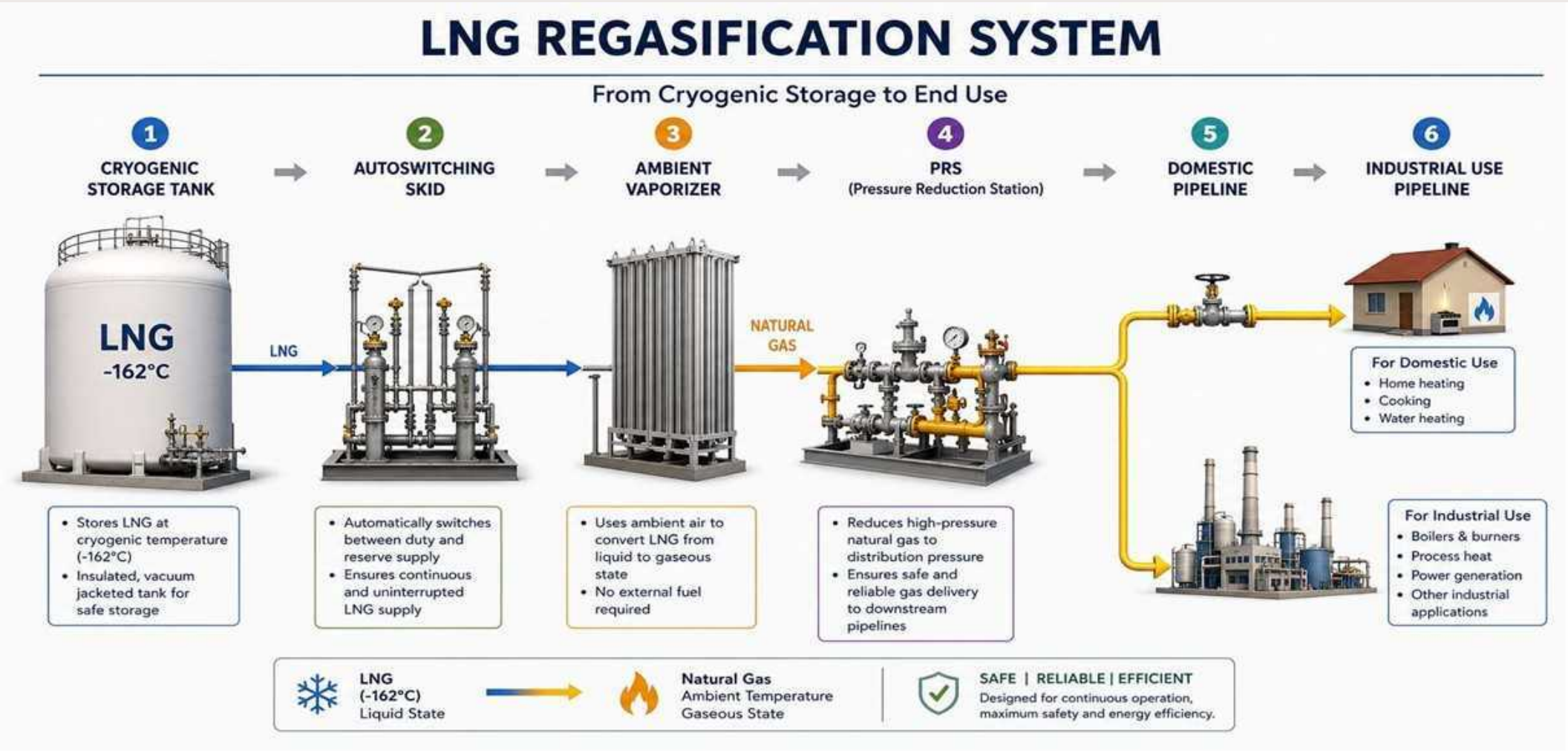
LCNG PLANT PROCESS FLOW



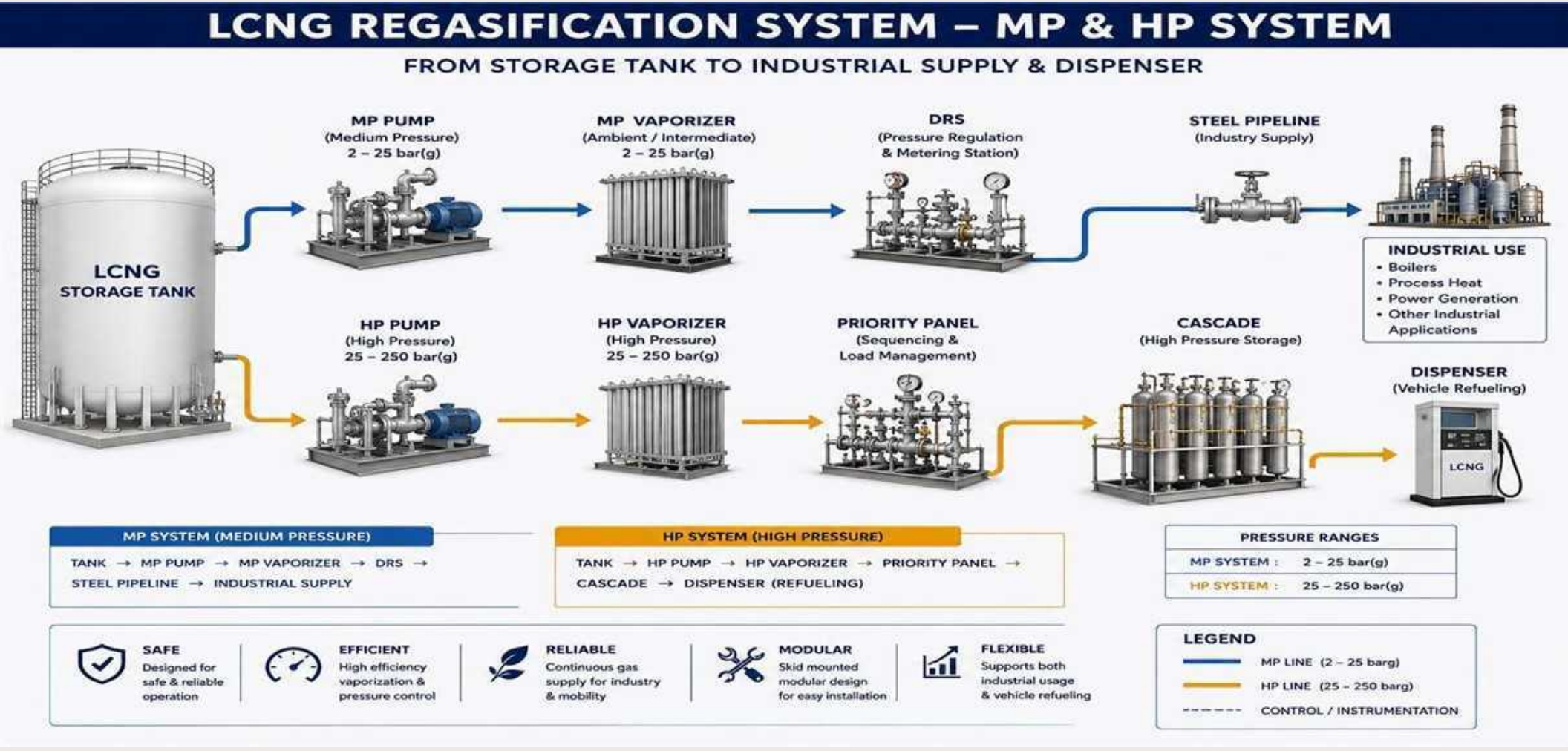
PRECISION UNLOADING — SAFE TRANSFER OF LNG AT CRYOGENIC CONDITIONS

PRECISION UNLOADING — SAFE TRANSFER OF LNG AT CRYOGENIC CONDITIONS

FROM −162°C LNG TO USABLE NATURAL GAS



INTEGRATED LCNG SOLUTION: MEDIUM PRESSURE & HIGH PRESSURE GAS SUPPLY



LNG DISPENSING PROCESS FLOW

Safe • Efficient • Reliable

1 CRYOGENIC STORAGE TANK

LNG is stored in cryogenic tank at -162°C.

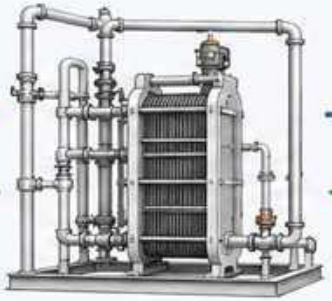
2 DISPENSING SKID (LNG PUMP SKID)

Submersible pump draws LNG from tank and sends to Saturation Skid.

VJ SUCTION LINE

VJ RETURN LINE

3 SATURATION SKID (HEAT EXCHANGER)



LNG is heated using ambient heat and converted to saturated LNG at line pressure.

VACUUM JACKETED PIPELINE

COOLDOWN RETURN LINE

4 LNG DISPENSER

Saturated LNG is supplied to LNG Dispenser for vehicle fueling.

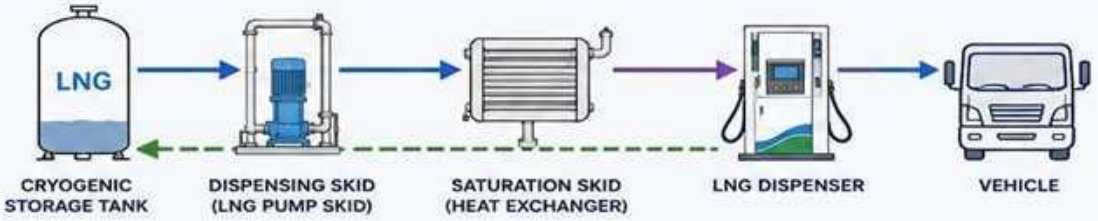
VJ SUCTION LINE (LNG FLOW) FROM TANK TO SATURATION SKID

VJ RETURN LINE (COOLDOWN) FROM DISPENSER TO TANK

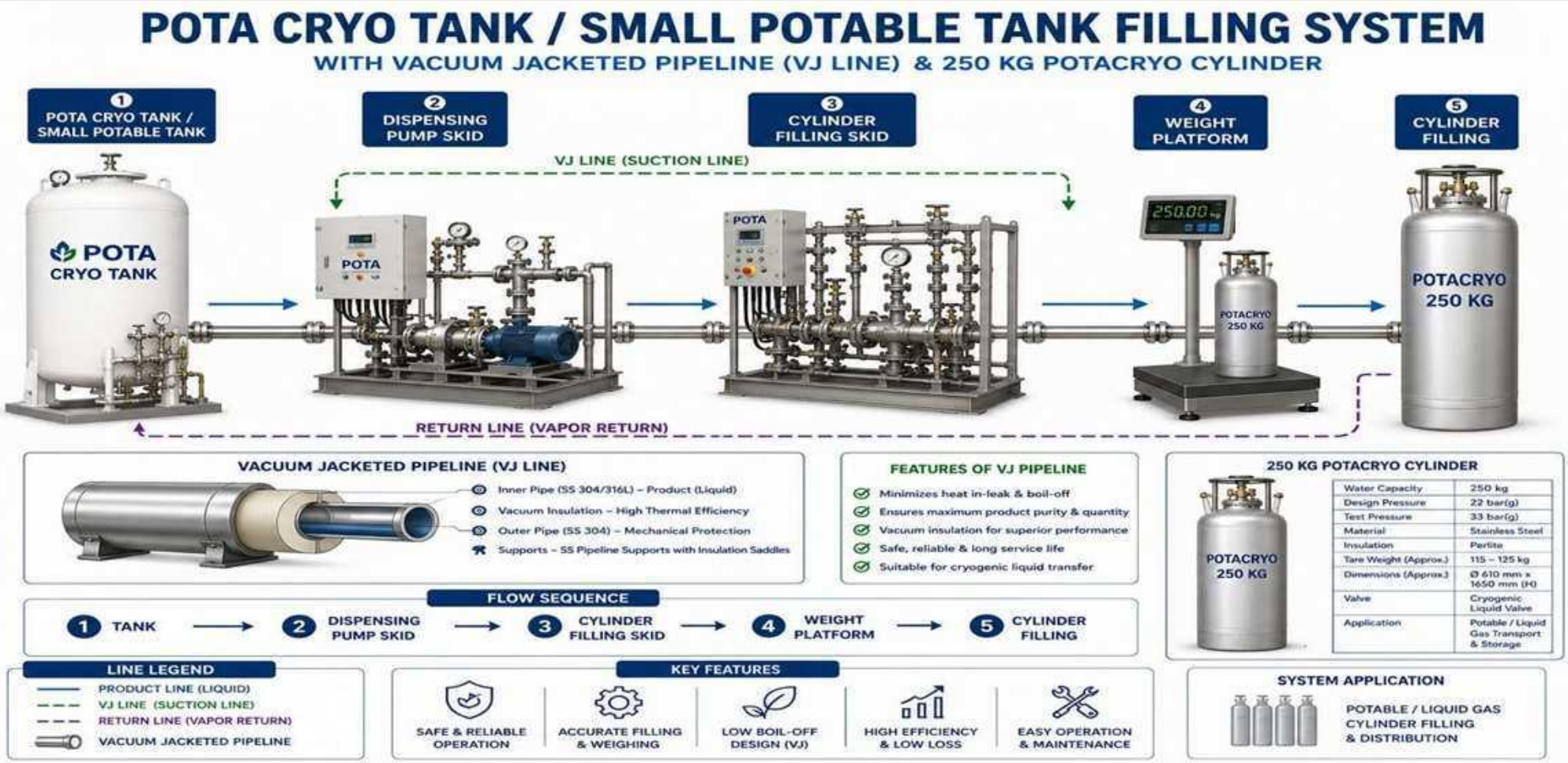
VJ DELIVERY LINE FROM SATURATION SKID TO DISPENSER

PROCESS DESCRIPTION

1. LNG is stored in cryogenic storage tank.
2. Submersible pump draws LNG from tank and sends to saturation skid.
3. LNG passes through ambient heat exchanger (saturation skid) and becomes saturated LNG.
4. Saturated LNG is supplied to LNG dispenser for vehicle fueling.
5. Vapors during cooldown are returned to tank through VJ return line.



SMART LCNG SOLUTIONS FOR HOTELS, SCHOOLS & COMMERCIAL KITCHENS



CRYOGENIC STORAGE & TRANSPORT TANKS

DESIGNED FOR SAFETY, RELIABILITY & PERFORMANCE

CRYOGENIC VERTICAL STORAGE TANK
(STATIONARY TANK)

TECHNICAL DETAILS

Service	: LNG
Tank Type	: Double Wall, Vacuum Insulated
Orientation	: Vertical
Capacity	: 40 KL / 56 KL / 114 KL / 213 KL (Customizable)
Design Code	: ASME Section VIII, Div. 2
Design Pressure	: Inner Tank 2.5 barg Outer Tank (Vacuum) Full Vacuum
Design Temperature	: -196 °C
Material	: Inner Tank – 9% Ni Steel Outer Tank – Carbon Steel
Insulation	: Perlite / Super Insulation + Vacuum
Boil Off Gas (BOG) Management	: Through BOG Line to Process
Applications	: LCNG Storage at Station

CRYOGENIC HORIZONTAL TRANSPORT TANK
(ROAD TRANSPORT TANKER – FOR LNG LIQUID TRANSPORTATION ONLY)

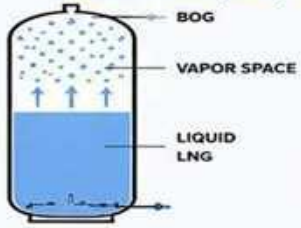
NO BOG OUTLET LINE IS REQUIRED OR PROVIDED.
NOT USED IN ENGINE OR AS FUEL.

THIS TANK IS ONLY FOR LNG LIQUID TRANSPORTATION PURPOSE.

TECHNICAL DETAILS

Service	: LNG (Liquid Transportation Only)
Tank Type	: Double Wall, Vacuum Insulated
Orientation	: Horizontal
Capacity	: 20 KL to 60 KL (Customizable)
Design Code	: ASME Section VIII, Div. 2
Design Pressure	: 17 barg (Typical)
Design Temperature	: -196 °C
Material	: Inner Tank – 9% Ni Steel Outer Tank – Carbon Steel
Insulation	: Perlite / Super Insulation + Vacuum
Applications	: LNG Liquid Transportation (From Plant to Daughter Station / Customer)

BOIL OFF GAS (BOG) – PRESSURE INCREASE IN VERTICAL TANK



- Heat ingress causes liquid to vaporize
- Boil Off Gas (BOG) accumulates in vapor space
- **Pressure inside the tank increases continuously**
- Requires Pressure Control System (PCV / Vent / Recovery System)
- Regular monitoring of pressure is essential

MORE BOG GENERATION → MORE PRESSURE

STABLE OPERATING PRESSURE IN HORIZONTAL TANK (DURING RUNNING)

- During movement, liquid constantly moves and contacts the wall
- Boil Off Gas (BOG) is minimized due to continuous movement
- **Pressure remains nearly stable during transportation**
- No BOG outlet line required
- Designed for safe & efficient LNG liquid transportation only

STABLE PRESSURE → SAFE TRANSPORTATION

KEY COMPARISON

PARAMETER	VERTICAL STORAGE TANK	HORIZONTAL TRANSPORT TANK
Orientation	Vertical (Stationary)	Horizontal (On Vehicle)
BOG Behavior	Accumulates in Vapor Space	Minimized During Running
Pressure Trend	Increases with Time	Remains Nearly Stable
BOG Outlet Line	Required (To Process / Control System)	**Not Required**
Primary Use	LNG Storage at Station	LNG Liquid Transportation Only

ENGINEERING IMPACT

- Safe Design for Cryogenic Service
- Minimized Boil Off Losses
- Reliable Operation & Monitoring
- Efficient Transportation of LNG (Liquid)

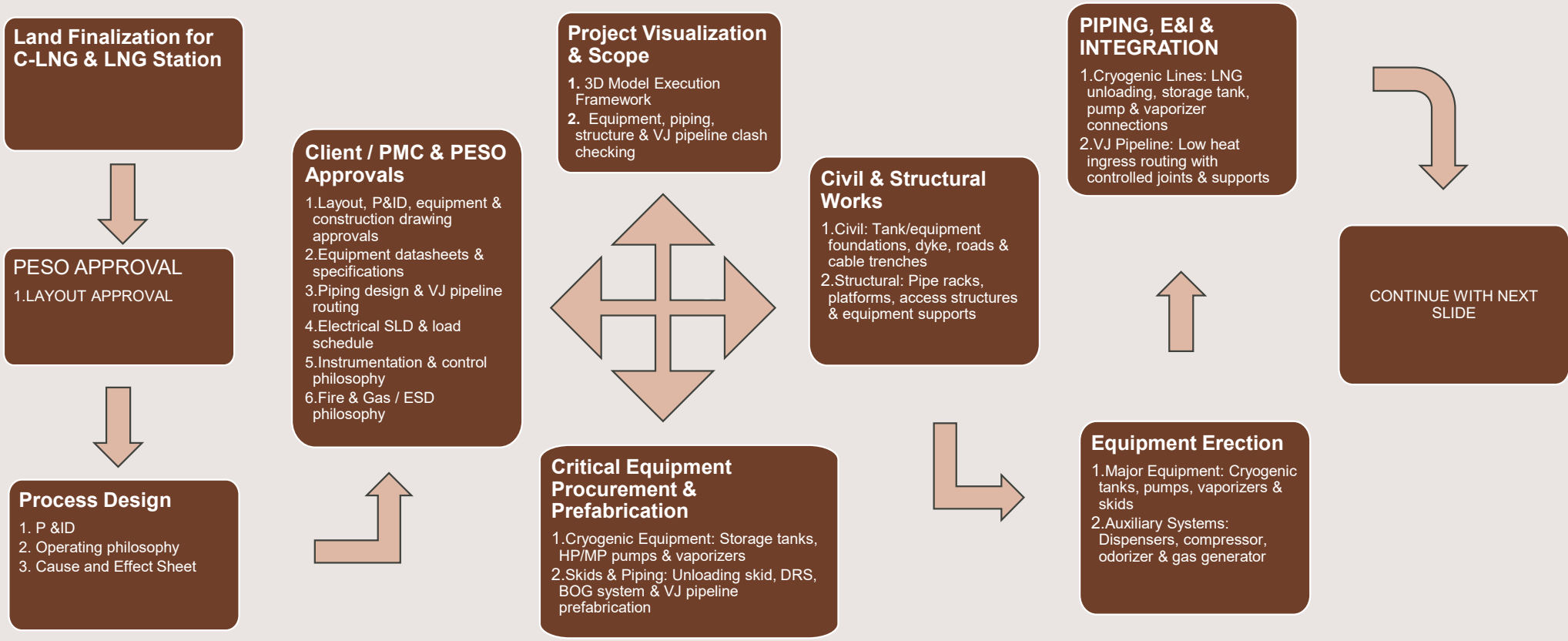
BENEFITS

- High Safety Standards
- Reduced Emissions
- Lower Operating Cost
- Long Equipment Life
- Reliable & Efficient LNG Liquid Transport

RIGHT DESIGN – RIGHT OPERATION – MAXIMUM SAFETY – MAXIMUM EFFICIENCY

From Design to Commissioning: The Journey of LCNG Infrastructure Construction

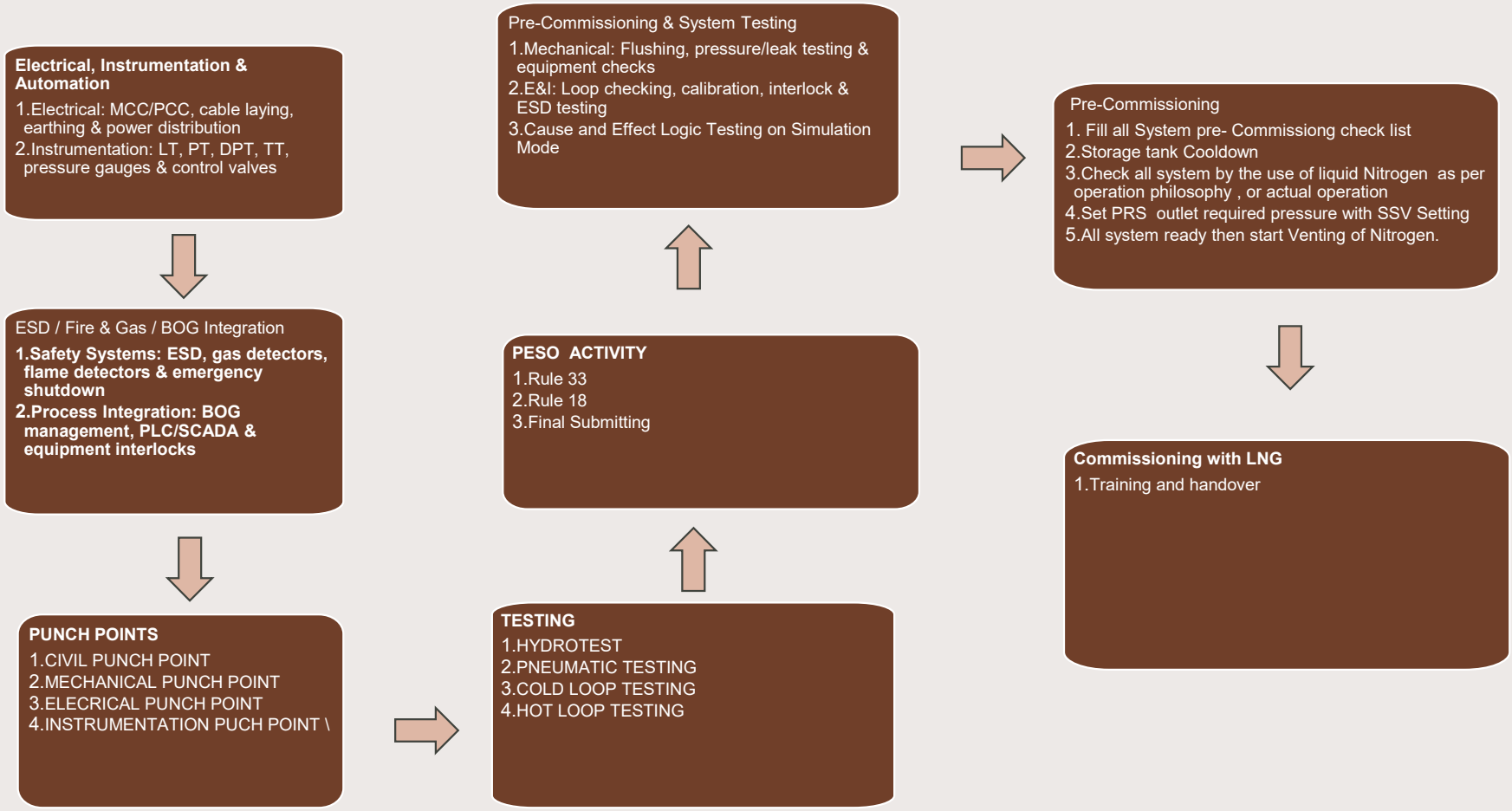
A practical construction journey covering cryogenic systems, piping, civil, E&I, safety, testing and commissioning.



From Design to Commissioning: Control the Energy Before you Control the Equipment (CRITICAL SAFETY CONTROLS)

Critical Hazard	Where It Occurs	Main Risk	Control	Example
Cryogenic Hazard	LNG tank, unloading, Vacuum Jacketed Pipeline, cool-down	Cold burn / LNG release	Cryogenic Personal Protective Equipment + controlled procedure	LNG unloading hose connection
Fire & Explosion	Hot work / Natural Gas system	Fire / explosion	Permit to Work + gas testing + ignition control	Welding near process pipeline
High Pressure	High-pressure pump / Compressed Natural Gas system / pressure testing	Rupture / stored energy	Exclusion zone + approved procedure	Pipeline pressure testing
Electrical Energy	Motor / panel / Gas Generator	Shock / arc flash	Lockout/Tagout + earthing + verification	Pump motor maintenance
Lifting Hazard	Tank / equipment erection	Dropped load / crush injury	Lifting plan + certified equipment	Cryogenic tank lifting
Oxygen Deficiency	Nitrogen purging	Asphyxiation	Oxygen monitoring + ventilation	Pipeline nitrogen purging
Vehicle Movement	LNG tanker / crane / site vehicle	Collision	Traffic plan + spotter + speed control	Tanker reversing at unloading bay

From Design to Commissioning: The Journey of LCNG Infrastructure Construction



CHALLENGES WE ENCOUNTERED

FIELD FOCUS | INTERFACES & SCHEDULE

CHALLENGE	CONSTRUCTION IMPACT	M P ENGINEERING RESPONSE
Nozzle / interface mismatch	Rework & delay	Joint engineering verification
VJ routing constraints	Fabrication / fit-up issues	3D + field verification
Tight schedule	Work-front pressure	Parallel activities
Late design changes	Modification / rework	Early review + interface matrix
Testing constraints	Commissioning impact	Test planning from early stage

Many piping problems start at interfaces — not at fabrication.

FROM CHALLENGES TO SOLUTIONS: LESSONS THAT ACCELERATED EXECUTION: LESSONS LEARNED

Freeze Engineering Early	• Finalize P&ID, layout, nozzle orientation & interfaces before fabrication • Impact: Reduces rework, material wastage and site delays
Maximize Modular & Prefabrication	• Shift maximum Spool piping, structural and skid fabrication from site to workshop. • Impact: Faster installation + better quality + lower site manpower cost.
Execute Activities in Parallel	• Run Civil + Equipment Procurement + Fabrication + Engineering simultaneously • Impact: Shortens overall project duration and protects the committed timeline.

FROM CHALLENGES TO SOLUTIONS: LESSONS THAT ACCELERATED EXECUTION: LESSONS LEARNED

Early Procurement of Long-Lead Items	• Identify cryogenic tanks, pumps, vaporizers, VJ pipeline & critical valves at project start. • Impact: Avoids construction stoppage and reduces schedule risk.
Interface Management is Critical	• Establish one coordinated interface between Civil, Mechanical, Piping, E&I, Vendors & PMC. . • Impact: Eliminates mismatch, waiting time and repeated work
Design for Installation & Maintenance	• Consider accessibility, lifting, maintenance clearance, valve operation and future replacement during design. • Impact: Reduces installation complexity and future maintenance cost

FROM CHALLENGES TO SOLUTIONS: LESSONS THAT ACCELERATED EXECUTION: LESSONS LEARNED

Punch-Point Management from Day One	• Identify and close observations system-wise, By Client /PSSR Audit team/PMC instead of waiting until commissioning. • Impact: Faster commissioning and zero critical punch at start-up.
Standardization & Reuse	• Standardize supports, piping arrangements, fabrication details, installation methods and checklists wherever applicable. • Impact: Faster execution, reduced engineering hours and lower fabrication cost.

“FROM DIGITAL VISION TO PHYSICAL REALITY”

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PHILOSOPHY | INTEGRATE • CONTROL • VERIFY • IMPROVE

M P ENGINEERING — OUR CONSTRUCTION PHILOSOPHY

INTEGRATE • CONTROL • VERIFY • IMPROVE

INTEGRATE
Disciplines & interfaces

CONTROL
Safety, quality & schedule

VERIFY
Testing & readiness

IMPROVE
Lessons into the next project

Our goal is not only to complete the plant —
but to deliver a facility that is safe, reliable and ready to operate.

THANK YOU