

# ***The Implementation of API RP 1102 Code to Evaluate Gas Pipeline Road Crossing***

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**Keywords:** API RP 1102; Gas Pipeline; Road Crossing; and Stress Analysis

**Abstract:** This paper discussed about evaluation stress on gas pipeline. A pipeline transports LPG (Liquefied Petroleum Gas) from jetty to storage tank area along 1200 meters. The pipeline has nominal pipe size (NPS) 10 inches and buried in areas with high population levels (areas with high consequences). At KP 800 meter the segment of pipeline has road crossing conditions, where vehicles such as heavy vehicles pass across above. Pipeline has operated during about 8 years, it necessary study to evaluate the integrity or strength. One of the methods to evaluate buried and road crossing pipelines is determining stress occurs. Stress analysis for pipeline road crossing is evaluated using code API RP 1102 (Pipelines Crossing Railroads and Highway). Based on these standards, the pipeline road crossing is evaluated by stress components such as (a) Circumferential Stress, (b) Longitudinal Stress, (c) Radial Stress. The calculation will be analysed using spreadsheet modelling. Based on the stress analysis in existing operational condition, the segment in KP 800 is Acceptable according Standard API 1102. All parameters show acceptable, furthermore the pipeline is concluded in satisfactory condition.

## **1. Introduction**

Terminal LPG company involved in the services of receiving, stockpiling and distributing the LPG. The company has responsible for ensuring its assets in high integrity. The process of receiving, stockpiling and distributing the LPG. The company has responsible for ensuring its assets in high integrity. The process of receiving, stockpiling and distribution starts from the Jetty head, which functions to carry out receipts from Tanker. In the jetty head there is a marine loading arm equipment that serves to connect the manifold pipe of the tanker with a pipe from the ground and transport LPG into a storage tank. The LPG pumping from the tanker uses a 10-inch diameter pipe along 1200 meters before entering the tank. The pipe is able to flow LPG from tankers up to 300 MT / hour.

Pipe is the main asset in transporting LPG from the process of reception (jetty head) to storage tank. At KP 00 + 800 meters from the jetty head, pipes crossing the road. The greatest load due to

## Api 1102 Code

**Surplus Record**



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*Recommended Practice for Liquid Petroleum Pipelines Crossing Railroads and Highways* American Petroleum Institute. Transportation Department, 1981      **The Best Knowledge of Piping Engineering II** , 2025-11-15 It gives me great pleasure and sense of deep satisfaction to publish this book of *The Best Knowledge of Piping Engineering II* You can learn how to design material selection and testing fabrication erection construction inspections and quality control of pipe along with weld joints detail joint preparation pipe cutting joints fit up welding of pipe pipe supports and steel structural platforms fabrication and installation etc and teach yourself to be a master of the process piping construction with the step by step instructions and quality control It provides all the information about tools and equipments being used in the piping construction work An engineer is the tradesperson who is busy in fabrication installation assembly testing maintenance and repair of process piping systems Fresh Piping engineer usually begins as apprentices and deals with industrial commercial marine piping and process piping systems Typical industrial process pipe works under high pressure and temperature and requires metals such as carbon steel stainless steel alloy steel cupronical and many different alloying metals fused together through precise cutting threading grooving bending and welding Piping engineer plan and test piping and tubing layouts cut bend or fabricated pipe or tubing segments and joints of those segments by threading welding brazing cementing or soldering them together They check the installation of manual pneumatic hydraulic and electric operated valves on pipes to control the flow through the pipes or tubes They do testing and inspection of the piping system Piping engineers are often exposed to hazardous or dangerous materials such as asbestos lead ammonia steam flammable gases various resins and solvents including benzene and various refrigerants Much progress was made in the 20th century toward eliminating or reducing hazardous materials exposures Many aspects of hazardous materials are now regulated by law in most countries including asbestos usage and removal and refrigerant selection and handling Other occupational hazards include exposure to the weather heavy lifting crushing hazards lacerations and other risks normal to the construction industry This book has proved to be a friend and guide to many Piping engineer Contractors and Technicians working with any Construction or Consultants Companies who are responsible for Laying out assembling or installation of piping systems pipe supports applying their knowledge of construction experience following blueprints and select the type and size of pipe related materials and equipment such as supports hangers and hydraulic cylinders according to piping drawings and specifications

*Introduction to Knowledge of Piping Engineering* Ram Babu Sao, It gives me great pleasure and a sense of deep satisfaction to publish this book *Introduction to Knowledge of Piping Engineering* You can learn how to design material selection and test fabrication erect construct inspections and quality control pipe along with weld joints detail joint preparation pipe cutting joints fit up welding of pipe pipe supports and steel structural platforms fabrication and installation etc and teach yourself to be a master of the process piping construction with the step by step instructions and quality control

It provides all the information about tools and types of equipment being used in the piping construction work. An engineer is a tradesperson who is busy in the fabrication, installation, assembly, testing, maintenance, and repair of process piping systems. Fresh Piping engineer usually begins as apprentices and deal with industrial, commercial, marine piping and process piping systems. Typical industrial process pipe works under high pressure and temperature and requires metals such as carbon steel, stainless steel, alloy steel, cupronickel, and many different alloying metals fused through precise cutting, threading, grooving, bending, and welding. Piping engineers plan and test piping and tubing layouts, cut, bend, or fabricate pipe or tubing segments and joints of those segments by threading, welding, brazing, cementing, or soldering them together. They check the installation of manual, pneumatic, hydraulic, and electric operated valves on pipes to control the flow through the pipes or tubes. They do testing and inspection of the piping system. Piping engineers are often exposed to hazardous materials such as asbestos, lead, ammonia, steam, flammable gases, various resins, and solvents including benzene and various refrigerants. Much progress was made in the 20th century toward eliminating or reducing hazardous materials exposures. Many aspects of hazardous materials are now regulated by law in most countries including asbestos usage and removal and refrigerant selection and handling.

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crushing hazards lacerations and other risks normal to the construction industry This book has proved to be a friend and guide to many Piping engineer Contractors and Technicians working with any Construction or Consultants Companies who are responsible for Laying out assembling or installation of piping systems pipe supports applying their knowledge of construction experience following blueprints and select the type and size of pipe related materials and equipment such as supports hangers and hydraulic cylinders according to piping drawings and specifications Piping engineers are the main technical professionals who are responsible to deliver the quality job of piping work and they should have sufficient knowledge of Piping Engineering subject This will result in improving the general quality levels of a Piping engineer in this direction leading to a greater satisfaction in work This book is taking a lead in upgrading the awareness knowledge of various matters related with piping work benefiting Piping engineers working in the field of piping work The total practical approach of this book explodes the statistical data on mathematics physics chemistry and engineering that even the piping engineering subject is tough and difficult to understand a general reader or beginners willing to know about the subject will find the content very easy and simple to follow I hope that the excellence of this book will be appreciated by the readers from all parts of India and abroad

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