

Recommended Practice for Gas Lift System Design and Performance Prediction

API RECOMMENDED PRACTICE 11V8
FIRST EDITION, SEPTEMBER 2003

REAFFIRMED, MARCH 2015



AMERICAN PETROLEUM INSTITUTE

Recommended Practice for Gas Lift System Design and Performance Prediction

Upstream Segment

API RECOMMENDED PRACTICE 111V8
FIRST EDITION, SEPTEMBER 2003

REAFFIRMED, MARCH 2015



AMERICAN PETROLEUM INSTITUTE

SPECIAL NOTES

API publications necessarily address problems of a general nature. With respect to particular circumstances, local, state, and federal laws and regulations should be reviewed.

API is not undertaking to meet the duties of employers, manufacturers, or suppliers to warn and properly train and equip their employees, and others exposed, concerning health and safety risks and precautions, nor undertaking their obligations under local, state, or federal laws.

Information concerning safety and health risks and proper precautions with respect to particular materials and conditions should be obtained from the employer, the manufacturer or supplier of that material, or the material safety data sheet.

Nothing contained in any API publication is to be construed as granting any right, by implication or otherwise, for the manufacture, sale, or use of any method, apparatus, or product covered by letters patent. Neither should anything contained in the publication be construed as insuring anyone against liability for infringement of letters patent.

Generally, API standards are reviewed and revised, reaffirmed, or withdrawn at least every five years. Sometimes a one-time extension of up to two years will be added to this review cycle. This publication will no longer be in effect five years after its publication date as an operative API standard or, where an extension has been granted, upon republication. Status of the publication can be ascertained from the API Standards department telephone (202) 682-8000. A catalog of API publications, programs and services is published annually and updated biannually by API, and available through Global Engineering Documents, 15 Inverness Way East, M/S C303B, Englewood, CO 80112-5776.

This document was produced under API standardization procedures that ensure appropriate notification and participation in the developmental process and is designated as an API standard. Questions concerning the interpretation of the content of this standard or comments and questions concerning the procedures under which this standard was developed should be directed in writing to the Director of the Standards department, American Petroleum Institute, 1220 L Street, N.W., Washington, D.C. 20005. Requests for permission to reproduce or translate all or any part of the material published herein should be addressed to the Director, Business Services.

API standards are published to facilitate the broad availability of proven, sound engineering and operating practices. These standards are not intended to obviate the need for applying sound engineering judgment regarding when and where these standards should be utilized. The formulation and publication of API standards is not intended in any way to inhibit anyone from using any other practices.

Any manufacturer marking equipment or materials in conformance with the marking requirements of an API standard is solely responsible for complying with all the applicable requirements of that standard. API does not represent, warrant, or guarantee that such products do in fact conform to the applicable API standard.

All rights reserved. No part of this work may be reproduced, stored in a retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission from the publisher. Contact the Publisher, API Publishing Services, 1220 L Street, N.W., Washington, D.C. 20005.

FOREWORD

This Recommended Practice (RP) is under the jurisdiction of the API Committee on Standardization of Production Equipment (Committee 11).

This document presents RPs for the design of gas lift systems. Other API Specifications, API RPs, and Gas Processors Suppliers Association (GPSA) documents are referenced and should be used for assistance in design and operation.

Introduction to Gas Lift System Design and Performance Prediction

API RP 11V8 *Recommended Practice for Gas Lift System Design and Performance Prediction*, provides two functions:

- A broad overview of gas lift systems and various major types of gas lift operations.
- Recommended practices for gas lift system design and for modeling methods used in performance prediction. All key system components are reviewed to provide guidance for engineers, technicians, well analysts, and operating personnel who are involved in gas lift system analysis, troubleshooting, design, and optimization.

The primary purpose of this API Recommended Practice (RP) is to emphasize gas lift as a system and to discuss methods used to predict its performance. Information must be gathered and models validated prior to a system design, which must precede wellbore gas lift mandrel and valve design. The subsurface and surface components of the system must be designed together to enhance the strengths of each and to minimize the constraints.

This recommended practice bridges and enhances the general information from the *API Gas Lift Manual* (Book 6 of the Vocational Training Series) and the technical details of other API Gas Lift RPs, each of which contain information on a specific subject or part of the overall gas lift system. The gas lift system designer or operator should have and become familiar with the full set of documents from the API (American Petroleum Institute), GPSA (Gas Processors Suppliers Association), and ISO (International Standards Organization) that relate to gas lift system components:

API *Gas Lift Manual* (Book 6 of the Vocational Training Series)

API Spec 11V1—*Gas Lift Equipment*

API RP 11V2—*Gas Lift Valve Performance Testing*

API RP 11V5—*Operation, Maintenance, and Troubleshooting Gas Lift Installations*

API RP 11V6—*Design of Continuous Flow Gas Lift Installations*

API RP 11V7—*Repair, Testing, and Setting Gas Lift Valves*

API Spec 12GDU—*Glycol-Type Gas Dehydration Units*

API Spec 12J—*Oil and Gas Separators*

API Std 617—*Centrifugal Compressors for General Refinery Service*

API Std 618—*Reciprocating Compressors for General Refinery Service*

API *Manual of Petroleum Measurement Standards (MPMS)*—Chapter 5, *Metering*; Chapter 14, *Natural Gas Fluids Measurement*

GPSA—*Engineering Data Book*

ISO 17078—*Gas Lift Equipment Specifications*