



PETROLEUM GEOLOGY OF CHINA

PETROLEUM
GEOLOGY
OF
CHINA

中国石油地质

山东胜利油区
诸盆地

ALL BASINS
IN SHENGLI
OIL PROVINCE,
SHANDONG



石油工业出版社
PETROLEUM INDUSTRY PRESS

献给

在胜利油区地质大观园中
奋力开拓并立志继续
奋斗的人们

刘兴才

一九九五年九月二十三日

We dedicate this album to
the courageous pioneers who worked
for geological kaleidoscope of
shengli oil provence and
continue to disregard

Lin Xingcai
23th Sep., 1995

中国石油地质

PETROLEUM
GEOLOGY
OF
CHINA

All Basins In
Shengli Oil Province, Shandong

山东胜利油区诸盆地

石油工业出版社
PETROLEUM INDUSTRY PRESS

图书在版编目(CIP)数据

中国石油地质 山东胜利油区诸盆地 / 胜利石油管理局 编

北京: 石油工业出版社出版, 1995.11

ISBN 7-5021-1503-X

I. 中...

II. 胜...

III. 石油天然气地质-中国-山东-图集

IV. P618.130.62

石油工业出版社出版

(北京安定门外安华里2区1号楼)

华太彩色印务(深圳)有限公司排版印刷

新华书店北京发行所发行

*

787×1092 毫米 8开本 17.5印张 24千字 印1-3000

1995年11月北京第1版 1995年11月深圳第1次印刷

ISBN 7-5021-1503-X / TE · 1300

定价: 138.00 元

PETRO GEO

渤海湾石油明珠——前言

富饶的黄河三角洲——地理篇

多姿的地质大观园——地质篇

目 录 CONTENTS

陆相复式油区——油田篇

艰难的探索——历程篇

油洲加绿洲——展望篇

PETROLEUM GEOLOGY OF NORTH CHINA ALL KINDS SINCE W THE DONG

OIL PEARL IN BOHAI GULF——Preface

FERTILE YELLOW RIVER DELTA——Geography

ALL KINDS OF GEOLOGICAL KALEIDOSCOPE——Geology

COMPLEX CONTINENTAL OIL PROVINCE——Oilfield

DIFFICULT AND HARD SEARCH——Course

MIRACULOUS OIL LAND AND GREEN LAND——Prospect



五个沉积盆地

在山东省境内共有五个中、新生代沉积盆地，它可供勘探油气面积 65500 平方千米，占山东省陆地面积 42.8%。

Five Sedimentary Basins

There are five sedimentary basins in Shandong Province with an area of 65500 km² available for hydrocarbon exploration, accounting for 42.8% of the land area of Shandong Province.



A main oil-producing area on the Yellow River Delta in the Northern Shandung Plain of the lower reaches of the Yellow River, Shengli oil province occupies an important place in the area of Bohai Gulf in China. Here stands the first discovery well Hua 8 and Shengli Oil field—the second largest Oilfield in China, also the largest in Bohai Gulf. It produces more than 30 million tons of oil a year accounting for more than one-fifth of the nation's annual oil output and more than one-half the annual oil production of Bohai Gulf area. Shengli Oilfield has produced total 550 million tons of oil since it has been explored and developed over 30 years. The field has made an outstanding contribution to China's economic lifeline.

Shandong, named after the position in the east of the Taihang Mountains, was called Qilu in ancient China. It is located in the lower reaches of the Yellow River in east China, facing Bohai Sea and the Yellow sea. Here exist magnificent mountains and rivers, a long history and an excellent culture. Mt. Taishan, the head of the five sacred mountains, is a faulted block mountain standing aloft in the center of Shandong like a pillar supporting the sky reaching the sun. To its north, the Yellow River runs across the Lubei Plain into the Bohai sea with channel bed above the ground, being a "suspended river on the ground" and acting as a boundary between the north and the south of the North China Plain; to its northeast is Jiyang depression and Chongwen depression connecting to the sea; to its west is old Luning depression; to its southwest are the basins in the northwest Shandong and to its east is Jiaolai Basin close to the Yellow Sea. These are all Mesozoic sedimentary lift-subsidence basins with the total area of 65,500 km² accounting for 42.8% of the land area in Shandong Province. Plains, rivers and fertile fields are spread on the surface while oil and gas are hidden in the sedimentary rocks underground. Early in the Tang and Qing dynasties, it was recorded that "fluid flows like paint" in Zibo

County, "lights occur every where at night" in Caixian locality, "fire come out from underground" in Feicheng County of Shandong Province. In the early 20th century that some "scholars" and "explorers" affirmed that it was occasional that oil could be found in this alluvial deposit covered by the thick sediments of the Yellow River delta in the vast plains of east China. This confined to the people that conducting oil exploration and production was impossible on the land of Shandong Province.

Since mid 1950s, oil workers of new China had worked hard in searching for oil and gas in the north China plain at an unusual unflinching will. They made reconnaissance from south to north and from west to east. Finally they stopped over Jiyang depression in the Yellow River delta. The discovery of an excellent combination of source rocks, reservoir rocks and cap rocks in 1960, along with the main oil-bearing sequence—Eocene Shahejie formation resulted in obtaining 8.1 tons of commercial oil daily from Well Hua 8 which was drilled to that formation in 1961. Two big oilfields were discovered at Dongxin and Shengli by the subsequent expanded exploration. In 1964, exploration and development on large scale started. For more than 30 years the oil workers have worked in the main working area of Jiyang depression and Wulashan within 26,000 km² and revealed the fundamental law governing hydrocarbon accumulation; exploration and development through practice again and again and deepening understanding the underground. They discovered all kinds of oil / gas reservoirs. Petroleum geologists, geophysicists and petroleum engineers swept through the length and breadth of the petroleum geological kaleidoscope that is well known to the world for its complicated geology. They put their abilities to good use in the study on different structures and lithologies and in the hydrocarbon exploration from land to beach and sea, by overcoming various difficulties in fighting

against sea tide and river floods. They have made magnificent achievements in progressive exploration and development and field construction at high efficiency.

It is a Yellow River Cantata imbued with a spirit as lofty as a rainbow spanning the sky and a song of triumph that has sounded for more than thirty years' of exploration, development and construction in Shengli oil province. The main contributions for thirty years lie in that a giant oil production base in the east part of China has been built, the principal theory and the associated technology for exploration and development in the complex oil / gas area have been worked out, an important mainstay has been set up for China to produce steadily more than a hundred million tons of oil and to become one of the major oil producers in the world; a wealth of experience in exploration and development in the oil fields on beach and extremely shallow sea has been accumulated, a modernized oil town has been built in the Bohai beach and the Yellow river estuary and a solid foundation for the development and construction of the Yellow River delta has been laid.

Shengli Oil Province is in the prime of its life and is just unfolding. The geological petroleum workers and builders shoulder heavy responsibilities.

We are dedicating ourselves to the cause of petroleum on this fertile land.

We are contributing petroleum to our motherland and our people.

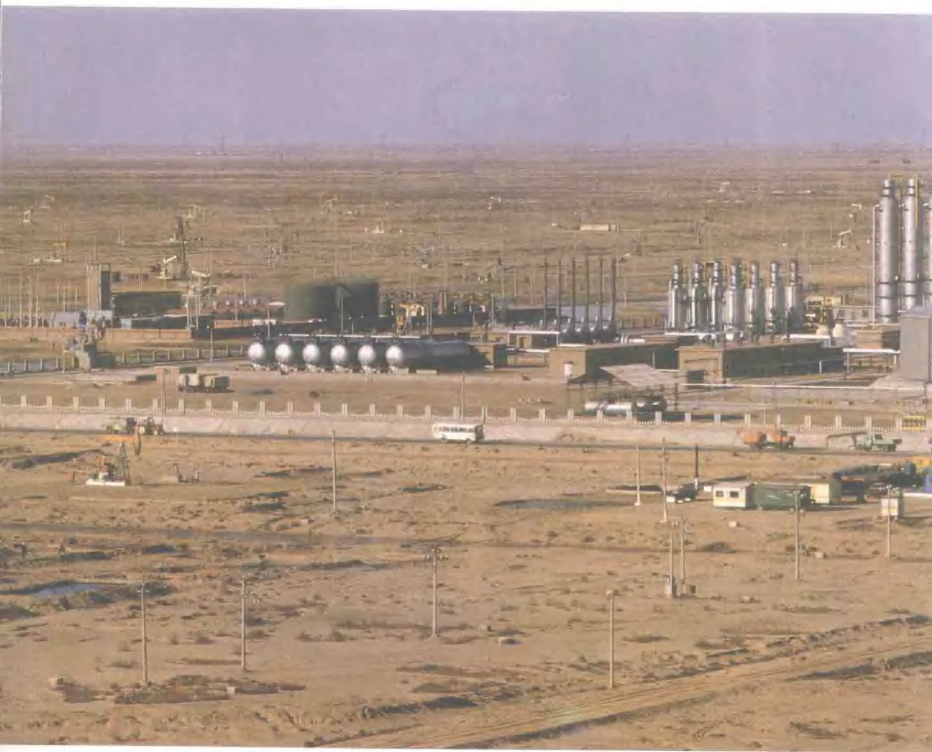
The theories and practices of progressive exploration and development in Shengli complex oil and gas province are of creative significance and have enriched the theories of petroleum geology. This album tries to present the geological petroleum kaleidoscope, theory and technology in a limited space and is dedicated to those who make contributions toward exploration and development in the Shengli oil province and those who are determined to continue working for it.

What do you think now?





鸟瞰黄河三角洲
An Aereoview of the Yellow River Delta

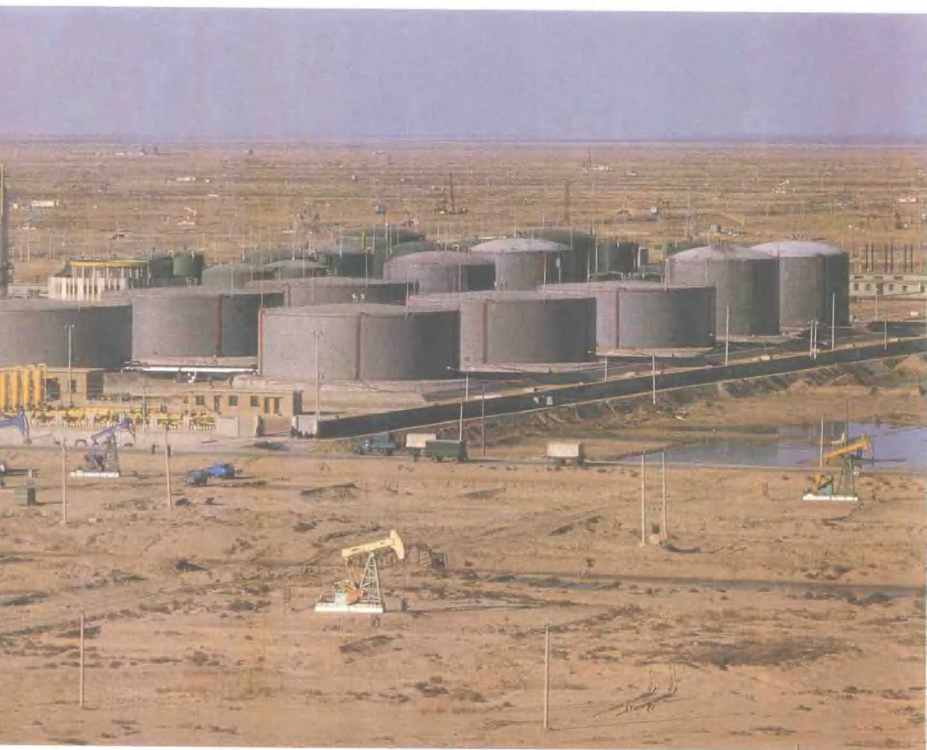


温东联合站

自1961年4月16日华8井获得工业油流，经三十多年的勘探开发和建设，胜利油田已成为中国东部的一大型石油、天然气生产基地。

Gudong Combined Station

Shengli oil province has been turned into a large-sized oil and gas production base in east China after 30 years' of exploration, development and construction since commercial oil flow was obtained from Well Hua-8 on April 16, 1961.





新型石油城

以石油工业为主体产业，兼营多种经营，全面发展的新型石油城。

A New Pattern of Oil Town

A new pattern of oil town has been established in all-round development. It takes petroleum industry as its main industry and simultaneously manages diversified economy.

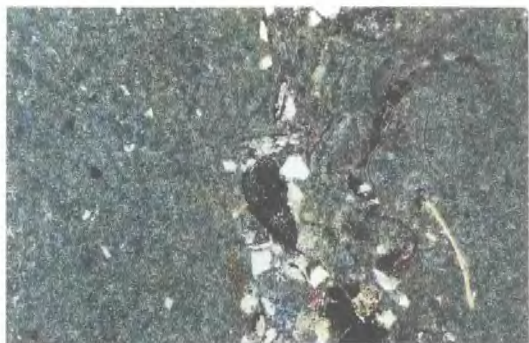


三角洲卫星照片

渤海之滨崛起胜利地区，如一颗璀璨夺目的明珠镶嵌于黄渤三角洲，黄渤三角洲，新生的绿洲，摇篮，为民众幸福的宝地，以崭新的风貌屹立在渤海湾畔。

Satellite Pictures of the Delta

Shengli oil province, rising dramatically from the seashore of the Bohai Gulf, is dotted on the Yellow River delta like dazzling pearls. The Yellow River delta that is a new pattern of green land and a treasure land bringing benefits to the people is standing aloft in the Bohai Gulf.



富饶的黄河三角洲

——地理篇

世界上，大江大河的入海口，都形成三角洲。经济发达，文明繁荣，黄河，作为中华民族的摇篮，孕育了灿烂的文明之河而流于世。但是，黄河三角洲长期默默无闻，鲜为人知。直到黄河三角洲成为胜利油田所在地，崛起现代化的石油城，才为国内外所注目。

黄河三角洲是神奇、美丽的、富饶的。黄河，创造了别的三角洲，也为胜利地区的开发建设创造了得天独厚的条件。

“九曲黄河万里流”，“一泻千里奔九折”。黄河对水中的泥沙含量在世界上独一无二。其挟沙造陆的速度也独一无二。远古时代，太行山以东广阔的华北平原曾是一片被海包围的海洋，地质学上称为“华北地槽”的鲁地中南部和东部古老的陆地巨陆，则是大海中的一片岛屿。“黄河之水天上来，奔流到海不复回”。伟大的黄河，满载着黄土高原的泥沙，一路千里，填海造陆，架一条黄河的巨龙，从河北到江苏的广大地域内摆动游荡，遇到华北地槽的阻挡，时而向北流入渤海，时而南流入黄河。经过漫长的岁月，黄河搬运的泥沙造就了北起苏北南部，南到江苏北部的广阔的华北平原和黄淮海平原，即古代黄河三角洲。若把大海上的岛屿与大陆连成一片，形成了山东省现在的面貌。

近代黄河三角洲，形成于 1855 年黄河对直隶省贺兰和改道山东，夺大清河河道南入渤海以后。这段黄河新筑鲁北平原，流程 617 千米，淤积管 10 次大改道，每立方米泥沙含淤量平均 38 千克，淤水期最大淤 650 千克，每年从上游携带下来的泥沙总量达 12 亿吨，其中有 12 亿吨被载入渤海湾下来。百余年来，自利津响南小清河河口与向西流筑黄河口 350 多千米的海岸线区域内，由于黄河的淤积，以年平均造陆 30 多万平米的速度，向大海推进，已形成 3000 多平方公里的新陆地，成为中华民族最年轻的土地。

黄河三角洲，在世界各大河流三角洲中，是生长最快的；其石油、天然气的储量，在目前也居势可敌。丰富的石油资源，广阔的土地资源，广阔的海洋资源，充裕的黄河水资源，是黄河三角洲所独有的。新中国成立以后，对黄河从上游到下游进行了综合治理，胜利油田结合勘探开发同时治理黄河

期间，入海口淤积已趋本稳定。1976 年对黄河进行了有史以来第一次有目的的人工改造，仅 8 年期间就使黄河大油田所在的极浅海淤积成陆地，使海上勘探开发为陆上勘探开发，大大加快了勘探开发速度，提高了效益。

如今的黄河三角洲，再不是过去那种盐碱荒道：一片凄凉的荒芜景象，胜利石油工人和地区人民勇于开荒，改天换地，建设绿洲绿洲。如今，现代化的城镇是座座分布在黄河两岸，带海盐碱；大小不平的平原水地，像一片片明镜，镶嵌在一望无际的大平原上；高等级公路和东铁铁路连接齐鲁内外，胜利黄河大桥沟通了黄、渤。苏南北运输线；黄河海港开辟了通往外部世界的新航道。黄河三角洲正在成为以石油工业为主，多元开发的新经济区。

黄河三角洲年轻而美丽，古往今来，许多名流咏其流光溢彩。春秋霸王齐国之都城遗址近在咫尺，古代繁荣，今亦昌盛，为齐鲁石化总公司所在地；自至孙武故里乐安已建成年产百万吨的横山油田，是今日石油职工用武之地；渤海山旺化石出土，展现了山东诸地古生物的繁茂景象；2000 多年前，秦始皇巡视东部沿海，到现今齐国主台以观海，如“李太白”以来已成近代黄河三角洲的一部分。

黄河三角洲是黄河所向往的地方，开发建设黄河三角洲的人们无愧于中华民族的优秀子孙。他们为中华民族的进步和繁荣贡献，为开拓祖国石油地库和筑城心而血，为振兴中华继续开荒；众志成城，一往无前。

建设黄河三角洲的建设者！
建设黄河三角洲的胜利石油人！
黄河三角洲正在走向世界，黄河三角洲将为中华民族做出更大的贡献！