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| **中图分类号：TE\*\*\*** | **单位代码：10425****学　　号：LB1402\*\*\*\*** |

 

**博** **士** **学** **位** **论** **文**

China University of Petroleum Doctoral Dissertation

Chinese Title (18 pt, 黑体, Bold, 1.5x Line Spacing)

Insert English Title (18 pt, Times New Roman, Bold)

(1.5x Line Spacing, No Longer Than Two Lines)

学科专业： **石油与天然气工程**

研究方向： **油气田开发理论与系统工程**

作者姓名： **Insert Your Full Name**

指导教师： **导师姓名 职称**

二〇一八年五月

**English Title (18 pt, Times New Roman, Bold)**

**(1.5x Line Spacing, No Longer Than Two Lines)**

A Dissertation Submitted for the Degree of Doctor of Philosophy

**Candidate：Insert Your Full Name**

**Supervisor：Prof. Full Name**

College of Petroleum Engineering

China University of Petroleum (East China)

关于学位论文的独创性声明

本人郑重声明：所呈交的论文是本人在指导教师指导下独立进行研究工作所取得的成果，论文中有关资料和数据是实事求是的。尽我所知，除文中已经加以标注和致谢外，本论文不包含其他人已经发表或撰写的研究成果，也不包含本人或他人为获得中国石油大学（华东）或其它教育机构的学位或学历证书而使用过的材料。与我一同工作的同志对研究所做的任何贡献均已在论文中作出了明确的说明。

若有不实之处，本人愿意承担相关法律责任。

学位论文作者签名： 日期： 年 月 日

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本人完全同意中国石油大学（华东）有权使用本学位论文（包括但不限于其印刷版和电子版），使用方式包括但不限于：保留学位论文，按规定向国家有关部门（机构）送交、赠送和交换学位论文，允许学位论文被查阅、借阅和复印，将学位论文的全部或部分内容编入有关数据库进行检索，采用影印、缩印或其他复制手段保存学位论文，授权但不限于清华大学“中国学术期刊(光盘版)电子杂志社”和北京万方数据股份有限公司用于出版和编入CNKI《中国知识资源总库》、《中国学位论文全文数据库》等系列数据库。（保密的学位论文在解密后适用本授权书）

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指导教师签名： 日期： 年 月 日

摘 要

第一段主要是研究的目的及意义。……

第二段主要是研究内容与方法。……

第三段主要是研究结果与结论。研究结果表明，……

关键词：水泥环，有限元，射孔，应力集中（5~8个即可）

**English Title (16 pt, Times New Roman, Bold)**

**(1.5x Line Spacing, No Longer Than Two Lines)**

Insert Your Full Name (Oil and Gas Field Development Engineering)

Directed by Prof. Full Name

**Abstract**

(Write in three paragraphs)

First paragraph: research objectives and significance. Shale gas has rich and widely distributed reserves, and has been getting into commercial exploitation phase. But …….

Second paragraph: research contents and methods. ……

Third paragraph: research results and conclusion. …………

**Key Words:** cement sheath, finite element, perforations, stress concentration, engineer (5-8 kewwords are preferred)

**English Title (18 pt, Times New Roman, Bold)**

**(1.5x Line Spacing, No Longer Than Two Lines)**

**Abstract of Innovation Points**

(1) …… (see Chapter 2).

(2) …… (see Chapter 3).

(3) …… (see Chapter 4).

Abstract of innovation points should be listed one by one, and usually no more than 4 points. Each point should have a number, e.g., (1), (2), (3), etc. 3-4 Innovation Points are preferred.

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# Chapter 1 Introduction

## 1.1 Basic Requirements

“Formatting” refers to the design of pages in a document as well as specifications for presenting, in print, certain types of information. This document covers the School of Petroleum Engineering formatting guidelines for preparing your thesis or dissertation document for official submission. If there is a difference between a formatting rule covered here and that in UPC Graduate School-approved style guide, the **Petroleum Engineering School guideline must be followed**. For formatting not covered by these guidelines, consult Turabian’s *Manual for Writers of Term Papers, Theses, and Dissertations.*

Authors are encouraged to prepare thesis or dissertation documents using the template available on the Web of School of Petroleum Engineering. If the author chooses not to use the template, be sure that you have it set to meet the following requirements.

Papers should normally be divided into the following sections: research background, theoretical basis and significance; literature review, research and design approach, experimental method, apparatus and results; analysis and conclusion, important calculation, data, diagram, curve and related analysis; necessary appendices and references; etc.

## 1.2 Copyright

Copyright law essentially establishes that writing inherently creates copyright and the author automatically owns copyright unless it is relinquished by some form of contract. The absence of a copyright notice or symbol does not mean that the work is unprotected or in the public domain.

**1.2.1 Copyrighting Your Work**

The copyrighting process is thus not required by law, but the Graduate School of China University of Petroleum (East China) recommends that you place a notice of copyright in your documents (except when prohibited by supporting agencies), as this helps to protect you in event of litigation. All theses and dissertations must have a copyright page. Please see the Copyright Page on the **Thesis/Dissertation Template**.

**1.2.2 Copyright and Co-Authored Work**

In rare instances (about one in 10,000), a thesis or dissertation may be co-authored, and hence there may be co-owners of a copyright. This may be appropriate if the thesis or dissertation involves a joint effort between you and your supervisor (beyond that normally associated with the direction of such study). Copyright law holds that scientific findings or facts may not be copyrightable, but their arrangement in a table or presentation in the text is protectable. Thus, you own the presentation copyrighted in a thesis or dissertation, but the underlying data is not “locked up.” This means faculty cannot copy your tables or appropriate your presentations verbatim, but may legally use the data in their own [differently worded] presentation. Your work should be acknowledged to avoid plagiarism. Co-owners have the right to free use of jointly owned property, subject to accountability for royalties. In such cases, your supervisor’s name should also be included on the copyright page after yours. In those few cases where China University of Petroleum (East China) should own the copyright, rather than the student (and possibly your supervisor), the Graduate School should be contacted in order for the student to execute a release form.

## 1.3 Plagiarism

It is your responsibility to document all work that is not your own in the thesis or dissertation by proper citation of sources. Offering the work of another as one’s own, even unintentionally, is a serious offense covered by the University’s policy on academic integrity, and is especially problematic in a research document which purports to be original work. If you are using information that you have previously published under your own name, you should still, nonetheless, cite yourself in your document. Information about academic integrity may be found in the most current edition of the Student Handbook.

**Checking for the first time (before defense)**

Percentage of total text copied ≤ 15%, passed, do not require the secondary checking;

15%-30%, revised and approved by school;

30%-50%, revised and rechecking;

>50%, determined by the committee.

**Secondary checking (after defense but before sub-committee meeting)**

Percentage of total text copied ≤ 15%, passed;

15%-25%, determined by the committee, or delayed;

>25%, determined by the committee, or failed.

## 1.4 Proofreading

It is your responsibility to insure that the thesis/dissertation is properly formatted and thoroughly proofread before submission to the Graduate Office for Official Review.

You should always proofread after using the spell check, as many errors may be missed by automated spell check functions. A thesis or dissertation submitted to the Thesis/Dissertation Supervisor or Coordinator which shows an obvious lack of proofreading will be returned to you for additional revisions before further review. The Graduate Office does not proofread, copyedit, or format theses and dissertations for students.

You and your supervisor should finish the **Self Proofreading Form** together. Then submit the form together with your thesis/dissertation to the Graduate Office for Official Review.

## 1.5 PDF Conversion

All theses and dissertations submitted to the Graduate Office must be in PDF format (unless security or patent restrictions apply). To create PDFs, you must have Adobe Acrobat software (at least version 7.0 Professional) or another compatible PDF-writer software installed on your computer.

**Note:** Adobe Reader is not the same as Adobe Acrobat. You cannot create PDF documents with Reader. You must have Acrobat or another fully compatible PDF-writer software.

# Chapter 2 Main Structure and Binding Sequence

## 2.1 Main Structure

The thesis/dissertation normally includes **13 parts** and the binding sequence is:

(1) Cover Page (Chinese & English)

(2) Copyright Page (in Chinese)

(3) Abstract (in Chinese)

(4) Abstract (in English)

(5) Abstract of Innovation Points: only for doctoral dissertation

(6) Table of Contents

(7) List of Figures, Tables, Abbreviations, Symbols or Nomenclature

(Optional but not recommended)

(8) Main Part

(9) References

(10) Appendix

(11) Academic Achievements Obtained During the Study Period (Optional)

(12) Acknowledgments

(13) About the Author: only for doctoral dissertation

## 2.2 Summary

……

# Chapter 3 Specific Requirements for Each Part

## 3.1 Cover Page

The cover page (in Chinese) should indicate the following information:

* **Chinese Library Classification Number:** please select this number from “*Chinese Library Classification System*” according to your thesis/dissertation topic. Please visit

**Website:**:<http://library.upc.edu.cn/UploadFiles/%E4%B8%AD%E5%9B%BE%E5%88%86%E7%B1%BB%E5%8F%B7.doc>

* **University Code:** our university code is 10425.
* **Student Number:** use your student number in the student records system.
* **Security Classification (in Chinese)**: optional. If necessary, it should be placed below the security classification. **Example:** 密 级：内部五年
* **Title of Thesis/Dissertation (Chinese & English):** concise and informative. Titles are often used in the information-retrieval systems. Avoid abbreviations and formulae where possible. The Chinese title should be not be more than 25 Chinese words, and the English title should be limited in two lines long, including spaces.
* **Major (in Chinese & English):** use your major in the student records system.

i.e., 石油与天然气工程 (Oil and Natural Gas Engineering)

油气井工程 (Oil & Gas Well Engineering)

油气田开发工程 (Oil & Gas Field Development Engineering)

海洋油气工程 (Offshore Oil & Gas Engineering)

船舶与海洋工程 (Naval Architecture and Ocean Engineering)

* **Research Direction (in Chinese):** use your research direction in the student records system.

i.e., 油气井力学、信息与控制

油气井岩石力学与工程

油气井流体力学与工程

钻井液完井化学与工程

油气渗流理论与应用

油气田开发理论与系统工程

采油工程理论与技术

提高采收率与采油化学

油气田开发信息技术与应用

海洋油气钻采工程

水合物开发理论与技术

海洋油气工程安全与环保

船舶与海洋结构物及油气装备设计制造

海洋工程流体动力学

海洋岩土工程

* **Author Name (in English):** the student’s name includes first name, middle name and family name.
* **Supervisor Name (in Chinese):** the name of the supervisor and he/her professional title, e.g., Prof., A. P.
* **Date (in Chinese):** the year and month of graduation.

The cover page (in English) should indicate the following information:

* **English Title**
* **The Type of Degree (in English)**
* **Candidate Name (in English):** first name, middle name and family name
* **Supervisor Name (in English):** first name, middle name and family name
* **College Name (in English):** College of Petroleum Engineering
* **University Name (in English):** China University of Petroleum (East China)

For more format settings, please consult the **Thesis/Dissertation Template** directly.

## 3.2 Copyright Page (in Chinese)

The copyright page includes: Original Statement and Use of Authorization (in Chinese). Please consult the **Thesis/Dissertation Template** directly.

## 3.3 Abstract (in Chinese)

This part should be written in Chinese. No subheadings should be used. An abstract should NOT have citations and should be no longer than 3 paragraphs (3 paragraphs are recommended). Please consult the **Thesis/Dissertation Template** directly.

## 3.4 Abstract (in English)

This part should be titled “Abstract”. No subheadings should be used. An abstract should NOT have citations and should be no longer than 3 paragraphs (3 paragraphs are recommended). Please consult the **Thesis/Dissertation Template** directly.

## 3.5 Abstract of Innovation Points: only for doctoral dissertation

Abstract of innovation points should be listed one by one, and usually no more than 4 points. Each point should have a number, e.g., (1), (2), (3), etc.

Please consult the **Thesis/Dissertation Template** directly.

## 3.6 Table of Contents

All preliminary page divisions (except the cover page, the copyright page, and the Table of Contents itself) must be listed in the Table of Contents. All chapter numbers and titles and all divisions of the back matter (References, Appendices, Academic Achievements, etc.), including appendix titles, must be listed.

Subheadings used in the text may be included. The same levels of subheadings must be listed for all chapters. Be careful about including too many levels as it becomes cumbersome and unwieldy for the reader. Do not list subheadings used in Appendices in the Table of Contents.

When formatting the Table of Contents, each of the following items should be considered:

* The section should be titled “Table of Contents”.
* Only top level headings, first and second level subheadings need be included in the Table of Contents.
* Indentation – Subheadings are indented in increments of characters from the chapter titles. 4 and 8 characters indentation is required for first and second level subheadings, respectively.
* Line spacing – 1.5x spacing should be used between entries. Title text should not run into the column where the page numbers are.
* Consistency with the text – The wording and capitalization of entries in the Table of Contents should be consistent with what is found on the actual page, except that subheadings should not be underlined in the Table of Contents as they may be in the text.
* Page numbers – Page numbers should be aligned at the right margin.

If you plan to use the automated Table of Contents function in your word processing software, be sure that you have it set to meet the above requirements or that you edit the finished listing so that it meets the requirements.

When you use the **Thesis/Dissertation Template**, you may directly update the WHOLE table of contents after you have finished the document.

## 3.7 List of Figures, Tables, Abbreviations, Symbols or Nomenclature (Optional but not recommended)

Each of the following items must be considered when formatting them.

* This part should be titled “List of Figures, List of Tables, List of Abbreviations, etc.”
* Line spacing – 1.5x spacing should be used between titles.
* Consistency with the text – The wording and capitalization of the titles in the list should be consistent with what is found within the main document.
* Avoid repetition – do not repeat the word “Figure”, “Table” in the list. Figure/table titles should be unique.

If you plan to use the automated list function in your word processing software, be sure that you have it set to meet the above requirements or that you edit it to meet these requirements.

## 3.8 Main Part

The main part of thesis/dissertation should include the following chapters:

* Introduction (Chapter 1)
* Methodology (if required by committee) (Chapter 2)
* The Creative Work (as a chapter)
* Conclusion (as a chapter)

**3.8.1 Text Formatting**

**Font**

The same font size and style must be used consistently throughout the text.

Keep readability in mind. It is usually best to use a standard serif font (e.g. Times New Roman) rather than decorative or unusual fonts. Please do not use colored text if possible.

**Paragraphs**

All paragraphs should have the first line indented with four characters. Please use the font of 12 point Times New Roman. The paragraph should be consistently spaced throughout, with 1.5x spacing between the lines. Make sure no additional line spacing before and after each paragraph. Please use this style consistently throughout your document.

**Justification**

Please use full justification. If necessary, please adjust the words carefully to keep your text from appearing with large gaps and spaces.

**3.8.2 Formatting Headings and Subheadings**

**Top Level Headings**

Top level headings should include the section titles (Abstract, Abstract of Innovation Point, Table of Contents, References, Academic Achievements, Acknowledgments, Appendix A, Appendix B, etc.) and the chapter titles.

The top level headings should be center-aligned, and the first letter of each word should be capitalized. Use single line spacing for all top level headings and leave 0.5x line spacing before and after the top level headings.

Each new chapter should start on its own page and should have "Chapter" and the number on the line together with the chapter title. Please use the font of 16 point bold Times New Roman. Number the chapters using Roman numerals.

**Subheadings**

Subheadings should be formatted with a distinctive style for each sub-level in the hierarchy. All subheadings should be left margin.

For all first level subheadings, please use the font of 14 point bold Times New Roman, use single line spacing and leave 0.5x line spacing before and after these subheadings. Number them using Roman numerals, e.g. 1.1, 1.2, 1.3, etc. in Chapter 1.

For all second level subheadings, please use the font of 12 point bold Times New Roman, use 1.5x line spacing and do not leave line spacing before and after the these subheadings. Number them using Roman numerals, e.g. 1.1.1, 1.2.1, 1.3.1, etc. in Chapter 1.

If necessary, you can use the following subheading text styles and their level order is

1) XXX

(1) XXX

① XXX

a) XXX

It needs to be emphasized that the subheading text can be formatted in the same style as the paragraphs. All subheadings at the same level should share the same, distinctive formatting.

## 3.9 References

This part should be titled “References”.

**3.9.1 Citation in Text**

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list, they should follow the standard reference style and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

**3.9.2 Web References**

As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be included in the reference list.

**3.9.3 Data References**

It encourages you to cite underlying or relevant datasets in your document by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier.

**3.9.4 Reference Formatting**

Reference formatting should be in consistent style. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the pagination must be present. The reference style used in the thesis/dissertation should be arranged according to the following examples:

**3.9.5 Reference Style**

**Text:** Indicate references by number(s) in square brackets (superscript) in line with the text. The actual authors can be referred to, but the reference number(s) must always be given.

**List:** Number the references (numbers in square brackets) in the list in the order in which they appear in the text.

***Examples:***

* Reference to a journal publication: [sequence number] Author name. Article title[J]. Journal title, year of publication, volume (issue): pagination.
	1. Ozgokmen T. M., Johns W. E., Peters H., et al. Turbulent mixing in the red sea outflow plume from a high-resoluting nonhydrostatic model[J]. Journal of Physical Oceangraphy, 2003, 33(8): 1846-1869.
* Reference to a book: [sequence number] Author name. Book title[M]. Edition (optional). Place of publication: publisher, year of publication.
	1. Strunk Jr W., White E. B. The elements of style[M]. 4th edition. New York: Longman, 2000.
* Reference to an article in an edited conference proceeding: [sequence number] Author name. Article title[A]. Editor(s). Conference proceeding title[C]. Place of publication: publisher, year of publication: pagination.
	1. Mao X. Analysis of affective characteristics and evaluation of harmonious feeling of image based on 1/f fluctuation theory[A]. International Conference on Industrial & Engineering Applications of Artificial Intelligence & Expert Systems (IEA/AIE)[C]. Australia: Springer Publishing House, 2002: 17-19.
* Especially for SPE conference papers: [sequence number] Author name. Article title[C]. SPE Number, year of publication.
	1. Yao C. J., Xu X. H., Wang D., et al. Research and application of micron-size polyacrylamide elastic microspheres as a smart sweep improvement and profile modification agent [C]. SPE 179531, 2016.
* Reference to a thesis/dissertation: [sequence number] Author name. Thesis/dissertation title[D]. Place of collection: university of collection, year.
	1. Yao C. J. Research on seepage mechanisms of pore-scale elastic microspheres by experiment and modeling[D]. Qingdao: China University of Petroleum (East China), 2014.
* Reference to a website: [sequence number] Author name. Reference title[OL]. Website, date of publication.
	1. Cancer Research UK. Cancer statistics reports for the UK during 2000-2003[OL]. http://www.cancerresearchuk.org/aboutcancer/statistics/cancerstatsreport/, 2003-03-13.
* Reference to a patent: [sequence number] Author name. Patent title[P]. Country of patent: patent number, date issued.
	1. Jiang X. Z. The invention relates to a preparation scheme of warm and hot external dressing[P]. China Patent: 881056078, 1983-08-12.
* Reference to a technical standard: [sequence number] Standard code, standard title[S]. Place of publication: publisher, year of publication: pagination.
	1. GB/T 16159-1996, Basic principles of orthography for Chinese phonetic alphabet[S]. Beijing: China Standards Press, 1996.
* Reference to a report: [sequence number] Author name. Report title[R]. Place of report: organizer, year of report.
	1. Yao C. J. Introduction of MEOR theory and technology[R]. Qingdao: China University of Petroleum (East China), 2015.

## 3.10 Appendix (Optional)

Appendices consist of materials which are related to the text, including, but not necessarily limited to, the following: a glossary, forms, Institutional Review Board (IRB) approval form, letters, questionnaires, raw data, computer programs, case studies, narratives, additional tables and/or figures which have not been mentioned or discussed individually in the text, or material of a textual nature.

When formatting your appendices, keep in mind:

* All appendix materials should fit within the required margins and should not obscure the page number.
* All appendix pages must have a page number which is consecutive for the document.
* All appendix tables and figures must be numbered, have a title, and be listed in the List of Tables or List of Figures, respectively.
* Appendices should be lettered (A, B, C, etc.) and titled. Titles should be formatted similar to chapter titles in that the word “Appendix” and the letter and the appendix title should appear on one line. If there is only one appendix, no letter is assigned; the division will simply be called Appendix.
* A glossary, if included, would be an appendix. The entries in a glossary should be alphabetized.

## 3.11 Academic Achievements Obtained During the Study Period (Optional)

This section includes published articles, patents, books, awards, etc. Please list them in the same style as references.

The part should be titled “Academic Achievements Obtained During the Study Period”.

## 3.12 Acknowledgments

The purpose of this page is to recognize scholarly and professional aid and advice; however, the inclusion of references to persons who provided clerical help, help with field studies, financial assistance, and permission to use copyrighted materials is also acceptable. Acknowledgments should be brief, in a professional style, and should not exceed two pages.

The part should be titled “Acknowledgments”.

## 3.13 About the Author: only for doctoral dissertation

This page should provide author name, gender, date of birth, nationality, place of birth, education background, work experience (position) and other rewards obtained during the study period (not included in Academic Achievements Obtained During the Study Period).

The part should be titled “About the Author”.

**3.14 Summary**

……

# Chapter 4 Writing and Printing Requirements

## 4.1 Typesetting Software

It is strongly recommended to use the **Microsoft Office Word 2013, 2016** or the latest versions in order to avoid any unnecessary troubles in the future

## 4.2 Page Size

All pages must be edited and printed using the following paper source:

Standard **A4 (210 × 297 mm, 70 g)** white paper

## 4.3 Written Language

Except for the parts of **Cover Page in Chinese**, **Copyright Page,** and **Abstract in Chinese**, the rest parts of the thesis/dissertation document can be written in English.

## 4.4 Page Layout

**4.4.1 Margins**

All pages must have the following margins:

**25 mm** top, bottom, left and right margin; 0 mm gutter margin

**4.4.2 Headers and Footers**

A running header is text that appears at the top of the document. All theses/dissertations must have the following text in a running header starting on the “Chapter 1” page of the main part and running through the end of the document:

The running header is divided into odd and even page label. The header of odd pages is China University of Petroleum (East China) Doctoral Dissertation, China University of Petroleum (East China) Master Degree Thesis, China University of Petroleum (East China) Engineering Doctorate Dissertation, or China University of Petroleum (East China) Degree Thesis of Engineering Master. The header of even pages is the chapter number & chapter title, for example: Chapter 3 Analysis on Chinese Enterprises Competitiveness and Its Training.

The running header must be center-aligned, single line spacing and no additional line spacing before and after it. The font of the running headers: **Times New Roman, 9 point**. The running header is at **15 mm** from the top margin (within the top margin). Footer position from the bottom margin: **15 mm** (within the bottom margin).

**4.4.3 Page Numbers**

The page numbers start from the “Chapter 1” page of the main part, until the end of the document. The page numbers should use Arabic numericals (start with “1”), font of Time New Roman, 10.5 point. The paper numbers should be placed at the bottom of the page, **15 mm** from the bottom margin (within the bottom margin). The page numbers must be center-aligned, single line spacing and no additional line spacing before and after it. Number every page of the thesis/dissertation in sequence through to the last page (including reference and appendix material). Do not add dashes around page numbers.

The cover page and copyright page are not numbered. The parts of Abstract, Table of Contents, List of Figures and Tables and Main Symbols should be consecutively numbered using lower-case Roman numericals (start with “i”), font of Times New Roman, 10.5 point, and located in the middle of page footer.

## 4.5 Font Settings

The font and font size must be used consistently throughout the thesis/dissertation. The following table lists the font settings for the WHOLE document.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Item** | **Font** | **Font Size** | **Bold** | **Outline Level** | **Alignment** | **Line Spacing** |
| **Chinese Title****(Cover Page)** | **黑体** | 18 point | × | Main Text | Center-aligned | 1.5x Line Spacing |
| **English Title****(Cover Page)** | TimesNewRoman | 18 point | × | Main Text | Center-aligned | 1.5x Line Spacing |
| **English Title****(Abstract)** | 16 point | × | Main Text | Center-aligned | 1.5x Line Spacing |
| **Top Level****Headings** | 16 point | × | Level 1 Title | Center-aligned | 1.0x Line Spacing0.5x before & after |
| **First Level****Subheadings** | 14 point | × | Level 2 Title | Left-aligned | 1.0x Line Spacing0.5x before & after |
| **Second Level****Subheadings** | 12 point | × | Level 3 Title | Left-aligned | 1.0x Line Spacing0.5x before & after |
| **Third Level****Subheading** | 12 point | × | Level 4 Title | Left-aligned | 1.0x Line Spacing0.5x before & after |
| **Paragraph****Text** | 12 point |  | Main Text | Justify-alignedIndent 4 letters for the first line | 1.5x Line Spacing |
| **Text in Charts, Figures and Tables** | TimesNewRoman | 10.5 point |  | Main Text | Center-aligned | 1.0x Line Spacing |
| **Caption of Charts and Figures** | 10.5 point | × | Main Text | Center-aligned | 1.5x Line Spacing0.25x after |
| **Caption of Tables** | 10.5 point | × | Main Text | Center-aligned | 1.0x Line Spacing0.25x before |
| **References** | 12 point |  | Main Text | Justify-alignedHanging indent 4 letters | 1.5x Line Spacing |

**Note:** The text in charts, figures and tables includes *x* axis & *y* axis, series name, etc.

## 4.6 Nomenclature

Nomenclatures, e.g. scientific and technological terms, facilities, elements, etc., should be consistent and unambiguous and conform with current China and international usage. As much as possible, authors should use systematic names similar to those specified by the international, national and departmental standards. The nomenclatures unspecified by these standards should use the full names or the general terms and names in petroleum industry. All nomenclatures should be consistent throughout the thesis/dissertation document. Special and new items should be described or explained in annotations appropriately.

Abbreviations will follow the conventions outlined in petroleum industry. Any abbreviation that appears in the document for the first time should be indicated the full name with a closing bracket, i.e., MEOR (Microbial Enhanced Oil Recovery).

If necessary, please consult the general resources such as virtual dictionaries, research help, and online references, as well as resources that relate to your specialized subject matter, such as *Professional English of Petroleum Engineering* and professional books.

## 4.7 Quantities, Symbols and Units

All quantities, symbols and units should be consistent and unambiguous and conform with the national legal units of measurement (including the International System of Units and other units of measurement adopted by the State) and the national standards of quantities and units (GB3100~3102).

Fractions should be written with a slant line so that only a single line of type is required. The dimensions should be specified for all numerical quantities. Insofar as possible, all rate constants should use seconds as the unit of time, and energies of infrared peaks should be expressed in wavenumbers (cm–1). Symbols in mathematical equations must be defined. Ensure that all special characters (e.g., Greek characters, math symbols, etc.) are present in the body of the text as characters and not as graphic representations.

All universal physical quantities in the text, figures, tables and equations should be indicated by the italics. The constants and units should be written in plain text. Subscripts and superscripts are generally presented in plain text. However, italic quantities in the subscripts and superscripts should be in italic text.

**Examples:**

* **Physical Quantities:** *P*, *m*, *k*, *Re*, *S*oi, *k*ro, *k*rw, *α*, *Ti* (*i* = 1, 2, …, n), *R*2, e–60/*RT*
* **Constants:** π, Σ, e (elementary charge), g (gravitational constant), c (velocity of light)
* **Units:** m, kg, kg/m3, mg/L, kPa, MPa, m/s, m2/s, ℃, W, J, mV, W/( m2·K), μm2, 104m3, mPa·s, kg·m2, min, hour, t/d, etc.

## 4.8 Tables

Tables may be created using a word processor’s text mode or table format feature. The table format feature is preferred. Ensure each data entry is in its own table cell. If possible, they should be designed to occupy the full column of the document. The descriptive heading and column heads should be as brief as possible, consistent with making the table as self-explanatory as possible. Arrangements which result in much blank space or repetitive entries should be avoided, and care should be taken to minimize the depth of the table. Footnotes in tables should be given a letter designation and cited in the table by a superscript letter. If a reference is cited in the table and the text, use the lettered footnote in the table to refer to the numbered footnote in the text.

Please submit tables as editable text and not as images. Tables should be placed next to the relevant text in the article (as well as appendices). Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using shading in table cells.

All tables (as well as figures and equations) should have a unique title and number according to the chapter layout, e.g., Table 1-1 XXX in Chapter 1, Table 2-1 XXX in Chapter 2, Table 3-1 XXX in Chapter 3, Table A1 XXX in Appendix A, etc. Table titles should be placed ABOVE the table. If at all possible, use 10.5 point Times New Roman font for the text within the table. The font of table number and title: 10.5 point, bold, Times New Roman.

Three-line tables are preferred. The width of top and bottom border lines is 1.5 point and the width of inner lines is 1.0 point. The height of table cells is 8-12 mm. The column heads must be indicated the quantities, symbols and units, e.g., “*P*/MPa” or “Pressure/MPa”. Only when the numerical quantities are dimensionless or not necessary, the units can be omitted. For more instructions, please consult *3.7 Variables, Symbols and Units*. The font of the text in figure is 10.5 point Times New Roman.

**Multiple-Page Tables**

The title for the second and following pages of a multiple-page table should read, for example, “Table 1-1 XXX (continued)”. Multiple-page tables also should have the column headings repeated at the top of each page.

**Oversized (Large) Tables**

Oversized tables may be handled in several ways, including the following.

* The table may be placed on a page that is in a “landscape” orientation.
* The table may be continued on another page (see “Multiple-Page Tables”).

**Placement of Tables in the Chapter**

* Tables should be mentioned specifically in the text before they appear, e.g., “… as shown/lists in **Table 1-1**” or “(see **Table 1-1**)”. **The font of “Table 1-1” can be bold.**
* Tables should be numbered and appear in order of mention.
* If tables are discussed individually, they should appear in the text, not in the appendix.
* Tables should be placed and embedded within the body of the chapter on a page with text, on their own page.
* Tables (as well as table number and title) should be center-aligned.

**Example:**

**Table 4-1 Relationship between average pore-throats diameter and permeability of sandstone**

|  |  |  |  |
| --- | --- | --- | --- |
| Type | Porosity or *ϕ*/decimal | Permeability or *k*/μm2 | Diameter or *d*/μm |
| High Permbility Layer | 0.349 | 20.0 | 42.8 |
| 0.320 | 10.0 | 31.6 |
| 0.299 | 5.0 | 23.1 |
| 0.280 | 2.0 | 15.1 |
| 0.271 | 1.0 | 10.9 |
| 0.265 | 0.5 | 7.8 |
| 0.250 | 0.4 | 5.6 |

## 4.9 Figures

Figures are illustrative material including, but not necessarily limited to, charts, graphs, excerpts of computer programs, maps, lists of more than four lines, hand-drawn illustrations, photographs, samples, and examples **in both the text and appendices**. Chemical schema and musical examples are not required to be labeled as figures.

All figures should have a unique title and number according to the chapter layout, e.g., Figure 1-1 XXX in Chapter 1, Figure 2-1 XXX in Chapter 2, Figure 3-1 XXX in Chapter 3, Figure A1 XXX in Appendix A, etc. Figure titles should be placed BELOW the figure. If at all possible, use 10.5 point Times New Roman font for the text within the figure. The font of figure number and title: 10.5 point, bold, Times New Roman.

Graphics should be sized at the final printing size when possible. Single column graphics are preferred and can be sized up to 160 mm width and 240 mm height (120 mm width × 80 mm height is strongly recommended). Double column graphics must be sized 60-75 mm width and 40-45 mm height.

For the curve graphics, coordinate axis and scale line must be presented using the black solid line of 1.0 point width. The curves in the graphics should be 1.0 point wide. The data point size should be coordinated with the width of the curves. The distinction between multiple curves should be obvious. In addition, the illustrations must be clear. If possible, please use curves in color. Horizontal and vertical coordinates must be indicated the quantities, symbols and units, e.g., “*P*/MPa” or “Pressure/MPa”. Only when the numerical quantities are dimensionless or not necessary, the units can be omitted. The quantities, symbols and units should be consistent with those in the main text. All axis titles should be aligned to center of the axis. Please do not add borders around the graphs. If you want to use graphics from references, please redraw them by yourself.

Other graphics, i.e., photos, images, maps, etc. which are taken by camera or exported form computer programs should have the following resolution requirements:

* Black & White line art: 1200 dpi
* Grayscale art (a monochromatic image containing shades of gray): 600 dpi
* Color art (RGB color mode): 300 dpi
* The RGB and resolution requirements are essential for producing high-quality graphics within the published document. Graphics submitted in CMYK or at lower resolutions may be used, however, the colors may not be consistent and graphics of poor quality may not be able to be improved.
* Most graphic programs provide an option for changing the resolution when you are saving the image. Best practice is to save the graphic file at the final resolution and size using the program used to create the graphic.

**Oversized (Large) Figures**

Oversized figures may be handled in the same way as oversized tables.

**Placement of Figures in the Chapter**

* Figures should be mentioned specifically in the text before they appear, e.g., “… as shown in **Figure 1-1**” or “(see **Figure 1-1**)”. **The font of “Figure 1-1” can be bold.**
* Figures should be numbered and appear in order of mention.
* If figures are discussed individually, they should appear in the text, not in the appendix.
* Figures should be placed and embedded within the body of the chapter on a page with text, on their own page.
* Figures (as well as figure number and title) should be center-aligned.

**Example:**

****

**Figure 4-1 Diagram of pores and pore-throats distribution in sandstone rock**



**Figure 4-2 Effect of reaction time on conversion rate**

## 4.10 Formulas and Equations

Microsoft Office Word Math Style is not recommended. Please edit all equations using formula editor of **Math Type 6.0 Equation** or the latest versions. Prior to use, you should install the editor first.

Equations should remain within the required document margins. Equation numbers should appear in parentheses at the right margin. You do not need to use the abbreviation “Eq.” Number equations consecutively in accordance with their appearance in the text and according to the chapter layout, e.g., (1-1), (1-2), (1-3) in Chapter 1, (2-1), (2-2), (2-3) in Chapter 2, (A1), (A2), (A3) in Appendix A, and so on. Do not add dashes or dots between equations and numbers. If at all possible, use 12 point Times New Roman font for the text within the equation. The font of equation number: 12 point, Times New Roman.

Subscripts and superscripts should be written with care, and all exponents should be linearized, as in e–60/*RT*. Organic structural formulas should fill space economically. Do not use structures when a simple formula will suffice. Place formulas on a single line when possible, as in (CH3)2NCH2CONH2. It is important that all formulas be carefully arranged and executed, with special attention to correctness of symbols, location of subscripts, superscripts, and electric charges, and the placing and close join-up of single and multiple bond lines. Phenyl groups should be shown as C6H5, not as *ϕ*. All furnished art must be complete.

When referring to the equation in text, use the style like “as shown in **Equation (1-1)**”, “be expressed as **Equation (1-1)**” or “(see **Equation (1-1)**)”. **The font of “Equation (1-1)” can be bold.**

Symbols in equations must be defined and can be handled in the following way:

Where *P* is the pressure, MPa; *k* is the permeability, 10-3μm2; *ϕ* is the porosity, decimal.

**Note:** Equation definitions should be placed BELOW the equation, justify-aligned and all with the font of 12 point Times New Roman. For more instructions, please consult *3.7 Variables, Symbols and Units*. Ensure that all special characters (e.g., Greek characters, math symbols, etc.) are present in the body of the text as characters and not as graphic representations.

**Oversized (Long) Equations**

Equations together with their number should as far as possible be arranged in a single line. Oversized equations can be handled in “Multiple-Row Style”.

**Placement of Formulas and Equations in the Chapter**

* Formulas and equations should appear specifically in the text after they are mentioned.
* Formulas and equations should be numbered and appear in order of mention.
* Formulas and equations may be presented as the following way.

**Example:**

|  |  |
| --- | --- |
|  | (4-1) |

Where *r* is the average pore radius of rock cores, MPa; *k* is the permeability, 10-3μm2; *ϕ* is the porosity, decimal.

## 4.11 Safety Considerations

Authors must emphasize any unexpected, new, and/or significant hazards or risks associated with the reported work. This information should be in the experimental details section of the full thesis/dissertation document.

Precautions for handling dangerous material or for performing hazardous procedures should be explicitly stated.

## 4.12 Summary

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# Chapter 5 Examples

**5.1 Type and Size of Mesh**

The mesh that was used in this study was determined by the size of the conductor casing and the amount of deformation expected during the penetration analysis. An axisymmetric analysis for a mesh whose axis coincides with the axis of the conductor casing foundation is the most efficient solution (Abdelaziz, 2000). Therefore, it was analyzed as a two-dimensional problem. However, ABAQUS only provides for one Eulerian element type that is a 3D element requiring eight nodes. Therefore, a 2D model of the conductor casing and soil mass was created in this study; however, the model was optimized by utilizing symmetry. Randolph et al.(2008) suggested that it is better to control element sizes throughout the analysis domain by using a mesh density function, with fine elements inside the deformation mechanism and a coarse mesh when the effect of high strain rates or strain softening is taken into account.

**5.1.1 Boundary Conditions**

It is possible to define material properties for Eulerian analysis in the same way as for Lagrangian analysis. For this analysis, liquid will be used as the material flowing through the element. Since the elements of the Eulerian mesh may not be always full of one material (soil, water, void), ABAQUS uses the corresponding volume fraction of the material to determine average state variables, such as stresses and strains (see Figure 5-1).

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Text in Figure: 10.5 pt, Times New Roman

**Figure 5-1 Diagram of pores and pore-throats distribution in sandstone rock**

**5.1.2 Results**

4 node Linear Strain Quadrilateral elements were used to model the conductor casing and the soil. 6-noded flat elements, with a maximum aspect ratio between 10 and 100 is recommended by Britto (1988) to model the interface behavior between the conductor casing and the soil, in order to simulate slippage between the soil and conductor casing (see Table2-1).

**Table 5-1 Relationship between average pore-throats diameter and permeability of sandstone**

|  |  |  |  |
| --- | --- | --- | --- |
| Type | Porosity[*φ*]/decimal | Premeability[*k*]/μm2 | Diameter[*d*]/μm |
| High Permbility Layer | 0.349 | 20.0 | 42.8 |
| 0.320 | 10.0 | 31.6Three-line tables.Text in Figure: 10.5 pt, Times New Roman |
| 0.299 | 5.0 | 23.1 |
| 0.280 | 2.0 | 15.1 |
| 0.271 | 1.0 | 10.9 |
| 0.265 | 0.5 | 7.8 |
| 0.250 | 0.4 | 5.6 |

**5.2 Summary**

……

# Chapter 6 Conclusion

(1) This thesis is concerned with the effect of soil strain rate and strength degradation on the penetration resistance of conductor casing during installation in offshore location. A numerical approach has been taken to investigate the different aspects of conductor casing behaviour during installation. Johnson Cook’s constitutive model is applied to obtain the results of this work. Stiff soil with an undisturbed undrained shear strength of 150 kPa and Soft soil with an undisturbed undrained shear strength of 30 kPa were used in this work and covers a range of embedment depths. This chapter summarizes the main findings arising from this thesis and possible directions for future work are suggested. The analysis showed that both shaft computed resistance force and shaft friction have an effect on the shaft bearing capacity of the casing and that the dimensions of the casing (*L* and *D*) were of significant importance.

(2) It was observed from the analyses result that although the reaction force increased with penetration velocity, it reaches a certain point where the reaction force start decreasing as penetration velocity increases indicating a failure starts during the present velocity magnitude.

The result obtained on the effect of vertical displacement on the plastic strain showed that plastic strain or degradation is constant at initial time of penetration but increased with increase in displacement for stiff clay. For soft clay, it increased linearly with increase in displacement during initial penetration and at a faster rate during re-penetration.

(3) It can be concluded from the undrained shear strength profile when the soil was displaced by the casing from the result that the average percentage increase in undrained shear strength of stiff clay when the casing is penetrated 4.7 m into the soil was 66% and that for soft clay was approximately 45%. When the casing was fully embedded average percentage increase by 45% and 50% for soft and stiff clay respectively.

The normalized undrained shear strength decreases slightly with depth and there is a larger decrease from above the clay layer to below it. The reason for these patterns could be that the undrained shear strength obtained from the analysis using Johnson cooks constitutive model does not increase as much with depth as it ought to and that the increase should be different above and below the clay layer.

(4) The soil strength increased semi-logarithmically as strain rate increased and the undrained shear strength profile of the casing re-penetrated into the soil was similar to that of the profile for the casing penetrated 4.7 m. Stiff clay had higher values of undrained strength.

# References

***Citation in text***

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list, they should follow the standard reference style and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

***Web references***

As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be included in the reference list.

***Data references***

It encourages you to cite underlying or relevant datasets in your document by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier.

***Reference formatting***

Reference formatting should be in consistent style. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the pagination must be present.. The reference style used in the thesis/dissertation should be arranged according to the following examples:

***Reference style***

**Text:** Indicate references by number(s) in square brackets (superscript) in line with the text. The actual authors can be referred to, but the reference number(s) must always be given.

**List:** Number the references (numbers in square brackets) in the list in the order in which they appear in the text.

***Examples:***

* Reference to a journal publication: [sequence number] Author name. Article title[J]. Journal title, year of publication, volume (issue): pagination.
	1. Ozgokmen T. M., Johns W. E., Peters H., et al. Turbulent mixing in the red sea outflow plume from a high-resoluting nonhydrostatic model[J]. Journal of Physical Oceangraphy, 2003, 33(8): 1846-1869.
* Reference to a book: [sequence number] Author name. Book title[M]. Edition (optional). Place of publication: publisher, year of publication.
	1. Strunk Jr W., White E. B. The elements of style[M]. 4th edition. New York: Longman, 2000.
* Reference to an article in an edited conference proceeding: [sequence number] Author name. Article title[A]. Editor(s). Conference proceeding title[C]. Place of publication: publisher, year of publication: pagination.
	1. Mao X. Analysis of affective characteristics and evaluation of harmonious feeling of image based on 1/f fluctuation theory[A]. International Conference on Industrial & Engineering Applications of Artificial Intelligence & Expert Systems (IEA/AIE)[C]. Australia: Springer Publishing House, 2002: 17-19.
* Especially for SPE conference papers: [sequence number] Author name. Article title[C]. SPE Number, year of publication.
	1. Yao C. J., Xu X. H., Wang D., et al. Research and application of micron-size polyacrylamide elastic microspheres as a smart sweep improvement and profile modification agent [C]. SPE 179531, 2016.
* Reference to a thesis/dissertation: [sequence number] Author name. Thesis/dissertation title[D]. Place of collection: university of collection, year.
	1. Yao C. J. Research on seepage mechanisms of pore-scale elastic microspheres by experiment and modeling[D]. Qingdao: China University of Petroleum (East China), 2014.
* Reference to a website: [sequence number] Author name. Reference title[OL]. Website, date of publication.
	1. Cancer Research UK. Cancer statistics reports for the UK during 2000-2003[OL]. http://www.cancerresearchuk.org/aboutcancer/statistics/cancerstatsreport/, 2003-03-13.
* Reference to a patent: [sequence number] Author name. Patent title[P]. Country of patent: patent number, date issued.
	1. Jiang X. Z. The invention relates to a preparation scheme of warm and hot external dressing[P]. China Patent: 881056078, 1983-08-12.
* Reference to a technical standard: [sequence number] Standard code, standard title[S]. Place of publication: publisher, year of publication: pagination.
	1. GB/T 16159-1996, Basic principles of orthography for Chinese phonetic alphabet[S]. Beijing: China Standards Press, 1996.
* Reference to a report: [sequence number] Author name. Report title[R]. Place of report: organizer, year of report.
	1. Yao C. J. MEOR technology[R]. Qingdao: China University of Petroleum (East China), 2015.

# Appendices (Optional)

Appendices consist of materials which are related to the text, including, but not necessarily limited to, the following: a glossary, forms, Institutional Review Board (IRB) approval form, letters, questionnaires, raw data, computer programs, case studies, narratives, additional tables and/or figures which have not been mentioned or discussed individually in the text, or material of a textual nature.

When formatting your appendices, keep in mind:

* All appendix materials should fit within the required margins and should not obscure the page number.
* All appendix pages must have a page number which is consecutive for the document.
* All appendix tables and figures must be numbered, have a title, and be listed in the List of Tables or List of Figures, respectively.
* Appendices should be lettered (A, B, C, etc.) and titled. Titles should be formatted similar to chapter titles in that the word “Appendix” and the letter and the appendix title should appear on one line. If there is only one appendix, no letter is assigned; the division will simply be called Appendix.
* A glossary, if included, would be an appendix. The entries in a glossary should be alphabetized.

**A.1 Static Analysis**

**A.2 Explicit Analysis**

# Academic A

# Academic Achievements Obtained During the Study Period (Optional)

This section includes published articles, patents, books, awards, etc. Please list them in the same way as references.

# Acknowledgements

The purpose of this page is to recognize scholarly and professional aid and advice; however, the inclusion of references to persons who provided clerical help, help with field studies, financial assistance, and permission to use copyrighted materials is also acceptable. Acknowledgments should be brief, in a professional style, and should not exceed two pages.

The section should be titled “Acknowledgments”.