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编著

水电水利工程 实用英语

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前 言

长期以来,市场上流通的英语资料众多,可是专业英语方面的却甚少。本书取材于国际工程的标书文献,根据一般性的水利水电工程施工程序进行编排,并收集了一些工程中经常使用的应用文,让读者如同亲临施工现场,具有很强的现实指导意义,并且对上述不足可起某些方面的弥补作用。

本书由两部分组成,分为上下两篇。上篇即第一部分——Engineering Works (工程项目),包括施工导流、截流,土方开挖、清基与清表,土石坝填筑,钻孔、灌浆及排水井,混凝土工程和金属结构工程。下篇即第二部分——Engineering Documents (工程文献),包括委托书、传真、工程信件、合同及协议、施工方案的写作。本书的最大特点是取材于工地现场,因此实用性较强。水利水电工程与其他建筑工程(如修路、架桥、房屋建筑等)有许多相联系的地方,其中的“土方开挖、混凝土工程以及金属结构工程等”对于这类建筑工程也有一定的参考价值,下篇中的工程应用文适用于各类工程,其中的文稿均取材于国际工程上的原件,是经国际工程师认可的,可作为典型的模拟写作范本。读者既可从这些文献中学习文稿写作,又可了解相关的工程知识。

本书针对工程翻译的内容,在翻译技巧及英语学习方面做了适当的讲解和点评,对于学习工程类的学生以及有志参与国际工程施工的技术人员都有一定的帮助作用。

本书的编者曾以工地现场翻译的身份亲自参加了国际工程的建设活动。在此期间,虚心地向各类工程技术人员学习、请教,并翻译了大量的文献资料(包括各种合同、协议、施工方案、工具仪器说明书),同时还参与来往信件的写作与翻译,积累了较多的社会实践经验。

一本标书的翻译牵涉到方方面面,工程、力学、材料、建筑学、测量、机械原理等等,即使英语功底再厚的学者,如果不在实践中去体验,不向众多的技术人员学习、请教,也是难以达成的。为此,本人谨向所有提供帮助的现场工程师、技术人员表示衷心的感谢!同时,由于本人水平有限,书中难免有不少错误、翻译不妥之处,敬请各位专家、学者和技术人员提出批评指正,本人将不胜感激!

编者

于 2006 年 3 月

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上篇 工程项目

Lesson One

Handling and care of water

1. General

This section covers the technical requirements for the planning, design, testing, construction, maintenance and removal of the Temporary Works required for the handling and care of water during the period of construction of the Permanent works and the planning of Permanent Works construction to ensure the safety of the Works while maintaining the reservoir operation.

2. Measures included

In accordance with the Specifications contained in this Section and as shown on the drawings or as directed, the Contractor shall deal with all surface water and groundwater from any source, as may required, so that all the construction work so specified can be performed in areas free from water and so that the works are protected from damage. The Contractor shall design, furnish, construct, operate, maintain, and remove the necessary facilities as may be required for dewatering the construction areas, for handling all surface water and groundwater from any source, and for general operation of the works.

In the design of these facilities, the contractor shall take into account the likely seasonal fluctuations of the reservoir which will continue in operation during construction of the Works. A summary of historical records of reservoir level since 1969 is included in the Special Provision Clause SP-5 with more details covered under Clause SP-8. Particular requirements to construction activities related to calendar dates or reservoir water levels are given in Clause SP-6. 40.

In particular the contractor shall take account of the following:

(1) For excavation at the downstream toe of the embankments, the dewatering measures required.

(2) For placing material in blanket upstream shoulder of Yangguang Dyke, the construction sequence and timing required to protect this works from damage.

(3) For excavation and filling activities at the crest of the dams, the construction se-

quence and timing required to meet the special requirements to protect the stability and safety of the dams.

(4) For work on the hydraulic surfaces of the Main Spillway, the protection/dewatering measures, the construction sequence and timing required to meet the specified requirements to protect the stability and safety of the dams.

(5) For work on the Main Spillway, the ability to use one or more of the spillway orifices at any time of the year to discharge water in order to meet the required reservoir operating rules.

(6) For work on the excavation and construction of the Emergency Spillway Control Weir, the protection and dewatering measures required to meet the specified requirements to protect the stability and safety of the dams.

The design of all Temporary Works for the handling and care of water shall be carried out by the Contractor and shall conform to accepted and safe engineering practice. The Contractor shall include with his submissions copies of all design calculations relating thereto.

Cofferdams shall be designed by the Contractor and shall be located and constructed so that the site for the Permanent Works can be adequately drained and dewatered, and the Works constructed in the dry.

The Contractor's proposal shall not require any change to the location, dimensions, design or details of any part of the Permanent Works, unless approved by the Engineer pursuant to Clause 1-2.03.

3. Contractors acknowledgement and responsibility

The Contractor shall be solely and fully responsible for the handling and care of water throughout the period of construction and for any damage to person and property, as provided in Clauses 10 and 12 of the conditions of Contract.

The contractor shall be responsible for any damage or detriment to the Permanent Works which may result from any overtopping, breach, breakdown or other failure of his measures for handling and care of water, and shall make good such damage to the satisfaction of the Engineer, at no additional cost to the Employer.

Notes

(1) 课题 Handling and care of water 从字面上理解为“水处理及保护”，从工程的角度考虑，“水处理及保护”就是“施工截流、导流”。

(2) Contractor's acknowledgement and responsibility 其中 acknowledgement 本为“认可、认定”，承包商在合同文件方面的“认可、认定”可以理解为“承诺”，见参考译文。

(3) the Engineer “工程师”指业主方委派的专门负责和监督工程质量的监理工程师。后面各课文中出现的均与此相同。

一、生词表

maintenance 维修

in accordance with 根据、按照、与... 一致

| | |
|-------------------------------------|---|
| temporary works 临时工程 | take... into account/take account of 考虑 |
| permanent works 永久工程 | be responsible for 对... 负责 |
| specification 规范 | to the satisfaction of 满足... 的要求 |
| facility 设施 | pursuant to 根据、按照、遵循、依据 |
| furnish 提供 | timely 及时 (的、地) |
| fluctuation 升降, 摇摆, 波动 | failure 失败 |
| provision 设备、条款、供应 | timing 时间安排 |
| clause 款项 | breach 破坏、决口 |
| calendar 日历 | overtopping 倾覆 |
| measure 测量、措施 | acknowledgement 承诺、义务 |
| blanket 铺盖 | responsible 负责 |
| hydraulic 水力的 | dimension 尺寸 |
| discharge 排泄 | cofferdam 围堰 |
| main spillway 主溢洪道 | weir 围堰 |
| emergency spillway 非常溢洪道 | cover 涉及 |
| assessment 评估 | haulage 拖, 拉 |
| discharge 排水 | stockpile 堆料 (场) |
| contingent (contingency) 突发的 (突发事件) | |
| outline 简图 | impound 积水/蓄水 |
| silt 淤 | scheme 详细计划 |
| be compatible with 与... 相兼容 | schematic 示意图 |
| schedule 计划表 | bulkhead 挡土墙 |
| inundation 洪水 | lump sum price 总价位 |
| runoff 泄露/流出 | sump 积油池/积污池 |
| flume 排水沟 | bund 滨江堤 |
| dyke 坝 | lagoon 浅水湖 |
| deploy 分派, 使用 | preclude 排除 |
| divert the flows 引水, 导流 | dispose of 处理, 除掉 |
| have regard to 顾及, 重视 | reinstate 恢复原状 |

二、英语翻译漫谈

英语长句的翻译

翻译英语长句时, 要把句子的主干搞清楚, 然后弄清细枝末节: ①有定语、状语时, 要搞清定语、状语究竟是修饰哪个词; ②如果有并列成分, 需搞清楚谁和谁是并列, 不然就会把意思搞错。

【例句 1】 文中第一个自然段: This section covers the technical requirements for the planning, design, testing, construction, maintenance and removal of the Temporary

1 2 3 4 5 6

Works required for the handling and care of water during the period of construction of the Permanent works and the planning of Permanent Works construction to ensure the safety of the Works while maintaining the reservoir operation.

【讲解】 整段就是一句话。句子的主干: this section covers the technical requirements (本节涉及的是技术要求), 后面的以介词 for 引导的全部是 technical requirements 定语, 可在这个定语中又有两层并列成分和三个定语成分。第 1 层并列: 永久工程施工期间为水处理和保护临时工程计划、设计、检测……要求——永久工程施工的计划方面的防水患、保安全的要求 (见英文 and 连接的前后两个斜体部分), 一个是专门的水处理和保护的临时工程施工要求, 另一个是永久工程施工计划方面防水患、保安全的要求; 第 2 层并列多重并列 (连续 6 个并列部分, 分别用 1, 2, 3, 4, 5, 6 在并列成分下面标出)。因本节都是讲“水”的问题, 所以笔者翻译时根据自己的理解, 认为“在永久工程施工计划方面”也要考虑“防水患”、保证工程安全的问题, 使意思更加明确。定语①“介词短语”of the Temporary Works 修饰 6 个标有 1, 2, 3, 4, 5, 6 的连续并列成分; 定语②“过去分词短语”required for... 修饰名词短语 the Temporary Works; 定语③“动词不定式”to ensure the safety... 修饰 the planning of Permanent Works Construction。

【参考译文】 这一部分涉及在永久工程施工期间为了“水的处理和保护”而需要修建的临时工程的规划、设计、检验、施工、维护和拆除等方面的技术要求; 以及在维持水库运行情况下, 永久工程施工规划中“防水患、保工程安全”方面的技术要求。

【例句 2】 Gabions shall be made of steel wire triple twisted forming a uniform hexagonal mesh pattern with openings 8cm by 10cm or 8cm by 12 cm.

【讲解】 此句虽说不长, 但定语比较复杂, 其中第 1 个定语 twisted “绕织的/绞织的”和第 2 个定语 “forming a uniform hexagonal mesh pattern” (现在分词短语) 同时修饰 steel wire; 后面还有一个 “with...” 介词短语也作定语, 修饰 mesh pattern。

【参考译文】 石笼以三根钢丝扭成一股的丝线编制而成, 编制成 8cm×10cm 或 8cm×12cm 大小一律一样的六边形网眼。

【例句 3】 The contractor shall make timely submissions for the Engineer's approval of his proposals for the following principal activities as specified in subsequent clauses.

【讲解】 此句的主干 The contractor shall make timely submissions... of his proposals, 为“主—谓—宾”的结构。在宾语 timely submissions 和其定语 of his proposals 之间插入了一个作“目的状语”的介词短语 for the Engineer's approval。介词短语 for the following principal activities 作 proposal 的定语, as 引导的定语从句修饰 activities。其中 timely 为形容词修饰 submissions。可以将此句改写成下面两种形式, 意义不变:

(1) The Contractor shall submit his proposal for the following principal activities as specified in subsequent clauses timely to the Engineer for approval. timely 在原句中是形容词, 修饰 submissions, 而在此改写句中是副词修饰 submit。此句的宾语 his proposal 和其定语 for the following principal activities as specified in subsequent clauses (定语中有定语 as specified... 修饰 activities) 太长, 似乎让人读起来前后衔接不上。

(2) The Contractor shall submit timely for the Engineer's approval his proposals for the following principal activities as specified in subsequent clauses. 此句把宾语放到状语之后,

读起来语感更强,也更地道。其中 his proposal... 是宾语,宾语被后置了,中间插入了状语 for the Engineer's approval.

【参考译文】 对于后面各条款中所提到的各主要施工活动,承包商应及早提交施工计划以获得工程师的批准。

【例句4】 Subject to the approval of the Engineer, any suitable part of the Temporary Works when located within the limits of the Permanent Works may be incorporated therein, provided that its construction standard has been shown to meet the specified requirements and the construction details are compatible with the design of the Permanent Works.

【讲解】 句子的主干为 any suitable part of the Temporary Works... may be incorporated therein. “provided that...” 属于复合连词,引导条件状语从句,表示:“假如,只要,如果”; Subject to the approval of the Engineer 和 when 引导的省略句都是状语,不过 when 引导的省略句在翻译时可作定语处理。

【参考译文】 处于永久工程范围的任何临时工程部分,只要施工标准满足规范要求,施工细节符合永久工程设计要求,经工程师许可后可以纳入永久工程。

三、英语学习点评

单词的记忆方法 (1)

英语中有许多同义或近义词、词组,经常可以互换,学习时可以放在一起记忆。如本文中的 in accordance with, pursuant to, according to, as per, in line with, conforming to, comply (complying) with, abide (abiding) by 都有“根据、按照、和...一致,遵守(从),服从”的含义。类似情况的词或词组:

(1) precipitation 沉积(物),降雨(量); deposition 沉积; silt 淤泥。

(2) leakage 泄露; seepage 漏水; percolate 渗漏; permeable 漏水的; pervious 漏水的; percolation 渗漏; permeability 渗水率,渗水性;... creep 渗水。

(3) regardless of 不顾,不管; irrespective of 不顾。

(4) in connection with 与...相联系; associate with 与...相联系/相关。

(5) take account of 考虑(到); take... into account 考虑(到)。

(6) unless otherwise + p. p by 除非; except where otherwise + p. p by 除非; except as + p. p (specified in) 除非。

(7) in the event of 如果,万一碰上; if 如果; in case 万一; provided (that) 如果,只要。

四、练习

(一) 将下列句子译成汉语

(1) Provided that we have enough trucks on the site, we are able to complete the works ahead of time.

(2) Subject to the approval of the Engineer, parts of the Permanent Works may be constructed with additional features required to enable them to function as part of the Temporary Works.

(3) Such features may be retained within the Permanent Works, subject to the approval of the Engineer, provided that their construction standard has been shown to meet the specified requirements and the construction details are compatible with the design of the Permanent Works.

(4) Except where otherwise specified, shown on the drawings or approved by the Engineer, the contractor shall maintain all the foundation and other Permanent Works areas well drained and free of water of any origin, including groundwater, seepage, precipitation, runoff of or from construction uses.

(5) Except where otherwise approved by the Engineer, the contractor shall drain, dewater and keep dry all areas of the construction and shall ensure that all excavated surfaces are maintained in a safe and stable condition.

(6) If, in the opinion of the Engineer, the foundation is damaged due to any inadequacy or failure of the Contractor's system for groundwater pressure relief, then the contractor shall take all corrective measures necessary, as directed by the Engineer, at no additional cost to the Employer.

(7) At all excavations where concrete is to be placed, the water level within and adjacent to the excavation shall be maintained a minimum of 1 foot below the finished excavation for at least 24 hours after the completion of the structure to an elevation above the natural water table, or for such additional time as the Engineer may require to preclude injury to the foundation or surface.

(二) 阅读

Second Stage of Gezhouba Project Begins

The second stage of construction for China's biggest hydropower project—the Gezhouba project on the Changjiang River —has gone into full swing.

Gezhouba is the first dam on the Changjiang. When completed, it will be 2,600 metres long.

The project has been divided into two stages. The first stage, the eastern section which is 1,600 metres long, was completed last year.

The second stage includes building the 1,000-metre-long western section of the dam, and installing 14 generating units with a total designed capacity of 1.75 million kilowatts, a lock big enough for 10,000-ton class ships, a sand scouring gate capable of discharging 20,000 cubic metres per second and a silt discharging dyke.

At present, the cofferdams to protect the western dam construction site have been completed and 10 million cubic metres of water have been pumped out of that part of the river that is hemmed in by the cofferdams. Digging has begun in the pebble-strewn river bed. And some parts have been dug as deep as 30 metres. The power plant and ship lock along the western section are scheduled to begin operations in 1986.

五、课文参考译文

第1课 施工导流、截流

1. 概述

这一部分涉及在永久工程施工期间为了“水的处理和保护”而需要修建的临时工程的规划、设计、检验、施工、维护和拆除等方面的技术要求，以及在维持水库运行情况下，永久工程施工规划中“防水患、保工程安全”方面的技术要求。

2. 采取的措施

根据本节的规范和图纸要求，承包商必须适当处理所有的地下水及地表水。施工只能在水无的状况下进行，不得损害工程。施工排水、地表及地下水的处理，以及为上述工程、为整个工程的正常运作所需的一切设施的设计、提供、安装、操作、维修及拆除，全由承包商负责。

施工期间，水库要正常运作。因此，承包商在考虑上述设施的时候，要充分考虑季节性水涨水落有可能对施工带来的影响。合同特别条款 SP-5 中有自 1969 年以来的水库水情简介。SP-8 条款中有更详细的情况记载。SP-6.40 条款对施工进度安排或施工时的水库水位情况作了特别要求。

承包商尤其要考虑下列一些方面的情况：

(1) 承包商必须考虑在各坝段下游坝趾部位的开挖时所要求采取的排水措施。

(2) 考虑在“阳光大坝”坝肩上游的铺盖上进行大坝填筑的施工顺序和时间安排。该施工顺序和时间安排应保证工程不受损失。

(3) 考虑能满足特别要求的、能保证大坝安全和稳定的坝顶挖方和填筑的施工顺序和时间安排。

(4) 考虑在对主溢洪道的流水面进行施工时能满足特别要求的、能保障大坝安全和稳定的施工保护措施或排水措施，以及施工顺序和时间安排。

(5) 考虑主溢洪道施工期间任何一个时候打开一个孔或几孔排水的可行性。这种泄水能力须满足水库运作规定的要求。

(6) 考虑非常溢洪道控制围堰的挖方与施工期间能满足大坝稳定与安全的排水与护水措施。

承包商应该制定出符合规范的、安全的水处理及保护方面的临时工程计划。承包商在递交施工方案的同时递交相关施工方案的设计/计算方法。

承包商应修筑各种围堰。围堰的位置及施工应该能让永久工程充分排水和净水，使永久工程施工在无水状态进行。

根据 1-2.03 条款，对于永久工程的位置、大小、设计，以及任何细节设施，非经工程师许可，承包商不得改变。

3. 承包商的承诺与责任

根据合同条件条款 10 和 12 条，在整个工程施工期间，承包商应对水处理及保护，以及人身安全和财产损失负全部责任。

因水处理及保护措施不力而导致的大坝倾覆、决堤、崩溃，以及其他危害，承包商应负完全的责任，并须修补完好直至工程师满意，业主不追加任何费用。