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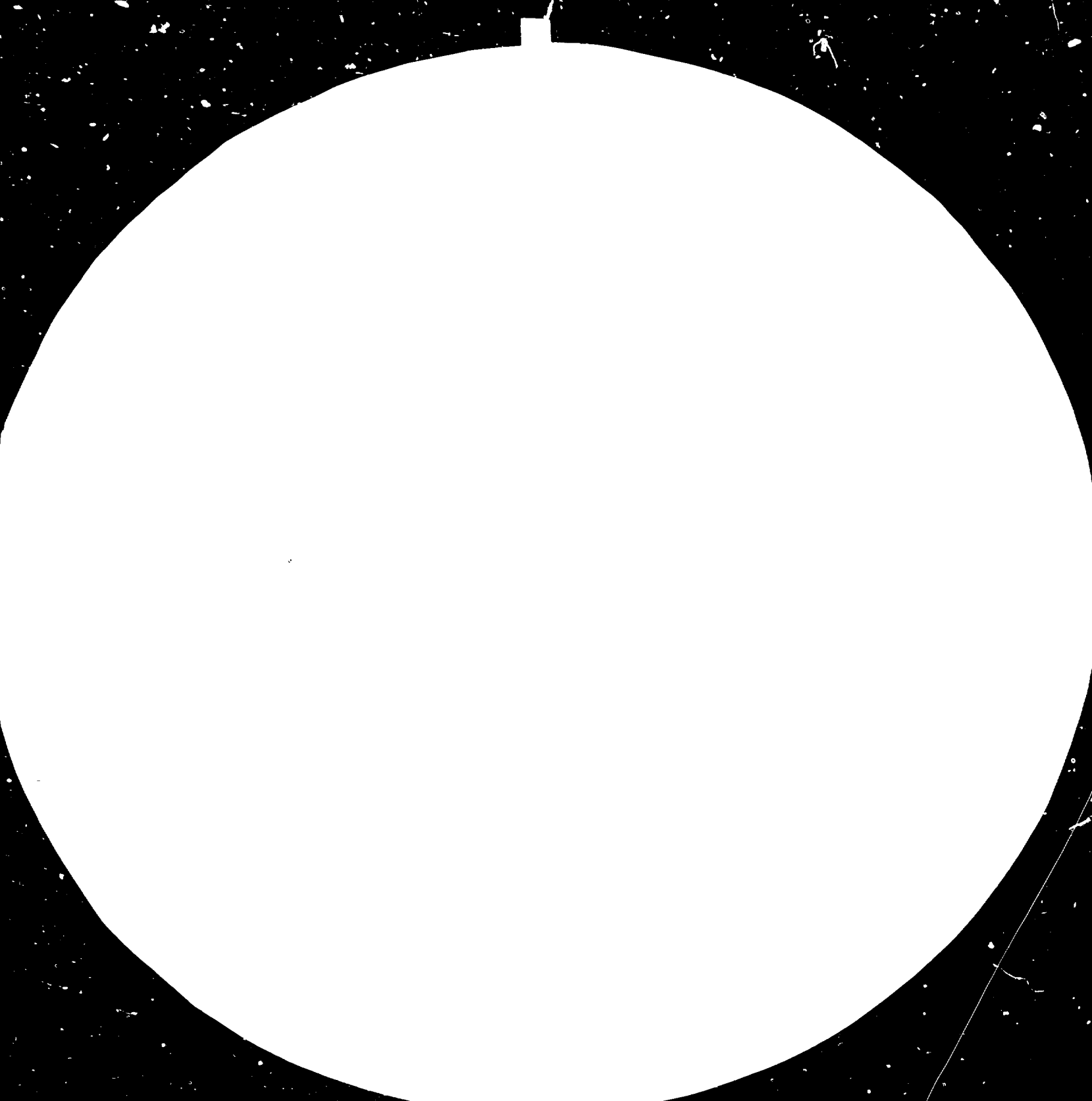

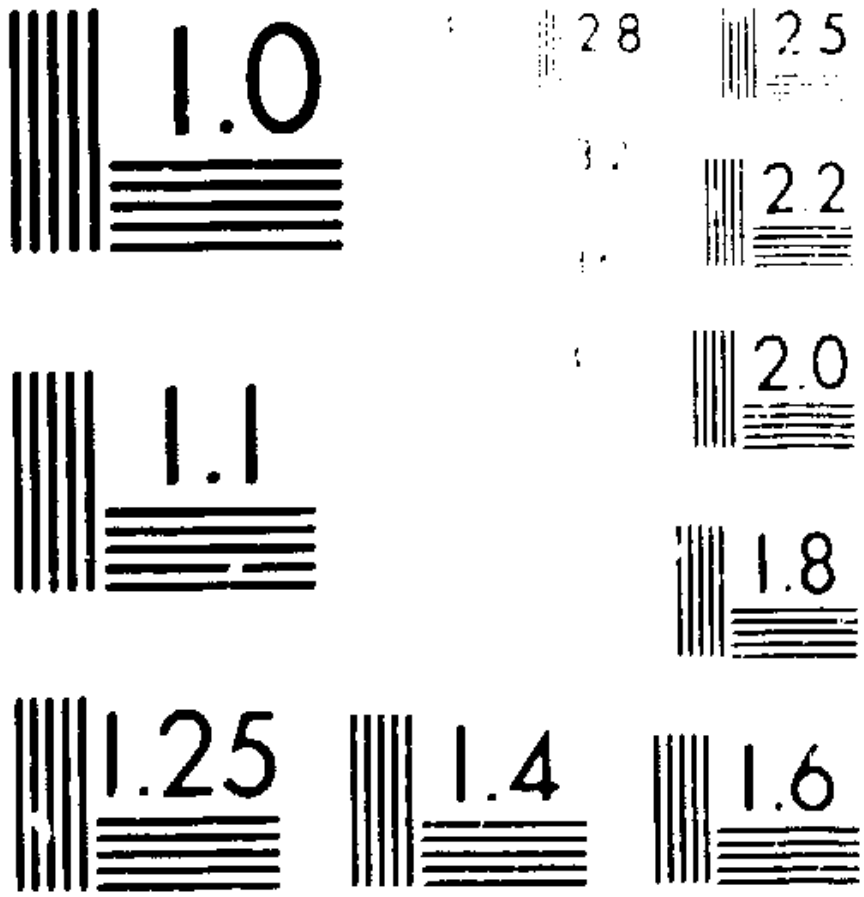
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UNIDO MODEL FORM OF LICENSING AND ENGINEERING SERVICES AGREEMENT FOR THE CONSTRUCTION OF A FERTILIZER PLANT INCLUDING GUIDELINES AND TECHNICAL ANNEXURES*

Prepared by

NEGOTIATIONS BRANCH, DIVISION OF POLICY CO-ORDINATION

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UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

SECOND DRAFT

OF THE

UNIDO MODEL FORM OF LICENSING AND ENGINEERING SERVICES AGREEMENT FOR THE CONSTRUCTION OF A FERTILIZER PLANT INCLUDING GUIDELINES AND TECHNICAL ANNEXURES

Corrigendum

The title of document UNIDO/PC.73 should read as above.

V.83-62945

UNIDO MODEL FORM OF LICENSING AND ENGINEERING SERVICES AGREEMENT FOR THE CONSTRUCTION OF A FERTILIZER PLANT INCLUDING GUIDELINES AND TECHNICAL ANNEXURES*

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PREFACE

The Second General Conference of the United Nations Industrial Development Organization (UNIDO), held at Lima, Peru, in March 1975, recommended that UNIDO should include among its activities a system of continuing consultations between developed and developing countries with the object of raising the developing countries' share in world industrial output through increased international cooperation. 1/

The General Assembly, at its seventh special session in September 1975, in its resolution 3362 (S-VII), decided that the System of Consultations called for by the Lima Declaration and Plan of Action should be established at global regional, interregional and sectoral levels 2/ and that UNIDO, at the request of the countries concerned, should provide a forum for the negotiations of agreements in the field of industry between developed and developing countries and among developing countries themselves.

The First Consultation on the Fertilizer Industry was convened in Vienna, Austria, from 17 to 21 January 1977, and recommended UNIDO to examine contract procedures intended to ensure the successful construction and operation of fertilizer plants. 3/

The Second Consultation on the Fertilizer Industry was convened at Innsbruck, Austria, from 6 to 10 November 1978, and examined UNIDO's progress in preparing four types of Model Contracts along with general guidelines for their use. It recommended that UNIDO continues to work on preparing four types of Model Forms of Contracts, and present final drafts of the Turnkey Lump Sum and Cost Reimbursable Model Form of Contract to the next Consultation meeting. 4/

1/ "Report of the Second General Conference of the United Nations Industrial Development Organization" (ID/CONF.3/31), chapter IV, "The Lima Declaration and Plan of Action on Industrial Development and Cooperation", para. 66.

2/ Official Records of the General Assembly, Seventh Special Session, Supplement No.1, para.3

3/ See Report of the Meeting, ID/WG.242/8/Rev.1, paras. 39 and 64

4/ See Report of the Meeting, ID/221, paras. 14, 16 and 89 through 94.

The Third Consultation on the Fertilizer Industry was convened at Sao Paulo, Brazil, from 29 September to 2 October 1980, and examined the final drafts of the UNIDO Model Forms of Turnkey Lump Sum and Cost Reimbursable Contracts.

Since the final drafts of both Model Contracts could not be approved at the Third Consultation, it recommended that an international group of experts should be convened by UNIDO, preferably within the next three months, to complete examination of both Model Contracts. The experts should be selected by UNIDO from developed and developing countries, with due regard to an equitable geographical distribution. The group of experts should finalize both Model Contracts, in cases of disagreement on specific clauses, the various alternatives should be presented and given equal weight. 5/

The Expert Group Meeting was convened in Vienna twice from 23 February to 6 March 1981 and from 4 to 6 May 1981 and which finally completed the text of both Model Forms of Contract.

In pursuance to completing the recommendations of the Second Consultation, second drafts of the UNIDO Model Forms of Semi-Turnkey Contract and Licensing and Engineering Services Agreement for the Construction of a Fertilizer Plant have been prepared. The Semi-Turnkey Contract was drafted taking into account the negotiated positions of the parties in the Turnkey and Cost Reimbursable Model Contracts. The Licensing Agreement was prepared considering the negotiated positions reflected in a similar model agreement on the petrochemical industry.

5/ See Report of the Meeting, ID/260, paras. 2 and 16 through 22.

CONTENTS

INTRODUCTION

1. An Expert Group Meeting convened at Bangkok, Thailand, in July 1975, as part of the UNIDO/ESCAP Joint Priority Project on Regional Co-operation among the Economic and Social Commission for Asia and the Pacific (ESCAP) countries in the Production and Distribution of Fertilizers, recommended that general guidelines should be prepared on the formulation of contracts for fertilizer plants.

2. The First Consultation on the Fertilizer Industry in January 1977, agreed that UNIDO's work on model contracts would be of interest to many countries, particularly those in the early stages of development. It recommended UNIDO to continue its investigations into alternative forms of contracts and to suggest guidelines for their use by the developing countries.

3. Consequently UNIDO convened a Technical Seminar on Contracting Methods and Insurance Schemes for Fertilizer and Chemical Process Industries at Lahore, Pakistan, from 25 to 29 November 1977 (ID/WG.259/26/Rev.2). The Seminar considered pre-contracting and contracting methods, guarantees and penalties, arbitration, insurance and model contracts.

4. The Seminar stated that the type of contract used by a country for the construction of a fertilizer or chemical process plant depends on its experience and its needs in each particular situation. Further, there is a need to ensure that contracts should be implemented in a spirit of co-operation between the Purchaser and the Contractor.

5. The Seminar found that the current model forms of contract that exist today are not entirely suitable to meet the requirements of developing countries for the construction of fertilizer and chemical processing plants, and significant changes would have to be incorporated before they may be adopted for common use. In order to protect the interests of both Purchaser and Contractor in entering into a contract, it is necessary that certain fundamental technical, legal and contractual safeguards be maintained for their mutual protection. The Seminar therefore proposed that UNIDO should develop model forms of contract.

6. An appraisal of contracts for fertilizer and chemical plants undertaken especially in developing countries during the past 10 years reveals fundamental weaknesses in contractual and legal terminology which have worked to the detriment of both parties. In particular, there has been inadequate use of (a) legal securities available by way of bonds and other instruments which may be used to secure Contractor's performance and (b) suitable technical guarantees and warranties of the plant and technology.

7. As a first step towards the development of model forms of contract, the Seminar identified several areas for particular coverage in appropriate parts of each model contract, and concluded that one of the following four types of contract would probably be used by a developing country: (a) Turnkey Lump Sum, (b) Semi-Turnkey, (c) Cost Reimbursable and (d) Supply of Know-How and Engineering Services.

8. In order to guide and assist users of the model contracts in their application to contract negotiations, UNIDO should prepare guidelines which would cover pre-contracting practices, preparation of technical specifications and scope of work, and an explanatory commentary on th principal clauses of the model contract, together with a description of recommended additional arrangements both within and outside the contract to cover training of local personnel required by inexperienced plant operators.

9. To implement the recommendations UNIDO requested the assistance of consultants experienced in the preparation and use of contracts to draft five different Forms of Model Contract: (a) Turnkey, (b) Semi-Turnkey, (c) Cost Reimbursable, (d) Supply of Know-How and Engineering Services and (e) Supply of Know-How and Engineering Services for a number of similar plants.

10. The Working Group of Consultants met in April, June and August of 1978 to discuss the contents of and adopt a uniform approach to the preparation of Model Contracts for the five Forms of Contract. It recommended that one Form of Contract - the Cost Reimbursable Contract - should be presented to the Second Consultation Meeting as the preliminary draft of this type of Model Contract. As background to the Second Consultation should be

presented the other four Forms of Contract as submitted to UNIDO by the institution or person which prepared them as well as preliminary draft Guidelines on the use of UNIDO Model Forms of Contract for the Construction of a Fertilizer Plant. The fertilizer plant considered is a specific ammonia/urea complex which is the most widely used in developing countries.

11. These five Forms of Model Contract were originally drafted following a uniform list of 46 main Articles and 29 Technical Annexures. The essential differences between these Forms of Contract relate to (a) the scope of the Contractor's work and responsibilities, (b) the method of payment and (c) the type of Site.

12. The Second Consultation on the Fertilizer Industry in November 1978 considered the five Forms of Model Contract prepared by UNIDO. It agreed to examine only the draft Cost Reimbursable Contract (ID/WG.281/12 and Add.1) and set up a Working Group for discussing it. The Meeting recognized that the draft as submitted did not fully take into account the points of view of Contractors and expressed that they would be valuable in arriving at a final Form of Model Contract that would be acceptable to both Purchasers and Contractors.

13. The Second Consultation recommended that UNIDO should continue to work on preparing four types of Model Forms of Contract for the Construction of a Fertilizer Plant and present final drafts of the Model Form of (a) the Cost Reimbursable Contract and (b) the Turnkey Lump Sum Contract to the Third Consultation Meeting.

14. The final drafts of the Cost Reimbursable and Turnkey Contracts should be prepared as follows: (a) UNIDO should invite comments on the first drafts of both Contracts, (b) consolidate these comments and incorporate them as appropriate in the revised text of each Model Form of Contract, (c) organize an expert group meeting comprising Purchasers and Contractors from developing and developed countries to consider and finalize the revised text of both Contracts and (d) circulate the final drafts to the governments of member countries of UNIDO and present them to the Third Consultation.

15. UNIDO invited written comments on both the Turnkey and Cost Reimbursable Contracts; revised drafts of the Model Contracts had then been prepared taking into account those comments and further informal discussions with some representatives of Contractors.

16. An Expert Group Meeting was convened in Vienna from 26 to 30 November 1979 (ID/WG.306/40 to consider the revised text and Annexures of both Contracts, namely the Second Draft of the UNIDO Model Form of Cost Reimbursable Contract and the First Draft of the UNIDO Model Form of Turnkey Lump Sum Contract. The Meeting agreed that rather than discuss Article by Article it would be appropriate to consider the main principles on which the Contracts were based. It was not possible to discuss all the points which participants might wish to have discussed. Nevertheless, extensive comments were made on each Model Contract including their drafting and presentation.

17. The Expeert Group Meeting recognized that the Model Contracts and guidelines for their use being developed by UNIDO could fill a real need in developing countries by improving their skills in contract drafting and negotiation, and thereby obtain greater contractual assurance that the fertilizer plants they purchase would be completed on time and will operate successfully at near rated capacity producing specification grade products.

18. The Expert Group Meeting recommended that UNIDO should prepare revised drafts of the Turnkey and Cost Reimbursable Contracts taking into account comments made at the Meeting and present them to the Third Consultation Meeting. Written comments should then be invited and be submitted to the Consultation itself.

19. Revised drafts of both Model Contracts were prepared taking into account the comments made at the Expert Group Meeting. As recommended, the order of the Articles has been changed to correspond to the plan of implementing the work and some Articles have been combined, thereby reducing the number of Articles to 40. Thereafter, UNIDO distributed to Governments the final drafts of both Model Contracts and the comments of an international group of contractors on them.

20. The Third Consultation on the Fertilizer Industyr in October 1980 examined the revised drafts prepared by UNIDO, namely the Third Draft of the Cost Reimbursable Contract (ID/WG.318/3) and the Second Draft of the Turnkey Lump Sum Contract (ID/WG.318/1), including the comments on those drafts prepared by an international group of Contractors (ID/WG.318/5 and ID/WG.318/4 respectively). Although it was recognized that the Model Contracts were realistic documents that should be commented upon Article by Article and approved, the short time available for discussion precluded their thorough examining at the Meeting. It was agreed to concentrate on the Second Draft of the Turnkey Contract in a working group set up for this purpose.

21. The UNIDO Secretariat explained that Model Forms of Contracts are guidelines that clearly spelled out the obligations of the parties in an adquately balanced way, but, as such, they were not legally binding documents for the parties. It was recognized that a general contract form wa no substitute for specific contracts, however, the Model Contracts were already useful documents for the developing countries due to their comprehensiveness despite criticisms on their length and complexity.

22. In considering the Turnkey Contract in detail, many points were agreed and much reconciliation accomplished between the points of view of Purchaser and Contractor. Consequently a drafting committee was set up to redraft the main problem clauses of the Model Contract taking into account the legitimate interests of both parties. However, owing to the complexities involved and the many viewpoints that were expressed and were accommodated, it could only review and discuss approximately half of the Articles.

23. The Third Consultation recommended that in finalizing the Model Forms of Contracts UNIDO should follow the ensuing procedures:

(a) An international group of experts should be convened by UNIDO, preferably within the next three months, to complete examination of the UNIDO Model Forms of Turnkey Lump Sum and Cost Reimbursable Contracts, to serve as guidelines. The experts should be selected by UNIDO from developed and developing countries, with due regard to an equitable geographical distribution, and include the members of the drafting committe

of the Working Group on that subject convened at the Third Consultation;

(b) The group of experts should finalize the Model Contracts; in cases of disagreement on the specific clauses, the various alternatives should be presented and given equal weight;

(c) UNIDO, when publishing the Model Contracts, should acknowledge that they were finalized by the group of experts.

24. An Expert Group Meeting was convened in Vienna from 23 February to 6 March 1981 to finalize, on behalf of the Third Consultation, the UNIDO Model Forms of Turnkey and Cost Reimbursable Contracts for the Construction of a Fertilizer Plant. Extensive and constructive discussions between participating Purchasers and Contractors enabled the finalization of both the Cost Reimbursable Contract and the pending Articles of the Turnkey Contract not discussed at the Third Consultation, with fewer agreas of genuine disagreement.

25. However, as some Articles of the Turnkey Contract discussed at the Third Consultation required, in the opinion of several participants, a further discussion, the Meeting agreed to hold an additional meeting but with a smaller participation. Two participants each from Purchasers and Contsractors were nominated by the Meeting to finally complete both Model Contracts on its behalf.

26. The Additional Expert Group Meeting was convened in Vienna from 4 to 6 may 1981 to duly finalize the Model Contracts after discussing the few pending Articles and checking the full texts of each Model Contract for conformity with the agreements reached between Purchasers and Contractors.

27. The UNIDO Model Forms of Turnkey Lump Sum and Cost Reimbursable Contracts, as finalized by the International Group of Experts rearrange the balance between obligations, liabilities and financial compensations of traditional contracts and tailor it to the special requirements and problems of most developing countries; in particular, the need for a higher built-in safety and reliability in the plants which warrant a commensurate liability and financial compensation. The areas of disagreement are presented as alternative Articles reflecting two schools

of thought. The figures shown in the text are indicative whereas those figures in brackets are negotiable. The Model Contracts as finalized are considered to reflect a fair and realistic balance between the interests of both parties, and are expected to become practical and useful instruments to Purchasers and Contractors alike.

28. The Annexures to the Model Forms of Turnkey and Cost Reimbursable Contract were brought into line with their respective texts by UNIDO, taking into account the needs of field personnel in charge of implementing the Contract. The Guidelines to each Model Model Contract were prepared in co-operation with the International Group of Experts and later a smaller group of them discussed and finalized both Guidelines.

29. The second draft of the UNIDO Model Form of Semi-Turnkey Contract for the Construction of a Fertilizer Plant was prepared taking into account the negotiated positions reflected in the Turnkey and Cost Reimbursable Model Contracts. The obligations, liabilities and compensations of the parties in the Semi-Turnkey Contract lay in-between and largely follow the terms of the other two Model Contracts.

30. In preparing the fourth and last Model Contract, the Supply of Know-How and Engineering Services, it was noted the discussions at the Second Consultation on the Petrochemical Industry in June 1981, which recommended the use of Licensing Agreement instead of Licensing Contract in order to conform with current practice. This recommendation was also adopted for the fertilizer industry.

31. In general, Licensing Agreements are much simpler documents than engineering contracts. So far, UNIDO ha fully discussed only engineering contracts in the fertilizer industyr whilst a Licensing Agreement was already negotiated in the petrochemical industry. Therefore, the second draft of the UNIDO Model Form of Licensing and Engineering Services Agreement for the Construction of a Fertilizer Plant was prepared taking into account the negotiated positions reflected in a similar Licensing Agreement on the petrochemical industry.

32. The Annexures and Guidelines to the Semi-Turnkey Conract and Licensing Agreement have been brought into line with their respective texts by UNIDO.

The Guidelines have been complemented with explanations on the selection of a suitable Model Contract according to the specific conditions of individual developing countries.

A. GENERAL GUIDELINES TO THE MODEL FORM OF LICENSING AND ENGINEERING SERVICES AGREEMENT

The aim of the Guidelines is to inform, particularly the Licensees in developing countries, of the conditions and obligations under which they shall be entering into when choosing a Model Agreement, and the safeguards and guarantees that should be sought accordingly in an actual negotiation. The Model Agrement does not replace the parties' judgement or contractual skills. Rather they provide a basis from which a fair balance between mutual obligations, liabilities and financial compensations could be achieved, according to the particular requirements of most developing countries.

The Guidelines are presented in two parts: (i) the General Guidelines, giving the main features and obligations of the parties under Agreement, and (ii) Guidelines to specific Articles, explaining both the essential aspects of each Article and the reasoning behind key clauses in the most important Articles.

However, it should be noted that the experience of the LICENSEE's project management team - including outside expertise - and the qualification and capability of the selected LICENSOR, are the essential components for t successful implementation of the project; there is no substitute for it.

Unlike other industries such as petrochemicals where the know-how has been predominantly developed by the manufacturing companies, or the paper and sugar industries where the know-how has been generally developed by equipment manufacturing companies, in the fertilizer industry the know-how has been developed by the manufacturing companies and engineering contractors, often working together. In general, the know-how packages for constructing fertilizer plants are customarily available from, or through, engineering contractors.

Licensing agreements in the fertilizer industry are the exception rather than the normal procedure for contracting the construction of a fertilizer plant. These agreements require that the LICENSEE, starting from the Process Know-How package, undertakes himself or through a Contractor the detailed engineering, procurement, erection and Start-Up of the Plant which should meet its contractual Performance Guarantees. Considering the heavy responsiblities that licensing agreements place upon the LICENSEE, these agreements should only be entered into by experienced companies in developing countries which have substantial engineering and equipment manufacturing capabilities.

In a licensing agreement, the LICENSOR's fees represent about 3% of the total project cost, hence his liabilities are always much more limited than that of a Contractor. By contrast, the Contractor's share under a cost reimbursable Contract is around 10 to 15% of the total project cost, whilst under a semi-turnkey Contract reaches 60% and under a turnkey Contract becomes 85% respectively. Therefore, in a licensing Agreement the risk of the LICENSEE (or Purchaser) is far greater than under any of the other three Contracts (for which corresponding UNIDO Model Contracts have already been prepared).

The advantages of the licensing Agreement lays in its enabling the LICENSEE to select the most suitable Process and the most suitable Contractor independently. The LICENSEE is therefore, less influenced by the cost and conditions of the licence, procurement can be based on a more detailed cost evaluation to reduce the total project cost, and his personnel can obtain an in-depth knowledge of the Process and the equipment for the Plant.

The disadvantages of this Agreement stem from the independent responsibility that the LICENSOR and the Contractor have each with the LICENSEE or Purchaser. Therefore, the LICENSEE's deep involvement and coordination responsibilities places utmost importance on the experience, knowledge and skill of his own personnel. These disadvantages could be offset, but at a higher cost, by appointing an experienced independent consulting organization to advise the LICENSEE and act as overall coordinator on his behalf. Nevertheless, this solution places a higher burden on the LICENSOR who must provide all the explanations and clarifications that the Contractor may need. Although there are many different types of licensing agreements dealing mainly with the outright buying of the licence, the UNIDO

Model Agreement has been prepared as a comprehensive document suitable for purchasing technology for a large fertilizer plant under the conditions prevailing in most developing countries. In simpler cases, the LICENSEE may require a simplified Model Agreement which provides less guarantees and engineering services.

The UNIDO Model Form of Licensing and Engineering Services Agreement for the Construction of a Fertilizer Plant covers the grant of the right to use the LICENSOR's patents and Know-How and the provision of the Process Engineering Design Package and related engineering services. It assumes that the detailed engineering and construction of the Plant either will be done by the LICENSEE himself or will be the subject of a separate contract with a Contractor. In order to obtain a properly working Plant, the Model Agreement requests the LICENSOR to review the critical parts of the detailed engineering and to participate in the procurement, erection and Start-Up of the Plant so as to demonstrate the Performance Guarantees of his Process as built into the Plant.

The main conditions of the Model Agreement are the following:

(a) The Process has been commercially proven and is therefore unlikely to be defective;

(b) The LICENSOR has a patent(s) and/or proprietary Know-How on the Process which can be licensed in the LICENSEE's country;

(c) The LICENSEE obtains a non-exclusive, non-transferable licence for fertilizer production in his country and for sales to any other country;

(d) The LICENSEE shall appoint a Contractor who is independent of the LICENSOR, to undertake the detailed engineering and construction of the Plant. The appointment of the Contractor will require the LICENSOR's concurrence;

(e) The LICENSOR will provide the Process Know-How in the form of a Process Engineering Design Package, and will assist the LICENSEE, through reviewing or participation, from detailed engineering to erection to commission to operation of the Plant;

(f) Payment to the LICENSOR will be in a lump-sum fee together with cost reimbursable payments for the assignment of the LICENSOR's personnel to the LICENSEE's country, according to the engineering services to be provided.

(g) Additional services of the LICENSOR for expanding capacity, adaptation of Process technology, Plant operation and marketing of the Products shall be agreed upon under separate contract(s) and for additional fees.

(h) The LICENSOR will provide a comprehensive training programme for the LICENSEE's personnel to enable the proper operation of the Plant. The training should be Process, equipment and instrument specific.

(i) The LICENSOR and the LICENSEEE accept a continuing obligation to exchange information on Improvements in the Process.

The Model Agreement lays great emphasis on the timely completion of the Plant, in demonstrating its ability to perform by meeting the contractual Performance Guarantees, and on correction of defects if the Plant fails to meet its first Guarantee test.

In using the Model Agreement the LICENSEE should first select the best suitable process for manufacturing the Product according to his conditions, because the selection of the right technology is almost always more important than the terms on which the licence is obtained. In normal practice the LICENSEE invites offers from a number of potential LICENSORS which thereafter are evaluated from a technical and economic viewpoint. It should be noted that the prospective licensor offering the best guarantees does not necessarily offer the best suitable technology. Once the Process is chosen

out from the offers received, negotiations with the selected LICENSOR can begin in order to arrive at the more equitable terms and conditions that safeguard the legitimate interests of both parties.

The actual drafting of a licensing agreement usually starts only after all the major points to be negotiated have been satisfactorily settled. Customarily, the LICENSOR presents the first draft of the Agreement based on the terms and conditions he has granted earlier to other licensees. If the LICENSEE has considerable experience he may present his own proposals and/or counter-proposals to that of the LICENSOR, and which he seeks to include in the final licensing Agreement. However, only a few developing countries have such experience in the fertilizer industry.

The present draft Model Agreement has therefore attempted to reconciliate the often conflicting viewpoints of both parties in a balanced manner. In Articles where this reconciliation or compromise could not be achieved so far, two equally valid alternative texts have been presented for discussion.

The Technical Annexures to a licensing Agreement shall be specific to the Process licensed and the Product to be manufactured in the Plant. Hence, the Model Agreement only outlines the contents of those Annexures except for Annexures II, III and XI which have been prepared for the production of Ammonia and Urea from natural gas as feedstock.

B. GUIDELINES TO SPECIFIC ARTICLES OF THE MODEL FORM OF LICENSING AND ENGINEERING SERVICES AGREEMENT

ARTICLE 1

DEFINITIONS

This Article contains the definitions of the terms used in the Agreement so that their meaning is clear and unambiguous, and detailed technical concepts such as "the Process" do not have to be repeated each time the concept is used. Wherever the defined terms are subsequently used throughout the Model Agreement, they are used with a capital letter to indicate that they have been defined in Article 1. The parties to the Agreement could add additional definitions if felt necessary or if substantial changes are made in the Model Agreement during negotiations.

1.1 It is normal practice in the field of licensing to use the work "Agreement" and not "Contract" which is used for the Construction of a Plant, and is the work used in the other three UNIDO Model Forms for the Fertilizer Industry.

1.6 Less Experienced LICENSEES may not be able to provide by themselves all the information required in Basic Design Data; for this purpose, they may obtain assistance either from the LICENSOR or Contractor or from an independent consulting organization.

1.12 The purpose of this definition is to make "expanding the capacity" a real expansion rather than a minor modification of the Plant or Process which the LICENSEE may make on his own initiative and hence, the LICENSEE is not expected to additional license fees for an increase in capacity of the Plant arising from and including changes in piping, instrumentation, balancing equipment, catalysts, auxiliary chemiclas, additives, or operating and maintenance conditions and procedures shall not be considered an expansion of capacity. Some LICENSORS may wish to

have payment for all increases in capacity including any increase brought about by the information provided by the LICENSOR to the LICENSEE.

1.15 "Guarantee Test" is the demonstration of the ability of the Plant to perform by meeting the Performance Guarantees. The LICENSOR prepares a report of the test and if this is satisfactory, the LICENSEE issues an acceptance certificate within a limited number of Days after receipt of the report.

Since such acceptance terminates the LICENSOR's obligations concerning the performance of the Plant, it is important for the LICENSEE that the test is comprehensive as regards the parameters of performance and of sufficient duration to demonstrate the Plant's long-run operation capability. The definition of Performance Guarantees (Article 1.19) is therefore of major importance to both parties.

1.17 A clear distinction should be made between the two stages in the transfer of Know-How from the LICENSOR to the LICENSEE. First, all the information embodied in the Process Engineering Design Package which is necessary to design, erect and Start-Up the Plant, should be delivered not later than the date provided for in the Agreement. In order to give to the LICENSOR the time needed to work out with due care the Process Engineering Design Package, it has been assumed that only the latest information on the Process available at the Effective Date can be taken into consideration.

Second, the LICENSOR has the obligation to provide under Articel 3.2 "Improvements in the Process", the new information related to the Process for the whole duration of the Agreement. Thus, during the interval between delivery of the Process Engineering Design Packages and Start-Up of the Plant, the LICENSEE will have the opportunity to consider which Improvements (if any) can be introduced to the Process and the Plant without causing serious delays in the completion of the Plant and/or undue additional costs and risks.

Some LICENSORS may consider the words "to enable the LICENSEE's personnel to operate the Plant "not to be precise enough for each specific case. The two parties should agree on a body of information (Know-How and training) to be provided by LICENSOR that will be sufficient for the LICENSEE's purposes.

1.19 The Performance Guarantees are described at the start of Article 3.5 and in Annexure XI. See commentary on Article 3.5.

1.20 The nameplate capacity may not be the same as the guarantees capacity given in Article 3.5(a) because the later may be below the actual capacity of the Plant and is always below the design or nameplate capacity.

1.21 In some cases, the latest Process may not always be the most suitable one for the LICENSEE. In this case, the LICENSEE should insist that during the negotiations he be told how the licensed Process differs from the latest available Process. The UNIDO Model Agreement requires the LICENSOR to give all the Know-How available to him at the Effective Date.

1.26 An alternative definition of Start-Up could be: "Start-Up shall mean the initial operation of the licensed Plant after having reached the stage of being ready for Start-Up and upon the introduction of feedstock(s) into the reaction sections of the Plant. The data upon which the Start-Up has taken place shall be agreed in writing between the LICENSOR and the LICENSEE".

ARTICLE 2

DEFINITION OF THE PLANT AND THE PROCESS

The purpose of this Article is to define in detail the licensed Plant and the licensed Process. In a licensing Agreement, it is the Process that is licensed rather than the Product.

2.1 Generally the preliminary outline of the Site is made available at the time of the signature of the Agreement. If it is not available, the last sentence must be deleted.

2.2 The capacity contained in this Article is the design or nameplate capacity and is the same as contained in Article 1.20. It is not necessarily the same as the guaranteed capacity which is the capacity under Article 3.5(a).

2.6 As an example, the following description might be used for an ammonia process: "Process for the manufacture of ammonia starting from the natural gas and shall consist of natural gas compression, hydrotreating and desulphurization, primary and secondary steam reforming, waste heat recovery to generate steam, high and low temperature shift conversion, CO_2 removal and recovery, methanation of carbon oxides, compression of synthesis gas using a turbine driven centrifugal compressor and ammonia synthesis, as described in Annexure II and consisting of the units described in Annexure III".

The Agreement may refer to the registered name of the Process where one exists.

ARTICLE 3

OBLIGATIONS OF THE LICENSOR

The purpose of this Article is to list all the obligations of the LICENSOR.

3.1 Grant of Patent Rights and Licence

The Article grants the patent rights and licence to the Process. The inclusion of the works "non-exclusive" reflects the situation prevailing in the fertilizer industry where there is usually more than one potential licensees of the Process. An "exclusive" licence, which would exclude the establishment of a competing Plant using the same Process by another licensee, would be more expensive, and is unusual in the fertilizer industry.

It also provides for unrestricted freedom to sell the Product to any country in the world, but does not deal with other forms of restriction. Such restrictions are discussed in the WIPO Guide 1/ (paras. 318 to 330) and in the UNIDO Guidelines 2/ but it is better to exlcude them alltogether.

In particular, concerning restrictions on the following: the volume of production except when derived from expanding the capacity as defined in Articles 1.20 and 3.7; pricing of the Product(s); sources of supply of raw materials, chemicals, catalysts, etc.; sources of spare parts; sources of technology for future expansion of the Plant or for new plants to be established by the LICENSEE.

1/ "WIPO Guide" refers to Licensing Guide for Developing Countries, World Intellectual Property Organization, Geneva, 1977, WIPO Publication No. 620.

2/ "UNIDO Guidelines" refers to ID/223 - Guidelines for Evaluation of Transfer of Technolgoy Agreements, Development and Transfer of Technology Series No. 12

However, some LICENSORS may wish to specify the brands of catalysts to be used in the Performance Guarantee Test and this restriction may be accepted by the LICENSEE.

3.2 Improvements in the Process

This Article states the principle that the obligations of both parties should be the same as regards disclosing Improvements in the Process (see Article 4.2 for the corresponding obligation of the LICENSEE). The obligation to make available Improvements is generally limited to improvements in commercial use.

3.2(a) Some LICENSORS may be willing to make available all Improvements in the Process on a reciprocal basis without payment. The LICENSOR is obliged to make available without delay all Improvements, even during the period between completing the Process Engineering Design Package and the commissioning of the Plant. However, it is the right and responsibility of the LICENSEE to decide whether to use or not such Improvements at this late stage in the detailed engineering of the Plant. In making this decision, the LICENSEE should consider the possible costs and delays induced by the modifications and changes against the expected technical and economic advantages.

3.2(b) The definition of "significant" should be written into the Agreement and could be based on one or more criteria like the following:

- ( ) per cent increase in capacity,
- ( ) per cent increase in yield,
- ( ) per cent improvement in consumption of utilities,
- major improvements in the quality of the Product.

The same observation applies to "payment of a reasonable fee". "Reasonable" should be defined in the Agreement; for example, no more than the fees charged to other licensees.

3.3 Supply of Technical Documentation and related services

It is in the interest of both parties that the LICENSEE should obtain as complete an understanding of the Process as possible. Therefore the LICENSOR should supply sufficient background documentation to the LICENSEE to enable his thorough acquainting with all the details of the Process.

Hence, the proposed text qualifies the summary of information required with the words "but not be limited to".

It is important to detail in full the obligations of the LICENSOR and hence the items (a) and (b) could be expanded by additional items. In such a case the words "but not be limited to" could be deleted.

3.3.1 This is a normal obligation of the LICENSOR and Article 3.6.1 imposes liquidated damages for late delivery of the documents.

3.3.2 This arrangement is important for both the LICENSEE and his Contractor. In some agreements it may be necessary to specify the obligations of the LICENSOR during such visits; for example: "During such visits the LICENSOR shall provide on request such technical data on the reference operating plants as may be required to confirm the technical specifications of the Process Engineering Design Package". The words "subject to the approval of the LICENSOR" are added because, in some cases, the LICENSOR may be reluctant to allow a Contractor to visit his reference plants.

The LICENSEE may find it very useful to visit the reference plants, especially if his Plant does not meet its Performance Guarantee Tests.

The duration and scope of visits under this Article would normally be specified in the Agreement.

3.3.4 This Article provides for greater LICENSOR involvement in the detailed engineering than is normal in current licensing practices and will probably exact a higher fee. It also requires the LICENSOR to review for conformity with the Process Engineering Design Package, the design of those equipment items and parts that are critical to the Process. This could even be extended further to review the detailed engineering entirely. Hence, the LICENSEE can expect to obtain the maximum guarantees as regards performance of the Plant, but the costs would be higher.

However, if the appointed Contractor requires less assistance than provided for in Annexure VI, then the licence fee will be correspondingly reduced. The words "reviewed for conformity with the Process Engineering Design Package by the LICENSOR" have been added because LICENSORS are unlikely to accept an open ended obligation to review for conformity any design parts of the detailed engineering merely upon request from the LICENSEE. The parts needing review for conformity with the Design Package should be agreed beforehand.

3.3.6 The LICENSOR is requested to provide a list of suppliers of catalysts at the time of signing the Agreement and the LICENSEE should satisfy himself that the catalysts requrired would be continuously available.

3.3.7 This Article requires the LICENSOR to provide the necessary instructions, and to check them for compliance, from pre-commissioning of the Plant to completion of the Guarantee Tests. It is important that the LICENSOR has the right to issue all instructions during the Guarantee Tests, and it is equally important that the LICENSEE's personnel carries out these instructions as given. The LICENSOR "witnesses" (and, if necessary, reports to the LICENSEE) the tests to ensure that his instructions are properly executed.

3.4 This Article should list all the main types of additional services that the LICENSEE might need and which the LICENSOR might agree to provide. Some of the suggested services are the following:

(a) assist the LICENSEE in managing the operation of the Plant for the first ( ) months after the Performance Guarantee Tests have been successfully demonstrated;

(b) assist the LICENSEE to develop markets for product and to establish a laboratory where soil analyses can be made;

(c) provide the LICENSEE with supplies of Product from its own plants to assist the LICENSEE to build up a market for Product in (country) from the Effective Date up to the start of commercial production by the Plant;

(d) depute a competent person to review the operation of the Plant and to advise the LICENSEE on ways of improving or overcoming deficiencies in its operation.

If neither of the above nor other additional services are needed by the LICENSEE, then Article 3.4 can be deleted.

This Article by itself does not guarantee that these services shall be made available because the terms and conditions negotiated at a later date could be unacceptable to the LICENSEE. Therefore, the additional services required should be made the subject of separate agreement(s) at the same time as this Agreement.

3.5 Performance Guarantees of the Process

This is the most important Article in the Agreement and most of the negotiations between the LICENSOR and the LICENSEE will focus on its contents and the liabilities for the LICENSOR which it creates.

In the other three UNIDO Model Contracts, the concept of absolute and penaltiable guarantees have been introduced. Absolute guarantees are those guarantees which the contractor shall demonstrate without any

limitation of liability to rectify the Plant to meet them, and which cannot be satisfied on payment of liquidated damages (or penalties). These guarantees cover Plant capacity and the quality of Products and might include the quality of effluents and the consumption of raw materials and utilities.

Penaitiable guarantees are those other guarantees which can be satisfied on payment of liquidated damages.

The inclusion of absolute guarantees in the licensing Agreement would certainly strengthen the reliability of the Plant, but the LICENSOR would be hesitant to accept it considering the amount of his fees in relation to his potential liability. It should be recognized that such guarantees are unusual in licensing Agreement although some cases are known to exist.

In the absence of absolute guarantees, the selection of commercially proven processes would become the LICENSEE's best guarantee that the Process works. In some licensing Agreements a warranty is given by the LICENSOR that his reference plants at specified locations are working to capacity and with the actual consumption figures for raw materials, utilities and effluents as stated in the Agreement. Such warranty could be added to Article 3.1.

In most processes, the catalyst used is an essential element of the licensed know-how (patented or not) and to this extent the LICENSOR's advice must be accepted at least for the Guarantee Tests. The Model Agreement does not include an obligation for the continual purchase of catalysts from a single source.

Articles 3.5 and 3.5.1 define the guaranteed parameters of the Process and the methods of determining whether these guarantees have been met. Such guarantees are normally in the interest of both parties and should only be omitted in exceptional cases such as when additional technology is sold for incorporation into an already existing plant. The list of guaranteed parameters is an extensive check list not all of which will be achievable in all circumstances. Althought the LICENSEE should strive to obtain the best guarantee possible, he should not assume that

the LICENSOR offering the best guarantee has necessarily the best process. The LICENSEE should ensure that all the guaranteed parameters are covered either in the licensing Agreement or in the construction contract or in both. (See also guidelines on Article 3.6.)

3.5(a) When more than one grade of Product is to be manufactured, it should be specified the capacity of the Plant for each grade of Product, the grade(s) which shall be tested during the Performane Guarantee Test, and the tolerances and quality characteristics which are being guarantees.

3.5(d) The safety and environmental requirements specified should meet the laws and regulations in force in the LICENSEE's country.

3.5.1 There have been cases in developing countries where guarantees have been successfully demonstrated in limited test periods of 72 hours, but the plants have not operated continuously thereafter. Therefore, the Agreement calls for the continuous operation of the Plant at near rated capacity (90 per cent) during 20 Days, followed immediately by a guarantee run of 10 Days at 100 per cent capacity. The test for consumption of raw materials and utilities shall be run during any consecutive 7-Day period within the 10-Day test period.

The above 30-Day two part test period was arrived at after lengthy negotiations between the parties in the Model Contract, in order to demonstrate the Contractor's Performance Guarantees. In this period, the actual Process parameters affecting the LICENSOR only can be demonstrated during 7 consecutive Days within the 10-Day test period. The rest of the test period is the concern of the appointed Contractor.

Customarily, it was accepted shorter test runs (72 to 120 hours) for demonstrating the LICENSOR's Process Guarantees that took place at the end of the Contractor's longer test run. A number of LICENSORS considers a test run of 72 hours adequate to prove their Process and feel that longer test runs only increase costs

wihtout increasing the certainty of longer term trouble-free operation. However, a number of licensees wanted much longer test periods and a compromise of 7 Days is suggested in the Agreement. The Guarantee Test should be run only after the Plant has reached stable operating conditions at capacity.

3.5.4 and 3.5.8 These Articles define the potential liabilities of the LICENSOR if the Performance Guarantees are not met due to defects in the Process and/or the Design Package. It should be recognized that rather than accept large potential liabilities, the LICENSOR may decide not to offer the licence to the LICENSEE. Hence, the LICENSOR's liability has been limited by Article 3.5.4.1 to providing all the designs and data, and for making modifications only up to a fixed maximum amount.

If this limitation is unsatisfactory to the LICENSEE and he is unable to obtain a larger liability (guidelines on Article 3.5), then the LICENSEE may enter into one of the three types of Model Contracts with a reputable Contractor, where "Absolute Guarantees" could be requested. The LICENSOR then becomes a sub-contractor of the Contractor.

Liquidated damages may be satisfactory to the LICENSEE in cases where the failure to meet the guarantees has been only a small short-fall in capacity and where the short-fall does not reduce the performance of downstream plants.

The provisions of drawings alone to rectify the Plant is only satisfactory to the LICENSEE if the Contractor undertakes the subsequent work of rectification at his expense, provided he is required to do so in his construction contract. It is unlikely that a Contractor would take this responsibility where the LICENSEE has a licensing Agreement with the LICENSOR, and thus the LICENSEE will be left in the position of paying extra money to rectify the LICENSOR's mistakes. Hence the Agreement provides for more than just the supply of drawings.

The extent of the liabilities which the LICENSOR will accept should be negotiated bearing in mind that large potential liabilities may increase the cost of the licence itself. In Article 3.8, the LICENSOR's liability under Article 3.5 is exlcuded from the overall limit of his liabilities, and would therefore be unlimited if the limit under Article 3.5.4.1 is not included at this point in the Agreement.

Whether the words "attributable to" will be sufficent to determine the exact scope of the liability will depend upon the law applicable to the Agreement. Most LICENSORS will want to use wording which makes it clear that their liability only arises if they are at fault. In some circumstances it may be advisable to clarify the words "attributable to" by such words as "fault, negligence and omissions, etc.".

3.5.5 Some LICENSORS may wish to include a statement that they are relieved of their obligation if the failure of the Plant to pass the first Performance Test is not attributable to them. However, the Model Agreement does not allow them to be relieved until a second Perforamnce Test has been made (Article 3.5.10). It is reasonable to expect that the LICENSOR will continue to help the LICENSEE but at the LICENSEE's expense, until the second test on the modified Plant is made. This is the approach adopted in this Article which leaves the initiative in the hands of the LICENSEE.

3.5.6 This Article meets the situation where both parties cannot agree who is at fault. The functions to be performed by each party are spelled out and if agreement cannt not be reached, then resort is made to arbitration (Article 10.4) as to who is to bear the costs.

3.5.10 Text A differs from Text B by including the words "but achieve a performance above the minimum specified below". Thus Text A requires the Plan to produce at a certain minimum capacity (95% is suggested) and close to the guaranteed consumption of raw

materials. Text B allows the LICENSOR to pay liquidated damages and be relieved of his liabilities under this Article.

Where the break-even point of the Plant is high, there is a need to insist upon a minimum capacity and efficiency being attained.

3.5.11 As an alternative, the LICENSOR's consent may be required to involve a third party. In this case there should be an obligation for the LICENSOR not to withold his consent unreasonably.

3.5.12 It is a general rule that Agreements (or contracts), whether with the LICENSOR or the Contractor provide for a cut-off date, after which the obligation to perform the Guarantee Tests is deemed to have expired. The reason is that the unused Plant may deteriorate in such a way as to affect the possibility of meeting the guarantee. The LICENSEE should therefore be careful to ensure that the Plant is erected on time and any ancilliary plants are ready in time.

3.5.13 Some LICENSORS may be hesitant to make a binding contractual arrangement to provide personnel at an unknown future date. However, in their own interest they would normally do so, even if a contractual obligation did not exist, unless it became impossible to send such personnel.

3.6 Penalties

Liquidated damages are included in the Agreement as a form of security of performance by the LICENSOR, because they are an amount of damages for short-falls in the performance of the Plant that were agreed between the parties when the Agreement was signed.

3.6.1 This Article provides liquidated damages for delays in delivering the Process Engineering Design documents.

3.6.2 This Article provides liquidated damages for the non-fulfilment of the guaranteed performance of those Process parameters included in Article 3.5 as required by the Agreement.

The guaranteed parameters listed can be considered as a checklist. In practice, not all of the parameters listed will be subject to liquidated damages because only some of them will be of economic importance to the Process. The selection of those that are important will depend on the data provided by the LICENSOR on the Process. The selection will take into accunt the parameters that should be guaranteed by the Contractor rather than the LICENSOR. One example is parameters relating to energy consumption because they depend more on the detailed engineering of the Plant than the Process Engineering provided by the LICENSOR.

The parameters chosen as subject to liquidated damages and their tolerance limits will be negotiated by the parties. (See guidelines on Articles 3.5 and 3.5.1.)

In the case of liquidated damages under Article 3.6.2(c),it is normal to have a clause where liquidated damages for oneitem can be set off against improved performance on another one. For this purpose, the unit cost of the utilities should be specified in the Agreement.

3.7 Expanding the capacity of the Plant

The purpose of this Article is to establish, at the time of signing the Agreement, an understanding of the LICENSEE's rights to expand the Plant at a later date.

This Article would normally limit the expansion of a fertilizer plant to the LICENSEE's country. The extent of fees to be paid for expansion will depend upon the country or countries in which additional facilities could be set up by the LICENSEE, and hence it would be necessary to restrict the applicability of this Article to additional facilities set up in the LICENSEE's country or in some other specified countries only.

Further, it does not contain a contractual obligation for the LICENSOR to provide personnel to help establishing or operating such additional facilities. This would be a matter of arrangement at the time that such personnel were required, and usually the LICENSOR would supply them on agreed terms and conditions.

In the event that the Plant was expanded or the additional facilities were established using significant Improvements made by the LICENSEE, the LICENSEE could ask for a reduction in the fees specified in Article 3.7.

3.7.1 This Article provides that not additional fees are due if production expands as a result of the LICENSEE's own skill in operating or improving the original Plant.

3.7.3 There should be no restrictions on the LICENSEE expanding the Plant on a process other than on the LICENSOR's. However, in such cases all the Process Engineering documents provided by the LICENSOR should not be made available to the new licensor or a new contractor, without the LICENSOR's permission.

3.8 Liability Limitation

The purpose of this Article is to limit the LICENSOR's overall liabilities under the Agreement. This Article is controversial and requires careful negotiation. The extent to which the LICENSOR is willing to accept liabilities will depend on many factors including the competitive situation with respect to the licensed technology and the amount of fees he receives for the Licence. A LICENSOR with the most competitive technology is likely to insist on a low limit on his overall liabilities under the Agreement.

3.8.1 Alternative approaches to drafting a limit on the LICENSOR's liability under the Agreement include the following:

(a) The LICENSOR's total liability is limited except for supply of Process Engineering to meet the Performance Guarantees and Patent Indemnity for which his liability is unlimited and for Plant modifications where it is separately limited (Text A);

(b) The LICENSOR's total liability is limited to a given percentage of the total fees that the LICENSOR will receive from the LICENSEE (Text B);

(c) The LICENSOR accepts liability only under the Performance Guarantees and Patent Indemnity clauses and imposes a ceiling on its total liabilities under these clauses;

(d) The LICENSOR accepts unlimited liabilities.

In the event that the Plant does not perform for reasons attributable to the LICENSOR and needs to be rectified at the LICENSOR's expense, the LICENSEE should assess his options in the light of guidelines to Article 3.5.4.

ARTICLE 4

OBLIGATIONS OF THE LICENSEE

4.1 Provision of Basic Design Data for the Plant

4.1.1 The purpose of this Artricle is to define that the LICENSEE is responsible for the scope and accuracy of the Basic Design Data on which the LICENSOR bases his Process Engineering Design Package. Since incorrect Basic Data can be the cause of incorrect design of the Plant, it is esential that every effort should be made to provide correct data; should any errors be found, they should be corrected immediately by either the LICENSEE or the LICENSOR.

4.1.2 The First Basic Design Meeting is very important for all the Basic Design Data is confirmed at this meeting. Since most of the dates in the Agreement for the supply of documents begin from this meeting on, a time limit is fixed for holding it and which is incorporated in the Agreement.

In cases where other fertilizer plants are under construction, the LICENSEE already has much of the Design Data. In such cases, the Design Data should be incorporated in Annexure VI. An example of the design data for fertilizer plants is given in Annexures II and IV of the cost reimbursable Model Contract (UNIDO/PC.26/Rev.1).

4.2 Improvements in the Process

This obligation of the LICENSEE is identical to that of the LICENSOR in Article 3.2. There will be a need to describe "significant improvements" as in Article 3.2.

In order to promote exchange of information, the LICENSOR will normally ask for rights to give the information received from the LICENSEE on a reciprocal basis and bound by the same degree of confidentiality, to his other licensees.

4.3 Appointment of the Contractor

4.3.1 The choice of an experienced and reliable Contractor is essential for the success of the Plant and in the interest of both parties. Usually, the LICENSOR will give a list of the Contractors that have previous experience in building plants using the Process and the LICENSEE will choose one of them. Where the LICENSEE would prefer to select a Contractor having previous experience in his country, the LICENSOR should give due consideration to this preference. (See also the commentary at the end of Annexure VI.)

4.3.2 Sometimes the draft of such a secrecy agreement between the Contractor and the LICENSOR forms an annexure to the Agreement.

4.4 Secrecy and Confidentiality

4.4.1 The purpose of this Article is to protect the LICENSOR's secret information, usually for the duration of the Agreement. The time limit on confidentiality is very variable, depending on the Process, the competition, the technical and scientific value of the information and on many other factors including legal limitations. In the fertilizer industry the confidentiality period is generally between 8 to 10 years. Some LICENSORS may be striving to set limits beyond ten years if the Process licensed is a very new one. In some cases this could be as low as 3 years if the process is an older one. The WIPO Guide 1/, paras. 238-283, considers this subject in great detail.

1/ See footnote to guidelines to Article 3.1.

4.4.2 In Text A, it is implemented by asking the Contractor and his sub-contractors to sign a secrecy agreement before commencing work. In Text B it is void because it is already included in Article 4.4.1

4.4.3 This Article is a standard definition of exceptions to the Confidential Information rule.

The difference between Text A and Text B is that in Text B the onus of proof is put on the LICENSEE and the conditions under which information can be disclosed are much more restrictive.

4.4.4 Text A includes the words "without prior approval" to give the LICENSEE greater freedom. Text B omits these words because, in the view of some LICENSORS, they unnecessarily dilute the Confidentiality imposed on the LICENSEE.

Text B also requires a secrecy agreement with the LICENSOR before disclosing any information to third parties, whereas Text A only requires a standard secrecy agreement with the LICENSEE. In most cases the LICENSOR will only require a direct secrecy agreement with third parties for special parts of the Know-How, which should be identified beforehand.

ARTICLE 5

COORDINATION OF THE WORK

5.1 Normally a LICENSEE will not require help from the LICENSOR for the maintenance of a Plant, and where help is required for operation of the Plant after the Performance Guarantee Tests, this should be the subject of a separate agreement. Therefore, the assistance of the LICENSOR is required only for the detailed engineering, Start-Up and commissioning of the Plant. During the Performance Guarantee Tests the LICENSOR has greater functions, as he will be giving the instructions for the operation of the Plant.

5.2 Process Design

Licensees in developing countries should insist on the right to send representatives to the LICENSOR's design office so that they have the opportunity to examine the Process in depth. The LICENSOR's design office may be at the LICENSOR's own offices or even at an engineering company's office.

5.3 Detailed Engineering

5.3.1 The obligation of the LICENSOR to assist in reviewing and approving the detailed engineering is important if the Contractor has not had previous experience in the same type of Plant.

5.3.2 The First Detailed Engineering Meeting ("kick-off" engineering meeting) is the most important date from the point of view of the engineering contract because at this meeting the Contractor is present, it is the first tripartite event.

This meeting should not be confused with the First Basic Design Meeting (Article 4.1) which is only between the LICENSEE and the LICENSOR (see Annexure VI for details of all meetings).

5.3.3 Clause (b) requires the LICENSOR's review and approval of the critical parts of the detailed engineering of the Process. This costs additional money but will make it easier for the LICENSOR to agree to the Performance Guarantees required by the LICENSEE in a developing country (Article 3.5). The more the detailed engineering review the higher the cost; therefore only the essential areas should be reviewed.

If the review by the LICENSOR is likely to take some time, it can be done after the meetings.

5.3.4 The Contractor should undertake the detailed engineering in accordance with the LICENSOR's Process Design otherwise the LICENSOR should not be able to guarantee the performance of the Plant

5.3.5 LICENSORS will normally expect the design to be frozen at the First Basic Design Meeting and would be reluctant to give the LICENSEE the right to automatically demand changes thereafter.

5.4 Procurement

Some licensees in developing countries may wish to include this Article. Usually the LICENSOR is not involved in procurement in licensing agreements between parties in developed countries. In any case, for such services, the LICENSOR may ask additional payment from the LICENSEE.

In any case, the LICENSOR should "prequalify" the suppliers of all critical equipment and critical instrumentation. This could be done by giving a list of such suppliers as an additional Annexure.

5.5 Construction of the Plant

The same comment as in Article 5.4 above applies. However, the LICENSOR does not usually prequalify construction companies.

5.6 Start-Up

It is important for the LICENSEE to state that the LICENSOR will give the instructions for the Start-Up and Performance Guarantee Test, as is done here, so as to hold a clear line of responsibility.

5.7 The LICENSOR's Personnel

This Article covers the qualifications and suitability of the LICENSOR's personnel to carry out his obligations, and which requires the approval of the LICENSEE.

5.7.1 Text A allows the LICENSEE to approve only qualified, responsible and serious personnel of the LICENSOR. It is based upon the past experience of some licensees in developing countries. It gives the LICENSEE the unilateral right to request the immediate repatriation of any of the LICENSOR's personnel found wanting.

Text B provides only for consultations between the parties. It may be acceptable to some licensees provided that repatriation is at the LICENSOR's expense, when his staff is at fault.

The reciprocal obligation regarding the repatriation of the LICENSEE's trainees is found in Article 6.7, where two alternative texts are proposed.

Normally both the LICENSOR and the LICENSEE should respect the existing social rules and practices in their respective country.

5.7.2 This Article defines the LICENSOR's maximum man-Days obligation under the Agreement and limits the demands on his own technical personnel.

ARTICLE 6

TRAINING OF THE LICENSOR'S PERSONNEL

This Article is critical to the successful transfer of technology to the LICENSEE and care should be taken in ensuring that it is drafted to cover all the LICENSEE's training requirements. The plant chosen for training should be as similar as possible to the Plant of the LICENSEE, and should be owned by the LICENSOR or one of his licensees.

6.1 This Article requires that the training programme mainly covers "Plant operations, Plant maintenance, material handling, quality control and effluent treatment". Other specific aspects of Plant operation and management could be added if required.

It is important that the programme is designed and checked by the LICENSEE and the LICENSOR to enable the LICENSEE's personnel to learn the technology of the Process, the operation, maintenance and control of the Plant. This is the objective of the programme but results will depend on the suitability of the training outlined in Annexure X and the capability and previous experience of the trainees. Hence, the LICENSEE is obliged to ensure that the trainees have adequate qualifications to benefit from the training they will receive. The training should be Process, equipment and instrument specific according to the requirements of the Plant.

6.2 This Article sets out in broad terms the scope of the training and the rights of the LICENSEE's trainees to take detailed notes in a plant.

6.4 This Article defines the language of training and instruction manuals. In some cases, the LICENSEE may wish to translate the manuals into his own language in order to provide training to his personnel, if the language of training is not his own.

6.7 This Article is reciprocal to Article 5.7.2. The comments on the latter Article also applies here.

6.8 This Article is of interest to both parties. It may be implemented by asking each trainee to sign a pledge that he will remain in the service of the LICENSEE for (5) years after his training.

ARTICLE 7

PATENT INFRINGEMENT

The whole of Article 7 in Text A needs to be read and compared with the whole of Article 7 as drafted in Text B.

It is clear in both texts where an obligation of either party is created and this clarity needs to be maintained in any text that the two parties may negotiate.

The LICENSEE should recognize that a patent dispute might lead to a compulsory closure of his Plant. Therefore, the LICENSEE should conduct a patent search in his own country with the co-operation of the LICENSOR who should advise him of all possible headings under which the patent could appear.

7.1 The purpose of this Article is to indemnify the LICENSEE against infringement of patents for use of the Process and sale of the Product in the country where the Plant is located and the LICENSEE's principal export markets, for the duration of the Agreement. The LICENSEE should seek a broad indemnification from the LICENSOR (Text A) and only accept limitations when specific circumstances justify them. Various types of limitation are discussed in the WIPO Guide [1/], (paras. 190-205) and one possible alternative is given in Text B.

Some LICENSORS claim a limitation on liabilities is justified because they are unable to make a careful search of all third party patents that might be infringed by the LICENSEE using the LICENSOR' Process in the LICENSEE's country. Furthermore, the law of the LICENSEE's country may give different interpretations to those in the LICENSOR's country and hence the LICENSOR's liability under patent infringement cannot be unlimited but should be shared or eliminated.

1/ See footnote to guidelines to Article 3.1

If the LICENSOR's liability is unlimited, as in Text A, then the cost of the Licence would be increased to cover the risk of paying patent infringement costs. However, if Text B is used, the LICENSEE must find out the exact status of the Applicable Patents and whether any suits are pending against their validity at the Effective Date of the Agreement. A list of the Applicable Patents in the agreed countries should also be obtained by the LICENSEE. If the LICENSEE accepts limits on the LICENSOR's liability as provided for in Article 7.2.3, Text B, then a corresponding change should modify Article 3.8.1, Text A, which provides for unlimited liability of the LICENSOR on patent infringement.

7.2 Defense of a patent suit

This Article describes how a patent suit should be defended if it is brought against the LICENSEE. Text A requires the LICENSOR to take charge of the defense and disposal of such suit, and demands the LICENSEE to assist the LICENSOR in the defense but without sustaining any expenses. Text B proposes that the LICENSOR shall conduct the defense at his own expense (Article 7.2.2) and under his full control (Article 7.4) but with the assistance of the LICENSEE (Article 7.3). The LICENSOR's expenses shall be charged against his total liabilities under Article 7.2, TextB up to an agreed percentage of his lump sum fees (Article 7.2.3), but in case such alleged patent infringement is denied by a competent court the LICENSEE shall reimburse to the LICENSOR all the expenses he has incurred in defending the suit (Article 7.2.4).

7.3 Possible alterations to the Plant to eliminate infringement

Text A requires the LICENSOR to make alterations to the Plant at his own cost to eliminate the alleged infringement, but provided that such alterations do not prevent the Plant from meeting the Performance Guarantees included in Article 3.5.

Text B requests the LICENSEE not to reject "any reasonable offer" of the LICENSOR to modify the Process and/or the Plant in order to avoid infringement. In this Text the term "any reasonable offer" should be more clearly defined in relation to the Performance Guarantees.

7.4 Conditions for settlement of the suit

This Article ensures that neither the LICENSOR nor the LICENSEE will settle the suit unilaterally. Text A ensures a broad safeguard to both parties. Text B safeguards the LICENSEE under the rights granted in Article 3.

ARTICLE 8

CONTRACT PRICE AND TERMS OF PAYMENT

8.1 The Model Agreement uses the lump sum method of payment for the LICENSOR's services rendered outside the LICENSEE's country including the granting of the Licence. The costs of assigning the LICENSOR's personnel to the LICENSEE's country are to be paid on a cost reimbursable basis. This is the method most widely used in the fertilizer industry when production in a new plant is envisaged and the technology is well established.

8.2 The words "rendered outside the LICENSEE's country" are for taxation purposes. This could be altered for specific contracts. The taxation of payments, which is important when determining the total Licence Fee, is discussed in the guidelines on Article 10.3.

8.4 The actual mode of payment in local currency could be decided on a case to case basis. It is advantageous for both parties that payments covering local expenses are paid in local currency.

8.5 Whilst this Article might have been omitted in the past when interest rates were low, it becomes important when interest rates are equivalent to 1.0 per cent per month or more.

8.6 The exchange rate of a currency at the time payments are made may differ greatly from the rate when the Agreement was signed. It is therefore important to state (a) in which currency the obligation to pay is created and (b) in which currency payments are to be made. Usually the currency in which the obligation is made will be used for the payments. If it is not, the exchange rate to be used at the time of each payment must be clearly specified in the Agreement.

The LICENSEE may purchase foreign exchange for later delivery at a cost if he wishes to hedge against an appreciation in the value of the currency in which the obligation to pay has been made.

ARTICLE 9

DURATION OF THE AGREEMENT

9.1 Effective Date

The date when the Agreement enters into force needs to be defined. The Agreement enters into force when the LICENSEE's Government approves the Agreement and the LICENSEE makes the advance payment. The prior approval of the LICENSOR's Government can also be included (clause 9.1(b)) if such approval is relevant; if it is not relevant, clause (b) can be deleted.

The approval of the Agreement by the LICENSEE's Government is an important condition because a growing number of developing countries have introduced national laws governing the transfer of technology with which the Agreement must comply. In some developing countries, the right to obtain foreign exchange to make payments for the Licence is made conditional on such approval.

9.2 Duration of the Agreement

The duration of the Agreement has been left to negotiation. A period of 10 years is suggested. Since payment is in the form of a lump sum, it is generally in the interest of the LICENSEE to keep this period as short as possible.

In fixing the duration of the Agreement, the parties should take into account: (a) the legal term of the unexpired property rights of the LICENSOR; protection conferred by patents usually lasts a maximum of 20 years, (b) any limitation on the terms which may be imposed by the national law on the transfer of technology and (c) the time period set for the performance of other obligations under the Agreement.

The Agreement establishes periods for the mutual obligations for maintaining confidentiality (Articles 3.4 and 4.4) and to exchange information on Improvements (Articles 3.2 and 4.2). In the Agreement they have been set at 10 years, but the length of the obligation as regards confidentiality must take into account the type of information provided, the pace of development in the field of technology covered and the number of persons exposed to the information.

9.3 Expiry of the Agreement

9.3.1 In Text B the continuation of the rights under 3.1 and 3.7 are subject to the LICENSEE carrying out his obligations, in Text A it is not. The two texts could be reconciled if the obligations are spelled out e.g. making payments, etc.

9.3.2 The need for further obligations, if any, clearly depends on the Duration of the Agreement and the period of confidentiality under Article 4.4.

9.4 Termination

As a general rule, neither party anticiptes a need to terminate the Agreement, in particular when payment is in the form of a lump sum. However, a legal provision has been made in this Article.

9.4.1 This Article safeguards the LICENSOR in te event of the LICENSEE not fulfilling his obli itions under the Agreement.

Some LICENSORS may request an additional Article stating that if the Agreement is terminated due to the fault of the LICENSEE, the LICENSEE's obligation as regards the secrecy agreement should continue for the unexpired period, or for another limited period.

Some LICENSORS may request the return of technical documents or termination of its use in case the LICENSEE has not substantially performed his obligations under the Agreement.

9.4.2 This Article safeguards the LICENSEE in the event that the LICENSOR defaults in his obligations.

Some LICENSORS ask for the right to terminate or re-negotiate the Agreement if the LICENSEE has terminated his business or if there is a substantial change of ownership of the LICENSEE and in particular, if a competitor buys ownership of the Plant. Whilst it may be appropriate to anticipate this type of event, not all LICENSEES would accept such an Article because it could frustrate the purpose of the Agreement after the lump sum licence fee has already been paid.

ARTICLE 10

GENERAL CONDITIONS

10.1 Bank Guarantees

A bank guarantee is provided to secure the advance payment made by the LICENSEE. Whether a bank guarantee is required will depend upon the circumstances, and safeguards the LICENSEE in the event of the LICENSOR not fulfilling his obligations.

In some cases the LICENSOR also delivers on receipt of payments for the Process Engineering Design Package (Article 8.3(b)) a bank guarantee for an amount equal to his liability under the Agreement as limited in Article 3.8, less the amount due to the LICENSOR under Article 8.3(c); this bank guarantee remains in force until the Performance Guarantees of the Plant are successfully demonstrated.

10.2 Insurance

It is normal practice for the insurance under Article 10.2.2 to be taken out by the LICENSOR, for his personnel and automobiles and by the LICENSEE for his personnel, particularly where local regulations require such inurance.

10.2.3 This Article has been included because such insurance cover was recommended by the UNIDO Consultations. If the LICENSOR is willing, the LICENSEE should discuss with him whether he has such a corporate "Professional Idemnity" policy and precisely what it covers. In some cases, the LICENSOR may be self-insured for the liabilities likely to arise from this Agreement. Information is generally not available on whether such policies cover simple negligence or a wider range of errors by the LICENSOR, and the LICENSOR may not be willing to disclose what his policy covers because it covers the entire business of his

corporation rather than the services provided under the Agreement. Such policies are often only for loss of property or loss of life.

No provision has been made in this Article for insuring against defective specification of materials of construction by the LICENSOR, except in so far as such defects may be covered by the Professional Indemnity Insurance.

10.3 Taxes and Levies

The implications of this Article should be carefully considered by the LICENSEE.

10.3.2 The purpose of this Article is to provide that payments to the LICENSOR are made net of taxes whenever taxes are due on such payments. It places on the LICENSEE the task of collecting taxes due in the LICENSEE's country. It may be appropriate to add to Article 10.3 the following clarification:

"In the event that the LICENSEE deducts such tax from the amount of the income to be remitted to the LICENSOR, the LICENSEE shall send to the LICENSOR, in due course, a tax certificate showing the payment of such tax".

Article 10.3.2 also states the condition "subject to national laws in the LICENSEE's country" which both parties should examine and discuss. In some developing countries, the national law may require that tax applicable to the licence fees be withheld by the LICENSEE.

10.3.3 This Article covers the situation where a double taxation agreement exists between the two countries. If such an agreement exists, the LICENSEE may ask which tax benefits the LICENSOR may obtain in his own country and whether these should reduce the cost of the Licence to the LICENSEE.

Where no such double taxation exists and its introduction is not anticipated, this Article can be omitted. The last sentence of Article 10.3.3 ensures that the LICENSOR does not suffer if the anticipated tax benefits are not realized. This presumes that he has reduced the licence fee. If he has not, then this sentence should be omitted. In any event, it seems a fairly diffcult provision to implement.

10.4 Settlement of disputes and Arbitration

Despite the mutual confidence which the two parties have in each other at the Effective Date of the Agreement, difference of opinion can arise in interpreting its provisions. Article 10.4 provides for a procedure to refer such a dispute to Arbitration. However, the Model Agreement calls for an attempt at reconciliation before formal Arbitration.

In this connection, the party claiming default must do so in writing immediately in order to establish his rights (Article 10.4.2). Article 10.4.3 provides for the use of procedures of an agreed Arbitration Court, such as under the laws of a specified country, under the rules of UNCITRAL, and under the rules of the International Chamber of Commerce.

The Arbitration rules chosen should be specified either in the Agreement or in a new Annexure. Each alternative is discussed in the WIPO Guide 1/, as. 635-646.

As regards Arbitration, it is important to clarify:

(a) how the Arbitrators are appointed;
(b) the rules governing the Arbitration;
(c) the venue and language;
(d) the Governing Law of the Agreement.

1/ see footnote to guidelines on Article 3.1.

The governing law of the Agreement is described in Article 11.3. The venue and language of the Arbitration are given in Article 10.4.7. It should be noted that the law of a developing country may state that a licensing Agreement will not be approved by the Government if it includes a clause making arbitration in another country or under another national law applicable (WIPO Guide, para. 642).

10.4.6 In most cases the LICENSOR may require a secrecy agreement from the Arbitrator(s).

10.5 Force Majeure

Since the definition of Force Majeure could be different in different jurisdictions, certain causes of Force Majeure which could be encountered are enumerated in Article 10.5.1.

In some cases strikes, lock-outs and concerted acts of workmen and changes in the law and regulations of the Government in the LICENSEE's and LICENSOR's countries, may be included as causes of Force Majeure. In that event, the following additional Article may be added after Article 10.5.2, particularly if strikes are included in the definition:

"The affected party shall be diligent in endeavouring to prevent or remove the cause of Force Majeure. Upon receipt of the notice of Force Majeure, the other party shall confer promptly with the affected party and agree upon a course of action to remove or alleviate such cause(s), or shall seek alternative methods of achieving the same performance objectives under the Agreement".

10.5.3 and 10.5.4 If the conditions of Force Majeure continues uninterrupted for a long time (6 months is suggested but any other period could be chosen), then the parties shall seek a solution through consultations (Article 10.5.3) and, in case of lack of agreement, through Arbitration (Article 10.5.4.)

ARTICLE 11

MISCELLANEOUS PROVISIONS

11.1 Assignment

The Model Agreement provides for a general requirement that the other party should approve in writing in advance any assignment of the Agreement to another party. The LICENSEE is unlikely to withhold such approval if the LICENSOR wishes to change the legal entity of the family of enterprises of which he is a member. But the LICENSOR may object with good reason if ownership of the LICENSEE is transferred to a new owner that is a competitor.

An additional Article may be added to Article 9.4 to make such a transfer of ownership to a competitor a cause for termination of the Agreement. Another approach would be to add in Article 11.1 a provision that the Agreement cannot be assigned by either party without the consent of the other in the event that there is a merger involving a company which owns technology within the field of agreement.

11.2 General Provisions

11.2.1 This is an important Article because some preliminary information may have been exchanged prior to concluding the licensing Agreement itself.

11.3 Applicable Laws and conformity with local statutes

In some countries, the governing law must be the laws of the country where the Plant is lcoated; where the choice is open, the other possibilities are the laws of the LICENSOR's country, the laws of a neutral country, etc.

The licensing Agreement has multiple facets with contacts in more than one country. It is therefore essential to indicate which is to be the governing or Applicable Law. The law of some developing countries insists that their own national law govern the transaction.

11.4 Language

This Article and Article 11.2.4 governs the language to be used in the Agreement. It has been the practice to write contracts in an internationally recognized language, which uses terms and expressions commonly used and understood among the contracting parties. In cases where the Agreement is written in two versions using different languages, the official version should be specified in this Article.

11.5 Standards and Codes

Standards and Codes must be decided either before or at the First Detailed Engineering Meeting at the latest. The Standards and Codes required for the Process Engineering Design Package should be decided at the time of signature of the Agreement.

11.6 Notices

This Article shall take account of the most reliable form of communication between the parties. It may be telex or facsimile transmission of documents which are more reliable than registered mail.

11.6.1 The period of Days allowed for serving the notice can be eliminated if telex/facsimile transmission is used and acknowledged.

11.7 Approvals

This Article describes normal practice in the industry.

11.8 National Security

This Article has been included at the suggestion of some developing countries who have found this as important consideration. Parties who do not find so may delete this Article.

Text of the Model Form of the Licensing and Engineering Services Agreement

ARTICLE 1

DEFINITIONS

In this Agreement, the following expressions shall have the following meanings assigned to them in this Article.

1.1 "Agreement" shall mean this Licensing Agreement together with Annexures entered into between the LICENSOR and the LICENSEE for the granting of the License to use the Process, together with all of the documents to which reference has been made in the Agreement documents, including such amendments and/or changes made to those documents by mutual agreement between the parties.

1.2 "LICENSOR" shall mean the party named as such in this Agreement or his successor or permitted assigns.

1.3 "LICENSEE" shall mean the party named as such in this Agreement or his successor or permitted assigns.

1.4 "Applicable Patents" shall mean the patents and patent applications relevant to the Process owned or controlled by the LICENSOR as the case may be, as defined in Annexure I.

1.5 "Approval" shall have the meaning ascribed to it in Article 11.8.

1.6 "Basic Design Data" shall mean the information provided by the LICENSEE as prescribed in Annexure VI.

1.7 "Commercial Production" shall mean the continuous production of specification grade Product at the rate of ( ) for ( ) Days.

1.8 "Confidential Information" shall mean the Confidential Information as defined in Article 4.4.

1.9 "Contractor" shall mean the engineering organization(s) appointed by the LICENSEE in agreement with the LICENSOR to undertake detailed engineering and erection of the Plant based on the Know-How.

1.10 "Days" shall mean calendar days.

1.11 "Effective Date" shall mean the date on which this Agreement shall come into effect in accordance with the provisions of Article 9.1.

1.12 "Expanding the Capacity" shall mean an increase in capacity of the Plant, in excess of the nameplate capacity, consequent on the installation of additional items of major equipment or replacement of major items of equipment by equipment of larger capacity.

1.13 "First Basic Design Meeting" shall mean the first technical meeting between the LICENSEE and the LICENSOR according to Articles 4.1 and 5.2 and Annexure VI, clause 1.2; if appointed already the Contractor shall also assist.

1.14 "First Detailed Engineering Meeting" shall mean the first meeting between the LICENSEE, the Contractor and the LICENSOR following the appointment of the Contractor according to Annexure VI, clause 2.

1.15 "Guarantee Test" shall mean the test operation of the Plant as specified in Article 3.5 to be undertaken for the purpose of demonstrating the Performance Guarantees.

1.16 "Improvements" shall mean any modification or refinement of the Process and/or Know-How, whether patented or not, which has been developed or acquired during the period covered by this Agreement, or during the period fixed in the Agreement and which is capable of improving the technical and/or economic characteristics of the Process and hence the quantity of the Product produced.

1.17 "Know-How" shall mean all the technical data, information drawings and designs and instructions relevant to the "Process" in the possession of the LICENSOR, in commercial use and operated in the LICENSOR's and/or his other LICENSEES' plant(s) at the Effective Date and which the LICENSOR is entitled to disclose, embodied in the Process Engineering Design Package which are sufficient to enable an experienced Contractor to undertake the detailed engineering of and construct the Plant and to enable the LICENSEE's personnel to operate the Plant so as to produce Product(s) in accordance with the Performance Guarantees.

1.18 "Mechanical Completion" shall mean the time when the physical construction of the Plant has been completed, when all necessary tests have been fulfilled, the Mechanical Completion Certificate has been issued and the Plant is ready for Start-Up as defined in Annexure XIII.

1.19 "Performance Guarantees" shall mean the guarantees of performance of the Plant as defined in Article 3.5 and Annexure Xl.

1.20 "Plant" shall mean the manufacturing facilities to be built by the LICENSEE at a Site in (country) using the Process for the production of (Product) from feedstock ( ) at nameplate capacity of ( ) metric tonnes per annum based on (330) operating Days per annum.

1.21 "Process" shall mean the latest commercially proven process developed or acquired and owned by the LICENSOR at the Effective Date, which is the subject of this Agreement, and which is described in detail in Annexure II.

1.22 "Process Engineering Design Package" shall contain the Know-How as defined above in Article 1.17 and described in more detail in Annexure VIII.

1.23 "Product" shall mean the product(s) of the Plant produced according to Process and of the specifications set forth in Annexure IV.

1.24 "Site" shall mean the land upon which the Plant is to be constructed as specified in Annexure V.

1.25 "Specifications" shall mean the technical criteria, definitions and parameters governing the Plant as set out in the Agreement.

1.26 "Start-Up" shall mean the date by which the operations of pre-commissioning and commissioning shall have been completed and the Plant(s) commence(s) the production of Product(s).

1.27 "Technical Documentation" shall mean the technical documents described in Annexure VI and Annexure VIII.

1.28 "Tons" shall mean metric tons (tonnes).

ARTICLE 2

DEFINITION OF THE PLANT AND THE PROCESS

2.1 The LICENSEE intends to establish a Plant at (name of town) in (country) to manufacture specification grades of (Product). The preliminary outline of the Site of the Plant is provided in Annexure V.

2.2 The nameplate (design) capacity of the Plant shall be ( ) Tons per Day of Product and shall be designed to operate at least (330) Days per year.

2.3 The Plant shall be designed to produce the different grades of Product according to the specifications described in Annexure IV.

2.4 The Plant shall be designed specifically to suit the location and feedstock.

2.5 The feedstock shall have the specifications detailed in Annexure XI.

2.6 The Plant shall use the _____ Process as described in Annexure II and consisting of the units described in Annexure III.

2.7 The Process covers all the manufacturing facilities between the points where feedstock, other raw materials and utilities enter the Plant and the points at which Product and effluents leave the Plant. The battery limits of the Plant are specified in Annexure III.

ARTICLE 3

OBLIGATIONS OF THE LICENSOR

3.1 Grant of Patent Rights and Licence

LICENSOR warrants that he has the right to grant and hereby grants to LICENSEE a non-exclusive licence and right to use the Know-How and the Applicable Patents:

(a) to employ all Know-How and technical information necessary for the LICENSEE to design, construct and operate the Plant for the manufacture of the Product(s);

(b) to purchase, acquire, make or have made any equipment, apparatus or other material necessary for the construction and operation of the Plant;

(c) to manufacture in the Plant corresponding to the capacity of the Plant as defined in Article 2.2 and to use and sell the Product manufactured in (country) and to any other country or countries.

3.1.1 The grant of the licence and right according to Article 3.1 shall not be interpreted to mean an assignment of the LICENSOR's proprietary Know-How and title to the Applicable Patents to the LICENSEE.

3.2 Improvements in the Process

The LICENSOR undertakes of his own initiative to make available to the LICENSEE all Improvements in the Process developed or acquired by the LICENSOR and of which he is entitled to dispose for the duration of the Agreement (or, if agreed, a specified period) and specifically:

(a) to make available, free of charge, all developments and Improvements in operating techniques, preventive maintenance and safety measures, and process developments not covered by (b) below applicable

to the Plant as well as other relevant data and proprietary information which is made available free of charge bythe LICENSOR to other licensees of the Process;

(b) to grant to the LICENSEE, on payment of a reasonable fee and on agreed terms, the rights to use Process proprietary developments implemented or acquired by the LICENSOR, including patented developments, which could result in significant improvement(s) in the capacity, reliability and efficiency of the Plant, and quality of the Products.

3.2.1 The LICENSOR shall inform the LICENSEE in writing or in other appropriate way, such as Exchange Information Meetings among Licensees, of the availability of all Improvements in the Process when they are developed or acquired and applied in the LICENSOR's plant or plants of any other licensee who, in his respective licence agreement, does not explicitly prohibit the LICENSOR such disclosure.

3.3 Supply of Technical Documentation and related Services

The LICENSOR shall supply to the LICENSEE sufficient technical information and Know-How related to the Process to enable the LICENSEE to undertake, through his Contractor, the detailed engineering of the Plant, to construct the Plant, to commission the Plant and to operate the Plant. The documentation to be supplied for this purpose shall include, but not be limited to:

(a) the Process Engineering Design Package described in Annexure VIII, and

(b) the other technical information, data and drawings listed in Annexure VI.

3.3.1 The LICENSOR shall ensure that all information required for the detailed engineering of the Plant by the LICENSEE or the Contractor is made available in accordance with the time schedule, place of delivery and number of copies required, as

detailed in Annexures VI and VII. In the event that documents supplied are incomplete or inaccurate and have to be completed or modified, the date of delivery of the documents shall be the date on which such completions or modifications are supplied by the LICENSOR. If any explanation is required by the LICENSEE or the Contractor, such explanation shall not be unreasonably withheld by the LICENSOR.

3.3.2 The LICENSOR shall arrange for personnel of the LICENSEE and, subject to the approval of the LICENSOR, his Contractor to visit the LICENSOR's plants operating at (locations) using the Process on agreed occasions. These visits shall be scheduled so as not to interfere with the operation of the plants visited.

3.3.3 The LICENSOR shall supply any other information on the Process and Know-How that may be reasonably required by the LICENSEE or his Contractor for checking the process engineering, undertaking the detailed engineering, erection and operation of the Plant.

3.3.4 The LICENSOR shall deliver to the LICENSEE, as detailed in Annexure VIII, the names of vendors supplying all items of equipment of a proprietary or critical nature which form an essential part of the Process that are listed in Annexure VI and shall specify in detail the recommended instruments and supplies.

3.3.5 The list of the major items of engineering services which may affect the Performance Guarantees of the Plant are detailed in Annexure VI. These include all the items of detailed engineering which the LICENSOR wishes to approve and those which the LICENSEE requires the LICENSOR to review and approve. The LICENSOR shall review for conformity with the Process Engineering Design Package the detailed engineering design of all the items listed for such approval in Annexure VI.

3.3.6 The LICENSOR shall indicate the suppliers of catalysts and other chemicals required for Start-Up of the Plant and demonstration of the Performance Guarantee Tests and its subsequent operation.

3.3.7 The LICENSOR shall provide competent personnel to instruct and witness the commissioning and Start-Up of the Plant and the conducting of Performance Tests.

3.4 (Optional) The LICENSOR shall, upon request by the LICENSEE and within an agreed period, provide under separate agreement(s), and for an additional payment, the services listed below which may be required for the adaptation of the process technology, the operation of the Plant and the marketing of its Products:

(the services to be provided should be listed)

3.5 Performance Guarantees of the Process

The LICENSOR guarantees that the Plant shall meet the Performance Guarantees listed below during a continuous test run:

(a) The Plant shall produce ( ) Tons per Day of Product of in accordance with Annexure IV.

(b) The consumption of raw materials and utilities shall be as given in Annexure XI.

(c) The quality and quantity of effluents and emissions shall be in accordance with Annexure XI.

(d) The application of the Process and the operation of the Plant shall meet the safety and environmental requirements as specified in the Basic Design Data furnished by the LICENSEE, provided that:

(i) the Plant has been designed and constructed in strict accordance with the Process Engineering Design Package, the Know-How and Technical Documentation furnished by the LICENSOR, subject to any changes approved in writing;

(ii) the LICENSEE provides a constant and adequate supply of the raw materials and utilities as defined in Annexure XI and employs a catalyst recommended by the LICENSOR;

(iii) the LICENSEE provides the number of trained personnel for the Plant as defined in Article 6 and Annexure X;

(iv) the Plant is mechanically complete and ready for Start-Up as specified in Annexure XIII and is free from mechanical defects;

(v) the test is run within the period specified in Article 3.5.1 and is operated according to the instructions of the LICENSOR.

3.5.1 The first Performance Guarantee Test shall be performed within (3) months from the Mechanical Completion and after the Plant has been operating at (90) per cent of capacity for 20 Days, and shall be demonstrated by means of a (10) days continuous operation test of the Plant during which:

(a) The Plant produces ( ) Tons of Product.

(b) The Product when separately collected in each (8) hour shift and analysed in accordance with the procedures contained in Annexure IV, meets the specifications provided for in Annexure IV during each shift.

(c) The effluents and emissions when analysed at regular intervals in each (8) hour shift, meet the specifications provided in Article 3.5 (c).

3.5.1.1 During the 10-Day period the following guarantees shall be demonstrated within a 7-Day consecutive period: The consumption of raw materials and utilities, when aggregated over the 7-Day Test period, meet the guarantees provided in Article 3.5 (b).

3.5.2 The LICENSEE shall prepare a Performance Guarantee Test Report based upon the measurements carried out during the Guarantee Test(s) immediately after completion of the tests authenticated by the LICENSOR's personnel at Site. If the Plant's performance is satisfactory according to Article 3.5, the LICENSEE shall issue to the LICENSOR an Acceptance Certificate within (20) Days from completion of the Report, or state his reasons for withholding the Certificate. The Acceptance Certificate terminates the LICENSOR's obligations and liabilities regarding the performance of the Plant.

3.5.3 If the Plant does not meet the guarantees laid down in Article 3.5, the LICENSOR, the LICENSEE and the Contractor shall meet to determine the reasons for this failure. The LICENSOR shall, within ( ) Days thereafter, advise the LICENSEE on whether changes in operating procedures, modification or replacement of equipment or installation of additional equipment or facilities are required to meet the Performance Guarantees.

3.5.4 If the Performance Guarantees are not met due to defects in the Process and/or Process Engineering Design Package attributable to the LICENSOR, the LICENSOR shall, at his own expense provide such drawings and/or data as is necessary and to recommend the modifications and rectifications which in his professional judgement are necessary to rectify the defects and thereby to achieve the Performance Guarantees. The LICENSOR and the LICENSEE shall determine a mutually agreeable schedule to incorporate such changes, modifications or additions to the Plant. The LICENSOR shall bear the expense of design, purchase, delivery and installation of the required equipment necessary to make such changes.

3.5.4.1 The maximum aggregate liability to the LICENSOR for carrying out the modifications shall not exceed (amount).

3.5.5 If the Performance Guarantees are not met due to the LICENSEE's fault (including the Contractor's fault), the LICENSEE shall, through the Contractor, proceed to effect the rectifications which in the professional judgement of the LICENSEE, but with advice and approval of the LICENSOR, are necessary to rectify the defects and thereby to achieve the Performance Guarantees. The LICENSEE shall bear the expenses of design, purchase, delivery and installation of the required equipment necessary to make such changes.

3.5.6 If the LICENSOR and the LICENSEE do not agree as to the party which is at fault, the LICENSOR shall within ( ) Days recommend changes in operating procedures or provide such drawings or data and suggest such modifications or replacements or equipment that may be required to meet the guarantees laid down in Article 3.5. The LICENSEE or his Contractor shall carry out such modifications or replacements according to a mutually agreed schedule. Failing agreement, the party which is to bear the costs involved shall be decided by Arbitration in accordance with Article 10.4.

3.5.7 The LICENSOR or the LICENSEE, as the case may be, shall in every case keep accurate records of the costs of rectifying any defect(s) in pursuance of this Article, and each party shall be entitled to receive copies of the relevant documents.

3.5.8 The LICENSEE shall not be required to make any payment to the LICENSOR for the extension of the services of the LICENSOR's personnel beyond the first unsuccessful Performance Guarantee Test run, if the Plant fails to demonstrate the Performance Guarantees for reasons attributable to the LICENSOR.

3.5.9 After completion of the rectification of the defects according to Articles 3.5.4, 3.5.5 and/or 3.5.6, a second Mechanical Completion Certificate, if necessary, shall be prepared by the Parties and a Second Performance Test made.

	TEXT A	TEXT B
3.5.10	In the event that the Plant on the Second Performance Guarantee Test is unable to demonstrate the Performance Guarantees for reasons attributable to the LICENSOR, but achieves a performance above the minimum specified below, the LICENSOR shall have the right to pay to the LICENSEE liquidated damages established in the manner set out in Article 3.6 below, and thereupon be relieved of his obligations in accord with Article 3.6. (a) (95) per cent of the production capacity equivalent to ( ) Tons per Day; (b) Consumption of feedstock exceeds the guaranteed level by ( ) per cent; (c) Consumption of catalysts, chemicals, stream and power exceeds the guaranteed level by ( ) per cent.	In the event that the Plant is still unable on the Second Performance Guarantee Test to demonstrate the Performance Guarantees for reasons attributable to the LICENSOR, the LICENSOR shall have the right to pay to the LICENSEE liquidated damages established in the manner set out in Article 3.6 below, and thereupon be relieved of his obligations in accord with Article 3.6.

3.5.11 In the event the production of Product during the final Performance Test is below that stated in Article in 3.5 10, does not meet the specifications set out in Annexure IV, or the consumption of feedstock exceeds the guaranteed figure by ( ) per cent or more, and the LICENSOR refuses or is unable to suggest such rectifications to the Plant as to meet these conditions within ( ) months, the LICENSEE shall have the right to rectify the Plant. For this purpose, the LICENSEE may approach any other party for advice and Know-How on the

operation or modification of the Plant and the LICENSEE may carry out such modifications of the Plant as may be necessary in order to secure production of Product in the quantity of the specification and with consumption of feedstock to the guaranteed levels specified in this Agreement. In doing so, the party concerned shall sign a Confidentiality agreement with the LICENSEE co-extensive with the Confidentiality agreement contained in Article 4.4. If no competent party is available who shall sign the agreement,the LICENSOR shall waive the secrecy provisions of the Confidentiality agreement. The LICENSOR shall be liable to pay for the full cost of the Know-How and drawings supplied by the new party, and up to the maximum liability provided for in Article 3.5.4.1 for modifications to the equipment.

3.5.12 If, for reasons not attributable to the LICENSOR, the first Performance Guarantee Test has not been carried out within ( ) months of supply of the Process Engineering Design Package, or within ( ) months from the Effective Date, whichever comes later, or after the First Performance Guarantee Test having been unsuccessful, the LICENSEE refuses or neglects to effect the rectifications according to Article 3.5.5 within ( ) months from the date of the first unsuccessful Performance Guarantee Test, the obligations of the LICENSOR with regard to Performance Guarantees of the Plant shall become void and the Performance Guarantees shall be deemed to have been fully met.

3.5.13 If, for reasons not attributable to the LICENSEE, the first Performance Guarantee Test has not been made within the period stipulated in Article 3.5.12 above, the LICENSOR shall, at a time convenient to both parties, assist the LICENSEE in the Start-Up of the Plant at a later date. This will be subject to additional fees and travel expenses, that take account of the increased costs to the LICENSOR, being agreed between the LICENSEE and the LICENSOR.

3.6 Liquidated Damages

The LICENSOR shall be subject to Liquidated Damages to be paid to the LICENSEE:

3.6.1 for delay in supplying the Basic Engineering Design Package in accordance with Annexure VII.
(amount) thousand US Dollars for each week of delay.

3.6.2 If the Plant fails to demonstrate the Performance Guarantees set out in Article 3.5 in the last Performance Guarantee Test conducted and subject to the provisions of Article 3.5.10, the LICENSOR shall pay to the LICENSEE Liquidated Damages arrived at as follows:

(a) to the extent that production falls short of ( ) Tons within the Performance Guarantee Test period (the quantity guaranteed), the LICENSOR shall pay to the LICENSEE a sum of (amount) per every 1 per cent of the deficiency;

(b) to the extent that consumption of (feedstock) exceeds ___ Nm^3 per Ton of Product (the consumption guaranteed), the LICENSOR shall pay to the LICENSEE a sum of (amount) per every 1 per cent of the excess consumption.

(c) to the extent that consumption of catalysts, chemicals, steam and power per 1000 kg of Product produced is in excess of the guaranteed quantities, the LICENSOR shall pay to the LICENSEE liquidated damages as follows:

1. For every ( ) excess consumption of (catalysts) a sum of (amount) per ( ).

2. For every ( ) excess consumption of (chemicals) a sum of (amount) per ( ).

3. For every ( ) excess consumption of steam a sum of (amount) per ( ).

4. For every ( ) excess consumption of power a sum of (amount) per ( )

3.6.1 The LICENSEE, when the LICENSOR agrees that liquidated damages are due, may deduct the amount of such liquidated damages from any payments due to the LICENSOR.

3.6.2 The payment of such liquidated damages shall relieve the LICENSOR only from those specific obligations for which the penalties are paid.

3.7 Expanding the capacity of the Plant

In the event the LICENSEE desires at any time during the term of this Agreement to expand the capacity of the Plant or to set up (erect) additional facilities (Plants) of his own in (country/countries) for the production of Product, using the Process and a material part of the Know-How during the term of this Agreement, the LICENSEE shall pay to the LICENSOR for each extension of ( ) Tons above the nameplate capacity as defined in Article 2.2, an additional fee at the rate of no more than (amount) per Ton of additional capacity. The LICENSEE shall pay the extension fee within ( ) months after the date at which the first of the respective agreements with the LICENSEE concerning such extension of the capacity, has become effective.

3.7.1 Upon receipt of the extension fee, the LICENSOR shall grant to the LICENSEE for each such extension of capacity of the Plant the same right under the same conditions as set forth in Article 3.1.

3.7.2 All amounts of extension fees due under this Article 3.7 shall be paid to the LICENSOR in the manner and under the conditions provided for in Article 8 of this Agreement.

3.7.3 There shall be no restrictions on the LICENSEE expanding the Plant by using a process other than that covered by the present Agreement, and employing any other Licensor for this purpose.

3.8 Liability Limitation

TEXT A	TEXT B
3.8.1 The LICENSOR's total liabilities under this Agreement shall be limited to ( ) per cent of the lump sum fee mentioned in Article 8, with the following exceptions: (a) liabilities for patent infringement (Article 7, Text A); (b) liabilities for defaults in Process Know-How and Process Engineering Design Package (Article 3.5).	3.8.1 The LICENSOR's total liabilities under this Agreement shall be limited to ( ) per cent of the lump sum fee mentioned in Article 8.

3.8.2 The LICENSOR shall not be liable for loss of anticipated profits or for any consequential loss or damage arising from any cause. The guarantee certificate shall be deemed to be issued as soon as either the liquidated damages under Article 3.6 have been paid by the LICENSOR or the liability limits under Article 3.8 have been reached (subject to the provisions of Article 3.5.10)[1/]

1/ The words in brackets are to be used only if Text A of Article 3.5.10 is used. Otherwise they can be deleted.

ARTICLE 4

OBLIGATIONS OF THE LICENSEE

4.1 Provisions of Basic Design Data for the Plant

4.1.1 The LICENSEE shall provide and be responsible for the accuracy of the Basic Design Data on which the design of the Plant is to be based. The Basic Design Data shall be transmitted to the LICENSOR and discussed at the First Basic Design Meeting, according to Annexure VI.

4.1.2 The First Basic Design Meeting shall be held within ( ) Days of the Effective Date in accordance with clause 1.2 of Annexure VI.

4.2 Improvements in the Process

4.2.1 The LICENSEE undertakes on his own initiative to make available to the LICENSOR all Improvements in the Process developed or acquired by the LICENSEE, and of which he is entitled to dispose for the duration of the Agreement (or, if agreed, a specified period) and specifically:

(a) to make available free of charge to the LICENSOR all developments and improvements in operating techniques, preventive maintenance and safety measures and process development not covered by (b) below, and applicable to the Plant;

(b) to grant to the LICENSOR, on payment of a reasonable fee and on agreed terms, the rights to use proprietary Process developments implemented by the LICENSEE, including patented Process developments, which could result in significant improvement(s) in the capacity, reliability and efficiency of the Plant and the quality of the Products.

4.2.2 The LICENSEE shall inform the LICENSOR in writing of the availability of all Improvements as they are developed and applied by the LICENSEE in the Plant.

4.3 Appointment of the Contractor

4.3.1 The LICENSEE and the LICENSOR shall mutually agree on the appointment of the Contractor to undertake the detailed engineering and construction of the Plant.

4.3.2 The Contractor shall be obliged to sign a secrecy aggreement before his contract with the LICENSEE becomes effective.

4.4 Secrecy and Confidentiality

	TEXT A	TEXT B
4.4.1	The LICENSEE shall treat all Process and technical information, proprietary Know-How, patented processes, documents, data and drawings supplied by the LICENSOR as "Confidential Information" and shall not divulge such Confidential Information to a third party except when required by law, when the LICENSEE shall inform the LICENSOR in advance. These obligations shall beginn with the first supply or disclosure of the confidential information and shall cease (10) years after the date of disclosure and for the improvements (10) years after the date of their receipt. The	4.4.1 The LICENSEE shall keep any item of the Know-How, the Process Engineering Design Package, the Applicable Patents, the Improvements the Basic Design Data, Specifications and Technical Documentation supplied to him by th LICENSEE, strictly confidential and shall not divulge the same to third parties. The LICENSEE shall not use such confidential information for any purpose other than for the design, construction, erection, maintenance, operation, repair or modification of the Plant. The LICENSEE

LICENSEE shall not utilize the Confidential Information for any purpose other than for completing, operating, repairing maintaining or modifying the Plant.

undertakes to take all steps and measures to insure that these obligations will strictly be met and shall impose corresponding obligations on its employess, the Contractor and the Sub-contractors trusted with the work relating to the design, construction or repair of the Plant. These obligations shall begin with the first supply or disclosure of the Confidential Information and shall cease (10) years after the date of Satrt-Up and for the Improvements (10) years after the date of their receipt.

TEXT A

4.4.2 The employees of the LICENSEE, the Contractor and their sub-contractors entrusted with the work relating to the Plant, shall be bound by the same obligations of confidentiality as the LICENSEE.

TEXT B

4.4.2 Not used.

TEXT A

4.4.3 Information received from the LICENSOR shall not be deemed Confidential Information when

(a) it enters the public domain by publication or otherwise; or

(b) it was in the possession of the LICENSEE at the signing of the Agreement; or

(c) it is made available to the LICENSEE independently by a third party.

TEXT B

4.4.3 The obligations according to Article 4.4 shall not apply, however, to any item of the Confidential Information for which the LICENSEE can prove that

(a) it was in the possession of the LICENSEE prior to its receipt, without binder of secrecy; or

(b) is or has become part of the public domain by publication or otherwise through no fault of the LICENSEE; or

(c) was made available to the LICENSEE without any binder of secrecy from a third party having a bona fide right to disclose the same to the LICENSEE.

TEXT A

4.4.4 The LICENSEE shall be authorized, without prior approval of the LICENSOR, to disclose such parts of the Confidential Information received from the LICENSOR to the Contractor and

TEXT B

4.4.4 The LICENSEE shall be authorized to disclose to the extent necessary, such parts of the Confidential Information received from the LICENSOR to the Contractor and suppliers of

suppliers of equipment and/or sub-contractors and/or insurance companies when such information is absolutely necessary to call for bids or to purchase equipment and/or for the insurance of the equipment and/or the Plant. The LICENSEE shall make recipients of Confidential Information sign appropriate secrecy agreements.

equipment and/or sub-contractors, and/or insurance companies in (country) when such information is necessary to prepare bids or to purchase equipment and/or for the insurance of the equipment and/or the Plant, provided that the LICENSOR has previously concluded secrecy agreements with such institutions, the stipulations of which are substantially corresponding to Article 4.4.

TEXT A

4.4.5 The LICENSEF shall be authorized to communicate to any Government Agency, regulatory body such parts of the Confidential Information as may be required by the applicable law relating to the approval or registration of this Agreement, or a grant license for import of equipment or any other matter pertinent to the setting-up of the Plant.

TEXT B

4.4.5 The LICENSEE shall be authorized, in the same manner as in Article 4.4.4, to communicate the required Confidential Information to any Government Agency as may be required by the applicable law relating to the approval or registration of this Agreement, or a grant of license for import of equipment or any other matter pertinent to the setting-up of the Plant.

4.4.6 The LICENSEE shall be authorized to disclose to any National Research Laboratory contracted by the LICENSEE, part of the Confidential Information received from the LICENSOR, subject to the LICENSOR's approval in advance, and to the recipients of such information being bound by the same obligations of Confidentialy as the LICENSEE. This approval shall not be unreasonably withheld.

ARTICLE 5

CO-ORDINATION OF THE WORK

5.1 The LICENSOR shall assist the LICENSEE and the Contractor in the technology transfer during the preparation of the Process Engineering Design Package and to undertake the detailed engineering, Start-Up and commissioning of the Plant. The details of the arrangement for co-ordinating the work to be undertaken by the LICENSOR, the LICENSEE and the Contractor are specified below and in Annexure VI and the time schedule in Annexure VII.

5.2 Process Design

Upon completion of each part of the Process Engineering Design Package, the LICENSOR shall accept in his Design Office representatives of the LICENSEE at the dates, number of Days, and number of persons defined in Annexures VI and VII. The Contractor, if already selected, shall assist at the meetings. For the duration of these meetings, the LICENSOR shall provide office accommodation, technical and clerical assistance.

5.3 Detailed Engineering

5.3.1 The LICENSEE, in his contract with the Contractor, shall make arrangements for co-ordinating the work he undertakes with the LICENSOR. The arrangements shall include but not be limited to the arrangements listed in this Article 5 and Annexures VI and VII.

5.3.2 The LICENSEE shall convene within ( ) Days of the Effective Date of the Agreement at (place) in (country), the First Detailed Engineering Meeting with the LICENSOR and Contractor to discuss and agree on the matters listed in Article 5 and Annexures VI and VII.

5.3.3 In order to assist the LICENSEE and the Contractor in the detailed engineering of the Plant, the LICENSOR shall take part at the design meetings to be held between the LICENSEE and the Contractor. The place, date, duration, number and qualification of the participarts and the scope of each conference shall be agreed upon at the First Detailed Engineering Meeting. At these meetings the LICENSOR shall:

(a) give advice and supply information on the Process according to Article 3.3.3;

(b) review all the Process related detailed engineering designs and drawings that are specified in Article 3.3.5 and Annexure VI as requiring the LICENSOR's review and approval. The conferences shall be held either at the Contractor's or the LICENSEE's office. The secretarial and clerical assistance shall be given by the host organization.

5.3.4 The LICENSEE and the Contractor shall prepare the detailed engineering of the Plant strictly in accordance with the Process Engineering Design Package.

5.3.5 The LICENSEE shall notify the LICENSOR of any changes he wishes to make in the Process Engineering Design Package. If in the opinion of the LICENSOR, such changes are likely to prevent the LICENSOR from fulfilling any of his obligations under the Agreement, he shall notify the LICENSEE in writing of the modifications to his obligations that would result, and the LICENSEE shall decide forthwith whether or not the changes shall be carried out. If the LICENSEE reconfirms in writing his intention to carry out the changes, then the obligations of the LICENSOR shall be modified to such extent as the LICENSOR specifies.

5.4 Procurement

The LICENSOR shall assist the LICENSEE and the Contractor in the procurement of the critical items of equipment listed in Annexure VI and where necessary, take part at the tests and acceptance procedures at the manufacturing plants. The schedule and method of the LICENSOR's participation in the work shall be agreed upon at the First Detailed Engineering Meeting.

5.5 Construction of the Plant

The LICENSOR shall assist the LICENSEE in the erection of the Plant. For this purpose the LICENSOR shall:

(a) at the LICENSEE's request give consultation services on questions arising during erection,

(b) to inspect the Plant on Mechanical Completion and to report to the LICENSEE any evident defects which would affect the safe and efficient operation of the Plant and/or its demonstration of the Performance Guarantees.

5.6 Start-Up

The LICENSOR shall instruct and witness the Start-Up and Performance Guarantee Test by his delegated personnel in co-operation with the Contractor and the LICENSEE.

5.7 LICENSOR's personnel

The LICENSOR shall communicate to the LICENSEE the background and experience of the persons proposed for all such assignments. No person shall be deputed without the LICENSEE's approval, which shall not be unreasonably withheld.

TEXT A

5.7.1 The LICENSEE shall have the right at any time to require the immediate repatriation of any of the LICENSOR's personnel found to be negligent or or lacking in competence or guilty of misconduct. In such cases, the LICENSOR shall immediately satisfy himself of the validity of the claim and shall provide a replacement in not less than ( ) Days. The costs of repatriation and of providing a replacement shall be borne by the LICENSOR.

TEXT B

5.7.1 The LICENSOR and the LICENSEE shall consult each other on questions of regarding withdrawal or replacement of any of the LICENSOR's personnel delegated by the LICENSOR to the LICENSEE.

5.7.2 The LICENSOR's obligations to depute personnel to the country of the Plant under the Agreement shall be limited to ( ) man-days.

ARTICLE 6

TRAINING OF THE LICENCEE'S PERSONNEL

6.1 The LICENSOR shall arrange for the training of the LICENSEE's personnel in (name of plants) using the Process. The training shall cover but not be limited to Plant operation, Plant maintenance, material handling, quality control, effluent and emission treatment. The LICENSOR shall ensure that the training programme shall fully cover the technology of the Process, the operation, maintenance and control of the Plant. The LICENSEE shall ensure in this connection, that the personnel to be trained shall have the qualifications provided for in Annexure X.

6.2 The LICENSOR shall ensure that the personnel designated by the LICENSEE be given adequate opportunity to study and acquaint themselves with the Process, safety precautions, operation, quality control of the Product, laboratory procedures, maintenance of the plant, and to discuss plant and laboratory practices and operations with the plant personnel. The LICENSEE's personnel shall be permitted to make notes and sketches of the plant using the Process, and to secure pertinent information as required.

6.3 The LICENSOR shall provide training for the LICENCEE's personnel for the periods described in Annexure X.

6.4 The Training Programme shall be carried out in _____ language, and wherever necessary the interpreters for this purpose shall be provided by ( ). The LICENSOR undertakes to supply training manuals and data in the _____ language.

6.5. All living and travel costs for the LICENSEE's personnel shall be borne by the LICENSEE.

6.6 The personnel of the LICENSEE, during the time they are present at the plant of another party, shall be subject to all rules and regulations prevailing on the premises but shall not be considered an employee of the other party.

TEXT A

6.7 The LICENSOR shall have the right at any time to require the immediate repatriation of any of the LICENSEE's personnel found to be negligent, lacking in competence or guilty of misconduct. In such cases, the LICENSEE shall immediately satisfy himself of the validity of the claim and shall provide replacement in ( ) Days. The cost of repatriation and of providing a replacement shall be borne by the LICENSEE.

TEXT B

6.7 The LICENSOR and the LICENSEE shall consult each other on questions regarding withdrawal or replacement of any of the LICENSEE's personnel delegated by the LICENSEE to the LICENSOR for training.

6.8 The LICENSEE shall use his best endeavours to retain and use the trained personnel for Start-Up and operation of the Plant.

ARTICLE 7

PATENT INFRINGEMENT [1/]

TEXT A

7.1 The LICENSOR shall indemnify and hold harmless the LICENSEE, in the event that any claim is made or any suit or other action is brought against the LICENSEE alleging infringement of one or more of Third Parties' Patents covering the Process and the equipment specified by the LICENSOR, published until the Effective Date, by reason of the LICENSEE's practice of the Process and the Know-How in the Plant or of the sale in the agreed countries of the Product produced in the Plant, provided the LICENSEE so notifies the LICENSOR promptly.

7.1.1 The LICENSOR shall also indemnify and hold harmless the LICENSEE from any infringement of a patent on an item of equipment or apparatus of design specified by the LICENSOR as required for the practice of the Process.

TEXT B

7.1 The LICENSOR represents and warrants that he has the right to grant to the LICENSEE the rights granted under Article 3 of this Agreement, but makes no representation or warranty as to the existence or validity of any Applicable Patent in respect thereto.

1/ Article 7 needs to be read as a whole either under Alternative A or Alternative B.

7.1.2 Indemnify shall mean that the LICENSOR shall reimburse in full to the LICENSEE any royalties, licence fee or damages paid to a third party as a result of a ruling of a competent court of law that the LICENSEE's practice of the Process and/or Know-How infringes the patent rights of the third party.

TEXT A

7.2 The LICENSEE shall give the LICENSOR prompt notice, in writing, of any claim or suit (referred to in Article 7.1) of which he has knowledge. The LICENSOR shall have sole charge and direction of the defence and disposal of such suit of action, and the LICENSEE shall render all reasonable assistance but shall not be obligated to sustain any expenses. The LICENSEE shall have the right to be represented by legal counsel experienced in technology contracts of his own choice at his own expense.

TEXT B

7.2 In the event of receipt of a warning letter by and/or institution of any suit against the LICENSEE during the term of this Agreement alleging infringement of any (country) patent of a party (which is not a Government of country undertaking) in the (country) by reason of the practice of the Process in the Plant, the LICENSOR agrees, on request of the LICENSEE in writing, made immediately after or institution thereof:

7.2.1 to discuss with the LICENSEE such alleged infringement and the steps to be taken to defend or avoid such suit, including the possibility to make, at the expense of the LICENSOR, suitable

changes or modifications in the Process and/or in the equipment of the Plant, as the case may be,

7.2.2 to undertake and diligently conduct, at the LICENSOR's expense, defence of such suit, and

7.2.3 to hold the LICENSEE harmless against any judgement or award of damages which may result therefrom, provided, however, that the LICENSOR's total liability under Articles 7.2.2 and 7.2.3 combined shall not exceed ( ) per cent of the lump sum payment made by the LICENSEE to the LICENSOR under Article 8 of this Agreement up to the date when such judgement becomes final, and that the LICENSOR shall have the right to expend as much of the total amount as it deems necessary for the purpose of defense, even though the amount left to indemnify the LICENSEE against the judgement or award is

thereby reduced.

7.2.4 It is agreed that the liability of the LICENSOR under Articles 7.2.1 to 7.2.3 above, shall apply only in so far and to the extent as the operation alleged to infringe such third party patent is based on the Process as operated by the LICENSEE, in full accordance with the Know-How and the operating manual and/or the Plant as constructed in full accordance with the Know-How, and as far as such third party patent has been in force and published on the Effective Date. In the event and after such alleged infringement has been denied by a final decision of a court having jurisdiction thereof, the LICENSEE shall reimburse to the LICENSOR all expenditures the LICENSOR has incurred in the conduct of the defence of the respective suit

according to Article 7.2.2 above.

TEXT A	TEXT B
7.3 The LICENSOR shall have the right to acquire immunity from suit and to make or cause to be made alterations at its own cost to the Plant(s) to eliminate the alleged infringement, provided such alteration does not prevent the Plant(s) from meeting its Performance Guarantees mentioned in Article 3.5 within a time schedule to be agreed with the LICENSEE.	7.3 The LICENSEE shall render all reasonable assistance to the LICENSOR in connection with any suit to be defended by the LICENSOR hereunder, and shall not reject any reasonable offer to modify the Process and/or the Plant in order to avoid infringement. Furthermore, the LICENSEE shall have the right to be represented in such suit by advisory counsel of his own choice and at his own expense.
7.4 Neither the LICENSOR nor the LICENSEE shall settle or compromise any suit or action without the written consent of the other, if such settlement or compromise would oblige the other to make any payment or part with any property, to assume any obligation or grant any licences or other rights, or to be subjected to any injunction by reason of such settlement or compromise.	7.4 The LICENSOR shall have full control of the defence of any such suit, but shall not be free to settle the same without the consent of the LICENSEE, if by the settlement the LICENSEE would be obliged to make any payments or if the settlement would cause impairment of the ability of the LICENSEE to make use of the rights granted under Article 3.

ARTICLE 8

CONTRACT PRICE AND TERMS OF PAYMENT

8.1 The LICENSEE shall pay to the LICENSOR as consideration for the execution of this Agreement, and the performance of the LICENSOR's obligations described in Articles 3, 5 and 6 and elsewhere in the Agreement, but excluding the additional services for which an option is provided in Articles 3.4 and 3.7, a lump-sum of:

(amount) (currency)

together with payments to be made on a cost reimbursable basis, at rates specified in Annexure IX, for the assignement of the LICENSOR's personnel to the LICENSEE's country. For optional services under Articles 3.4 and 3.7 a separate agreement(s) shall be concluded.

8.2 The lump sum fee shall be for services generally rendered outside the LICENSEE's country but shall include visits to be made to the LICENSEE's country on a short-term basis in accordance with the Agreement and made up as follows:

(a) for the grant of the Licence and Know-How:
(amount) (currency);

(b) for the supply of the Process Engineering Design Package, and related Technical Information and services as described in Articles 3 and 5:
(amount) (currency);

(c) for the provision of training and training facilities as described in Article 6:
(amount) (currency).

8.3 The lump sum fee shall be paid in three instalments as follows:

(a) (25) per cent as an advance payment to be paid 30 Days after the Effective Date of the Agreement;

(b) (50) per cent on receipt of the Process Engineering Design Package;

(c) (25) per cent on satisfactory demonstration by the Plant of the Performance Guarantees as confirmed by the Acceptance Certificate issued, or when the Performance Guarantees shall be deemed to have been met in accordance with Article 3.5.12.

The payments under (b) and (c) shall be paid by the LICENSEE within 30 Days of the LICENSEE being advised by the LICENSOR that they are due, subject to Article 8.3.1 below.

8.3.1 The LICENSOR shall provide a bank guarantee in the form given in Annexure XII while receiving the advance payment under Article 8.3(a) above, in accordance with Article 10.1.

8.4 For the assignment of the LICENSOR's personnel to work away from home office, payments will be made within 10 Days in accordance with Annexure IX against the LICENSOR's monthly invoices, certified at the Site. Payments due in local currency shall be made direct to the LICENSOR's personnel and in advance.

8.5 The LICENSEE shall pay to the LICENSOR ( ) per cent interest on any delay in his payment obligations.

8.6 Payments other than those due in local currency shall be made in (currency) to the account of the LICENSOR at (Bank named by the LICENSOR).

ARTICLE 9

DURATION OF THE AGREEMENT

9.1 Effective Date

The Effective Date of the Agreement shall be the date upon which the last of the following requirements has been fulfilled:

(a) Approval of the Agreement by the Government of (country) where the Plant is to be located, such approval, if required, to be obtained by the LICENSEE.

(b) Approval of the Government of (country) where the LICENSOR resides and has his principal place of business, such approval, if required, to be otained by the LICENSOR.

(c) The remittance of the advance payment by the LICENSEE as provided under Article 8.3(a) secured by the Bank Guarantee provided by the LICENSOR in accordance with Article 10.1.

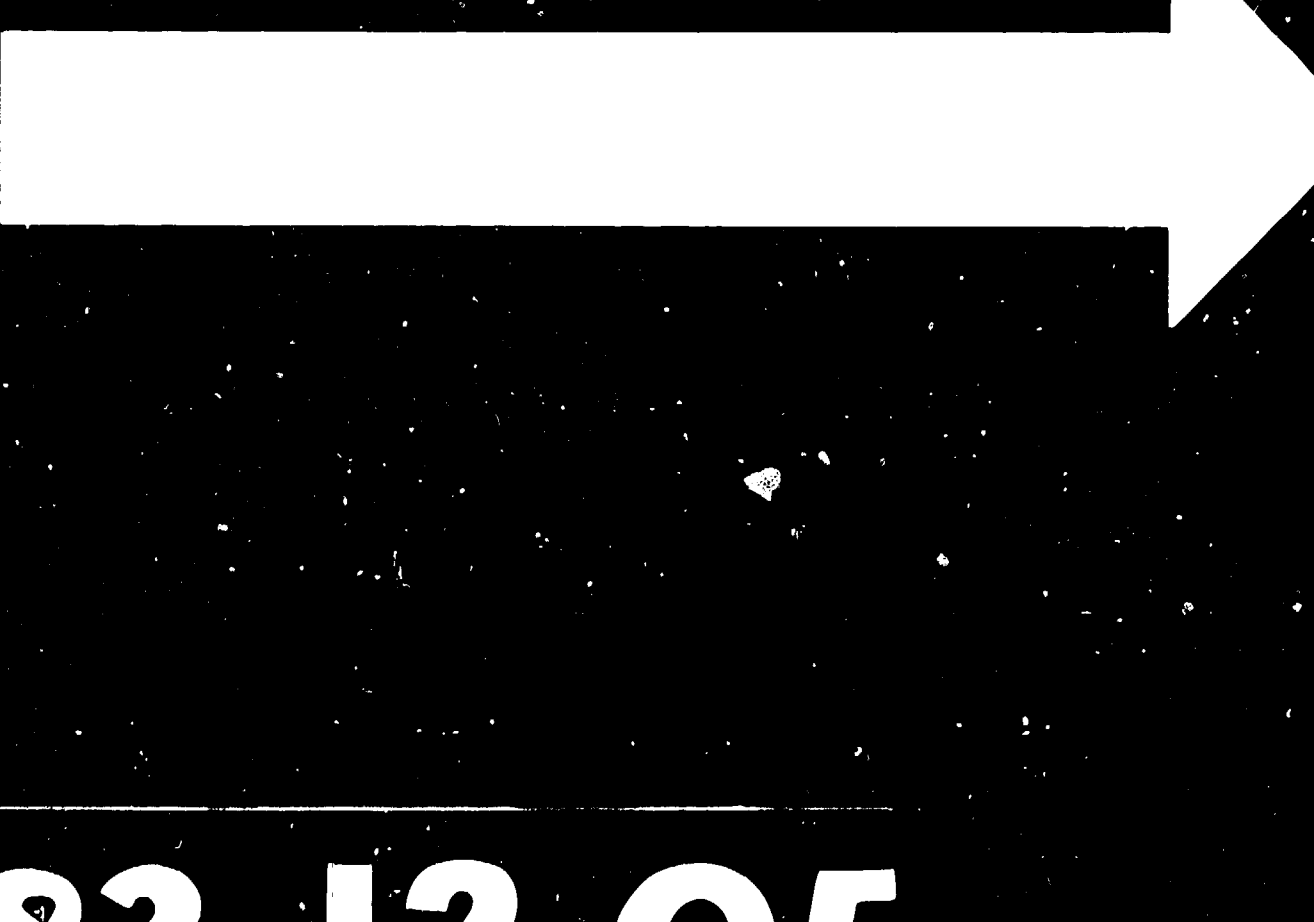
9.1.1 The Effective Date shall be confirmed in writing by both parties.

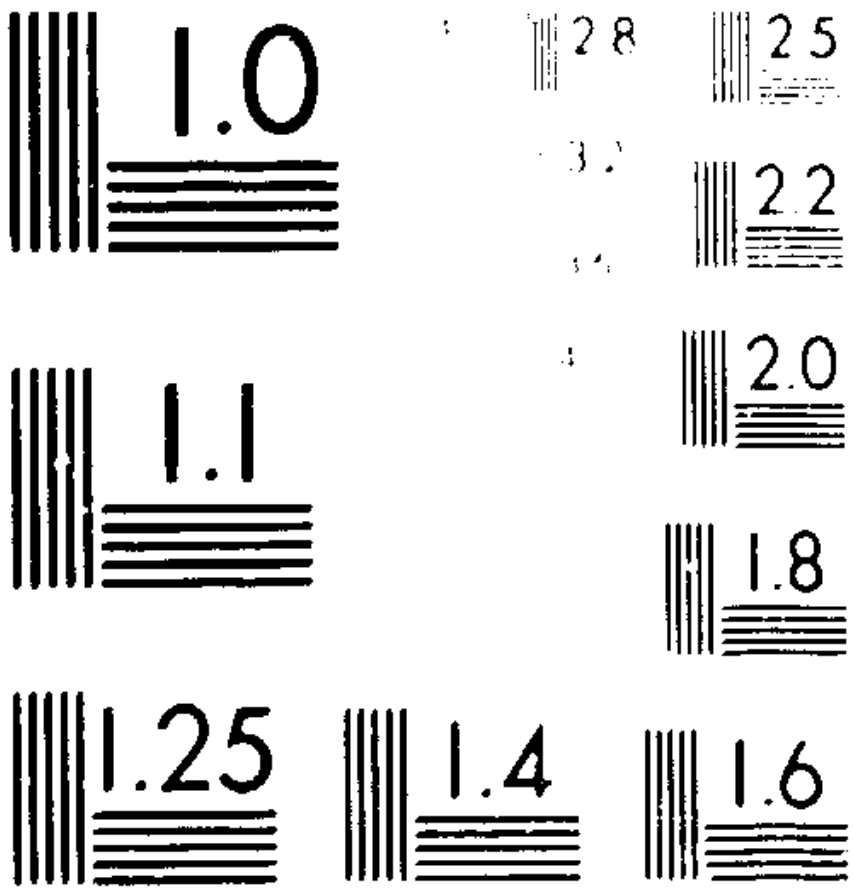
9.2 Duration of the Agreement

The duration of the Agreement shall be for a period of ( ) years from the Effective Date.

9.3 Expiry of the Agreement

TEXT A	TEXT B
9.3.1 The rights and licences granted by the LICENSOR to the LICENSEE under	9.3.1 The rights and licences granted by the LICENSOR to the LICENSEE under





Articles 3.1 and 3.7 of this Agreement shall survive expiration of the term of this Agreement.	Articles 3.1 and 3.7 of this Agreement shall survive expiration of this Agreement, if the LICENSEE has complied all his obligations.

9.3.2 The LICENSOR and the LICENSEE shall have no further obligations on Expiring of the Agreement, except as specified in Article 4.4.

9.4 Termination

If the Agreement has not come into effect before _____, the Agreement shall be terminated unless the LICENSOR agrees to amend the Agreement to take account of the delay. The Agreement may also be terminated in the following circumstances.

9.4.1 The LICENSOR may terminate this Agreement and the right and licence granted to the LICENSEE by written notice to the LICENSEE, if the LICENSEE has failed to complete his obligations in the time specified in the Agreement provided that such default has continued unremedied for more than ( ) months, and one month has elapsed since such notice was served.

9.4.2 The LICENSEE may terminate this Agreement by written notice to the LICENSOR, if the LICENSOR has failed to complete his obligations in the time specified in the Agreement and provided that such default has continued unremedied for more than ( ) months, and that one month has elapsed since the written notice was served by the LICENSEE.

ARTICLE 10

GENERAL CONDITIONS

10.1 Bank Guarantees

The LICENSOR shall deliver to the LICENSEE on receipt of the advance payment under Article 8.3(a), a Bank Guarantee in favour of the LICENSEE in the form provided in Annexure XII, guaranteed by (Name of Bank) and confirmed in (LICENSEE's country), to secure the advance payments made under this Agreement. The amount of the Bank Guarantees shall be completely released upon delivery of the Process Engineering Design Package.

10.2 Insurance

10.2.1 The LICENSOR and the LICENSEE shall effect or maintain insurance in respect of their own property and personnel, respectively; such insurance shall in particular cover any claim that may be made or on behalf of their employees alleging injury or death arising as a result of, or in connection with, the performance of this Agreement.

10.2.2 The LICENSOR or the LICENSEE as the case may be, shall be responsible for maintaining the following insurance policies:

(a) Insurance liability for the staff of the LICENSOR deputed to Site, or the staff of the LICENSEE deputed to the LICENSOR's offices.

(b) Insurance liability for automobiles or other transport of the LICENSOR or LICENSEE at Site.

10.2.3 The LICENSOR shall ensure that his services provided under this Agreement are covered by his corporate "Professional Indemnity" insurance policy as regards his liability for errors and omissions, negligence, mistakes in design, etc., arising from the LICENSOR's work.

10.2.4 The LICENSOR shall, when required by the LICENSEE, submit to the LICENSEE adequate proof that the insurance(s) for which he is responsible are in force.

10.3 Taxes and Levies

10.3.1 Except as otherwise specified in this Agreement, each and every price cited in or contemplated by this Agreement as described in Article 8, includes and covers all patent royalties, and all taxes, rates, charges and assessments of any kind whatsoever (whether Federal, State or Municipal, and whether or not in the nature of excise taxes/duties, customs tariffs, sales taxes, land taxes, licence fees or otherwise) outside the LICENSEE's country pertinent to the LICENSOR's services provided with respect to the Plant pursuant to this Agreement, and/or to the performance of the work, and all other costs and charges whatsoever relevant to equipment, material, services and/or to such performance of the work by the LICENSOR.

10.3.2 Subject to national laws in the LICENSEE's country, the amounts to be paid to the LICENSOR under the Agreement shall be net and free of any income taxes or other taxes, duties, or imposts or levies in (LICENSEE's country).

10.3.3 Notwithstanding the provisions of Article 10.4, in the event of a double taxation agreement between (LICENSOR's country) and (LICENSEE's country), any taxes or levies of any kind imposed by the National or any Local Government of (country of LICENSEE) pursuant to the law with respect to payment of fees, charges or expenses under this Article or the remittance thereof shall be paid by the LICENSEE by deduction from the amount or amounts to be paid to the LICENSOR. The LICENSEE shall provide the LICENSOR with original receipts of the Government authorities in evidence of payment of such taxes or levies. In the event that

the tax benefits obtained by the LICENSOR as a result of the tax deduction by the LICENSEE under Article 10.3 above, are less than the amount anticipated at the time of signing the Agreement, the LICENSEE shall reimburse the difference to the LICENSOR.

10.4 Settlement of disputes and Arbitration

10.4.1 In the event of any dispute, difference or contention in the interpretation or meaning of any of the Articles to this Agreement or reasonable inference therefrom, both parties shall promptly make endeavour to resolve the dispute or differences by mutual discussions and agreement. Should the dispute or differences continue to remain unresolved, both parties to the Agreement shall procede to Arbitration as provided for herein.

10.4.2 Subject to the provisions of this Article 10.4, either the LICENSEE or the LICENSOR may demand Arbitration with respect to any claim, dispute or other matter that has arisen between the parties.

10.4.2.1 However, no demand for Arbitration for any such claim, dispute or other matter shall be made until the later of
(a) the date on which either of the parties has indicated his final position on such claim, dispute or matter, or
(b) the (20th) Day after one party has presented his grievance in written form to the other and no written reply has been received within (20) Days after such presentation of grievance.

10.4.2.2 No demand for Arbitration shall be made after the (___) Day following the date on which either of the parties has rendered his written final decision in respect of the claim, dispute or other matter as to which Arbitration is sought. The LICENSEE or the LICENSOR, as the case may be, shall be obliged to specify that the written decision is in fact the final

decision within the meaning of this Sub-Article. Failure to demand Arbitration within said (___) Days period, shall result in the decision being final and binding upon the other party.

10.4.3 All claims, disputes and other matters arising out of, or relating to this Agreement or the breach thereof which cannot be resolved by the parties, shall be decided by Arbitration in accordance with the rules of procedure of an agreed Arbitration Court. This agreement so to arbitrate shall be enforced under the prevailing arbitration law. The award rendered by the Arbitrator shall be final, and judgements may be entered upon it in any court having jurisdiction thereof.

10.4.4 Notice of the demand for Arbitration shall be filed in writing with the other party to the Agreement in accordance with Article 10.4.3. The demand for Arbitration shall be made within the period specified in Article 10.4.2, after the claim, dispute or other matter in question has arisen, and in no event shall the demand for Arbitration be made after institution of legal or equitable proceedings based on such claim, dispute or other matter if it would be barred by the applicable statue of limitations.

10.4.5 The LICENSOR and the LICENSEE shall continue to carry out their obligations under the Agreement and maintain the progress schedule during any Arbitration proceedings, unless otherwise agreed by the parties in writing.

10.4.6 In the event of Arbitration, the LICENSOR and the LICENSEE agree that the Arbitrator(s) shall have unrestricted access to the Plant (notwithstanding the secrecy provisions of Article 4.4), for the purpose of the said Arbitration.

10.4.7 Arbitration shall be at (town) and all proceedings will be in the _____ language. The governing law shall be in accordance with Article 11.3.

10.5 Force Majeure

10.5.1 In this Agreement, Force Majeure shall be deemed to be any cause beyond the reasonable control of the LICENSOR or the LICENSEE which prevents, impedes or delays the due performance of the Agreement by the obligated party and which, by due diligence, the affected party is unable to control, despite the making of all reasonable efforts to overcome the delay, impediment or cause. Force Majeure may include, but shall not be limited to anyone or other of the following:

- any war or hostilities;
- any riot or civil commotion;
- any earthquake, flood, tempest, lightning, unusual weather or other natural physical disaster. Impossibility in the use of any means of transportation or communication (occuring concurrently).
- any accident, fire or explosion.

10.5.2 If either party is prevented or delayed in the performance of any of its obligations under this Agreement by circumstances of Force Majeure, and if the affected party has given written notice thereof to the other party within (15) Days of the happening of such event, specifying the details constituting Force Majeure, with necessary evidence that a contractual obligation is thereby prevented or delayed, and that the anticipated period (estimated) during which such prevention, interruption or delay may continue, then the affected or obligated party shall be excused from the performance or punctual performance (as the case may be) of such obligation as from the date of such notice for so long as may be justified.

10.5.3 If by virtue of Article 10.5.2 either of the parties is excused from the performance or punctual performance of any obligation for a continuous period of (6) months, then the parties shall

consult together to seek agreement as to the required action that should be taken in the circumstances and as to the necessary amendments that should be made to the terms of the Agreement.

10.5.4 If the consultations referred to in the preceding Article 10.5.3 have not resulted in mutual agreement (or have not taken place because the parties have been unable to communicate with each other), the parties shall thereupon agree to amend the terms of this Agreement by virtue of the prevailing Force Majeure circumstances and shall determine the course of further action. If the parties are unable to reach an agreement to amend the terms of this Agreement by virtue of the prevailing and continuous Force Majeure, then the parties may resort to Arbitration pursuant to Article 10.4.

ARTICLE 11

MISCELLANEOUS PROVISIONS

11.1 Assignment

This Agreement shall insure to the benefit of, and be binding upon, the parties hereto and their and each of their executors, administrators, curators, successors and assigns, subject to the provision that this Agreement may not be assigned by the one party without the written consent of the other party.

11.2 General Provisions

The express convenants and agreements herein contained and any amendments made in writing by the LICENSEE and the LICENSOR are and shall be the only convenants and agreements upon which any rights against the LICENSEE or the LICENSOR are to be found:

11.2.1 This Agreement supersedes all communications, negotiations, and agreements, either written or oral relating to the work and made prior to the Effective Date of this Agreement.

11.2.2 The provision of the Articles of this Agreement and the contents of the Annexures shall be complementary to each other, but in the event of any conflict, the provisions of the Articles shall prevail.

11.2.3 Article headings appearing herein are included for convenience only and shall not be deemed to be part of this Agreement.

11.2.4 The governing language of the Agreement shall be _____ , and the definitions in such language shall be final in the use and interpretation of the terms of the Agreement.

11.3 Applicable laws and conformity with local statutes

11.3.1 The laws applicable to the Agreement shall be the laws of (country to be agreed), in conformity with the laws of the country where the Plant is located.

11.3.2 The LICENSOR, his staff, and representatives shall observe all codes, laws and regulations in force in the country of the LICENSEE and in the region where the Plant is located, made known to the LICENSOR by the LICENSEE. In the event that any code, law or regulations are enacted after the Effective Date of the Agreement, and transmitted by the LICENSOR, are proven (to satisfaction of the LICENSOR) to have adverse effect on the LICENSOR's obligations, scope of work, prices and/or time schedule under this Agreement, the LICENSOR shall either:

(a) assist the LICENSEE to obtain appropriate exemption(s) from the relevant authorities on the LICENSEE's behalf, or

(b) negotiate with the LICENSEE for commensurate change(s) in the scope of the work to be performed under the Agreement, together wit such changes in price as properly reflect the actual increased costs that are anticipated. The increased amount shall be subject to full audit by the LICENSEE.

11.3.3 Nothing herein shall in any manner affect the validity of the Agreement or derogate from the specified obligations of the LICENSOR, and his liabilities under the Agreement and law.

11.4 Language

11.4.1 All correspondence, information, literature, data, manuals, etc. required under the Agreement shall be supplied in the _____ language.

11.4.2 All personnel sent by the LICENSOR to the Site, and all personnel sent by the LICENSEE for training shall be conversant in the _____ language.

11.5 Standards and Codes

The standards and codes of (country) shall be used in the design and specifications of the Plant, unless otherwise agreed at the First Detailed Engineering Meeting. The LICENSEE shall inform the LICENSOR of any statutory standards and codes applicable to the Plant at his meeting.

11.6 Notices

Any notice or other communication to be made by the LICENSOR to the LICENSEE shall be effective when mailed by registered post with acknowledgement due. Any notice or other communication to be made by the LICENSEE to the LICENSOR shall be effective when mailed by registered post with acknowledgement due.

11.6.1 When any such notice is sent by registered mail, it shall be deemed to have been duly served following the expiration of (14) Days following the date of posting. In proving that notice was served it shall be sufficient to show that the letter containing the notice was properly addressed and conveyed to the postal authorities for transmission by registered airmail, and a telex or telegram was sent advising the despatch of the notice.

11.6.2 Either party may, by notice to the other party in writing, change its postal address, cable address or telex address for receiving and/or forwarding such notices.

11.7 Approvals

"Approval" shall be deemed to mean approval in writing. Decisions requiring approval shall also be deemed to encompass modifications or rejections, all of which shall be in writing.

11.7.1 Any and all approval(s) which amend, modify or vary the Agreement and/or involve an increase in payment(s) shall be forwarded in like manner as the procedure specified for the notices under Article 11.6.

11.8 National Security

If any document or information given or disclosed to the LICENSOR is deemed by the LICENSEE to affect national security, the LICENSOR will take all reasonable measures directed by the LICENSEE to ensure the maintenance of the security.

ANNEXURE I

LIST OF PATENTS GRANTED AND PENDING APPLICABLE TO THE PROCESS ON DATE OF SIGNATURE OF THE AGREEMENT

(Reference Articles 1.10 and 3.1)

Patent No. (Country)	Application or Registration date	Expiry date	Description

ANNEXURE II

DESCRIPTION OF THE LICENSOR'S PROCESS

This should contain full description of the Process with a flow sheet, and normally should be 5-7 pages long. It should state all the working pressures and temperatures and should contain details of the Steam Cycle (in an Ammonia Plant) and if possible a P and I diagram.

The description should be as detailed as possible without discloing Confidential Information.

ANNEXURE III

DESCRIPTION OF THE LICENSED PLANT

(Reference Article 2.6)

(Note: Illustrative with reference to an Ammonia/Urea Complex)

1. The LICENSED PLANT referred to in Article 1.20 means a commercial Plant designed with a capacity to produce 1000 Tons per Day of Ammonia and 1725 Tons per Day of Urea with a stream factor of 330 Days per year, using natural gas as a feedstock.

2. The Plant shall consist of the following process units:

2.1 Natural Gas station
2.2 Natural Gas Desulphurisation
2.3 Ammonia Plant with Carbon Dioxide Recovery
2.4 Liquid Ammonia Storage and Liquid Ammonia despatch
2.5 Urea Plant including Ammonia and Carbon Dioxide compression
2.6 Urea Prilling
2.7 Bulk Urea Storage
2.8 Urea packing and Bagged Storage
2.9 Urea despatch and loading
2.10 Boilers, power station and steam system
2.11 Waste Treatment

3. The above Plant shall be conceptually engineered in sufficient detail as given in Annexure VIII to enable the Contractor to carry out all the detailed engineering. This engineering shall include Equipment and Instrument Specifications.

4. The basic engineering shall include the requirements and conditions of all the utilities (steam power, process water, cooling water, instrument air, compressed air, etc.), which shall be clearly indicated both in quantity and the points where they are required, to enable the Contractor to carry out the detailed engineering. Where required, one line diagrams will be provided.

5. Every and all the Process steps between the inlet points of the raw materials, services and chemical and the outlet point of products as defined in Annexure V necessary to implement the process and fulfill the Guarantees shall be included. (Exclusions if any should be clearly defined.)

ANNEXURE IV

SPECIFICATION OF PRODUCTS [1/]

1. Ammonia

NH_3 Content	99.8% by wt. minimum (G)
Water and Inerts	0.2% by wt. maximum (G)
Oil	5 ppm maximum (G)
Pressure at the Battery Limits of Ammonia Plant	(20 kg/cm^2g)

2. Carbon dioxide (on dry basis)

CO_2	- Minimum 98.5% by volume (G)
Inerts, including water vapour	- Maximum 1.5% by volume (G)
Hydrogen in inerts	- Maximum ()% by volume (G)
Sulphur	- Maximum _____ $mgNm^3$ (G)
Methanol	- Maximum _____ ppm (G)
Pressure at the Battery Limits of Ammonia Plant:	Depending upon the pressure of regeneration (0.05% kg/cm^2g)

3. Urea

Type	Prilled (coated/uncoated)
Nitrogen	46.3% by wt. minimum (G)
Biuret	0.9% by wt. maximum (G)
Moisture	0.3% by wt. maximum (G)
Size	90% between 1 mm and 2.4 mm
Temperature	Not exceeding 65^o at the bottom of prilling tower

4. The characteristics marked with (G) are those for which the Performance Guarantees for quality of Products shall apply. The analytical procedures for the guarantees shall be as given below: [2/]

(alternatively: shall be agreed by the parties at coordination meetings under Article 5)

[1/] The product specifications may vary from country to country. These are suggested typical figures.

[2/] To avoid disputes, it is recommendable to have analytical procedures specified in the Annexures particularly if they are internationally known.

ANNEXURE V

PRELIMINARY OUTLINE OF THE SITE AND LAYOUT OF THE PLANT
DEFINITION OF THE BATTERY LIMITS

1.1 Plant location

The Plant is to be located at (or near) (name of town) in (country). The Site for the Plant is indicated on the Site map which shows the dimensions of the Site and is attached as Drawing Nº ____.

1.2 Layout of the Plant

The preliminary layout of the Plant shall be designed by the LICENSOR within Battery Limits defined below and taking into account the Site condition in clause 1.1 above as well as the Basic Data.

1.3 Definition of the Battery Limits

Comment: The Battery Limits of the area of plant design should be clearly stated and indicated on the preliminary plot plan with approximate data on elevation of the connection points above and underground. All points of connection (inputs and outputs) shall be clearly defined. For this purpose the best method is to draw a Battery Limits stream flow-sheet where all streams entering the Plant and leaving it should be defined by all their parameters: quantity, composition, pressure, temperature maximum, minimum, average. The storage capacities needed or proposed for each entering or leaving stream should be specified together with the agreed location inside or outside Battery Limits.

An example of a suitable text would be as follows:

Inputs - Natural gas shall be supplied by the Gas Distribution Company at a single point on the boundary of the Plant (unit inlet or battery limit).

- Water shall be pumped to the Plant Site and will be available (provide separate data on cooling water and/or well water etc. as make-up water and utility water) at a single point in the Plant. A Plant storage at ground level of _____ m^3 will be provided, and water will flow to this storage. All treatment and pumping facilities for the water are part of the design.

- Steam and power requirements shall be generated in the Plant. External steam and power supplies shall be connected to the respective points as indicated on the plot Plant (separately for different parameters).

- Electric power of _____ V _ H_z ___ MW capacity at ____ point (indicated on the plot plan).
- Naphtha input at _____ point incoming from storage area (excluded).
- All chemicals, catalysts will be supplied at storage/warehouses at ground level. (Indicate location at the construction site or within the plot).

Outputs - Filling and loading facilities are inlcuded in Battery Limits. Outputs are: railway wagons and road trucks per Day.

- Effluents shall be disposed off to _____ .

Within the above Battery Limits, the entire Plant, (excluding the utilities) contained in Annexures I and II shall be designed by the LICENSOR. It is generally understood that if not specifically mentioned the connecting points of inlet and outlet pipes shall be one meter outside the Battery Limit or 250 mm above ground/floor level, flanged or unflanged with the cut-off valves included in the scope of design.

ANNEXURE VI

SCOPE AND CONTENT OF ENGINEERING SERVICES
AND CO-ORDINATION OF WORK

1. The LICENSOR shall execute the Process Engineering Desing Package with the content and the delivery dates defined in Annexures VII and VIII. The co-operation of the parties shall be assured by the Basic Design Meetings held according to Article 5 and mutual delivery of technical documentation as follows:

1.1 Within ( ) Days from the Effective Date, the LICENSEE shall deliver the Basic Design Data for the Plant containing:

(a) * Information on Site including geographical details, connection of the Site by rail and road to nearby major town and ports, shipping and transport possibilities and limitations;

(b) * Meteorological information;

(c) * Soil conditions including soil bearing data and geological aspects e.g. susceptibility to earthquake etc.,

(d) * Information on utilities. This will cover:

(i) the source of steam, supply, pressure level, superheat, temperature, condensate system characteristics,

(ii) availability and reliability of power, levels of voltage, etc.,

(iii) system of cooling proposed, air/water, re-circulating/once through (and other cooling water properties),

(iv) fuel oil, gas or other fuel characteristics,

(v) systems for instrument air, process air, inert gas, refrigeration, process water, etc.

(e) Design codes and standards to be adopted and special considerations from the viewpoint of fabrication of equipment in particular country or countries;

(f) Local codes, laws or regulations on toxic or explosive hydrocarbons affecting layout provision of safety systems, etc.

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* This data is often available at the time of the signing of the Agreement. If so, it should be included. An example is given in the UNIDO Cost Reimbursable Contract, Annexure II, Clauses 2,3b and 7 and Annexure IV, Clauses 1, 2, 4, 5, 6 7, 8 , 9, 10 and 11.

(g) Design information, flexibility requirements and design margins for equipment: 1/

(i) preference for types and design criteria of rotary equipment, namely pumps and compressors, from the point of view of standardization and spares policy,

(ii) heat exchanger design considerations e.g. on type of pitch, tube length, etc.

(iii) considerations on internals of columns and vessels e.g. type of trays,

(iv) fired heaters, e.g. from the point of view of energy conservation,

(v) instrument type and sizes to be used,

(vi) piping design requirements and the philosophy to be followed,

(h) Safety systems, including pressure relief system and the flare system and other systems to ensure compatibility with the requirements of the LICENSEE;

(i) Coding system for the equipment;

(j) Capacity of the unit for purposes of the design, process design margins, etc.;

(k) Source of the raw materials and auxiliary chemicals, condition of delivery at the Battery Limits, specifications, level of impurities, etc.;

(l) Philisophy of storage required for the Plant. Special requirements for intermediate storage;

(m) Ecological considerations namely, legal prescriptions for solid, liquid and gaseous waste streams from the Plant and their possible methods of disposal;

(n) Local codes, laws, prescriptions and rules to be taken into account in the Process Engineering Package, including limitations on the size of equipment which can be moved to Site; 2/

1/ This information should come after discussions with the Contractor.

2/ See the footnote marked (*) on previous page (Clause 6).

1.2 Within ( ) Days from the Effective Date, the First Basic Design Meeting shall be held (Article 4.1) to discuss the Basic Data and agree on them as basis for the LICENSOR's design work.

1.3 [1/] Within the time specified in Annexure VII, the LICENSOR shall deliver to the LICENSEE the first part of the Process Engineering Design Package covering clauses 3.1, 3.2.5, 3.2.6 of Annexure VIII.

1.4 [1/] Within ( ) Days from the Effective Date, the Second Basic Design Meeting shall be held to discuss and agree on documents delivered under clause 1.3 above. This agreement shall form the basis of the LICENSOR's consequent design work.

1.5 Within the time specified in Annexure VII, the LICENSOR shall deliver the complete Process Engineering Design Package.

1.6 Within ( ) Days from the Effective Date, the Third Basic Design Meeting shall take place. [2/] The LICENSEE and, if possible, the Contractor shall make his observations and remarks on the documentation delivered and if appropriate, require the necessary alterations, modifications and/or additions. The LICENSOR having satisfactorily completed this work, the Process Engineering Design Package shall be accepted by the LICENSEE.

2. If the Contractor has already been appointed before the Third Basic Design Meeting (1.6 above), this Meeting shall also be the First Detailed Engineering Meeting. (Article 5.3.2 of the Agreement). If this is not the case, within ( ) Days from the appointment of the Contractor but not later than ( ) Days after the acceptance by the LICENSEE of the Process Engineering Design Package, the First Detailed Engineering Meeting shall be convened by the LICENSEE according to Article 5.3.2 of the Agreement, covering the following:

(a) Review the Process Engineering Design Package and agree on all starting dates, conditions and provisions which shall form the basis of the Contractor's work;

(b) Agree on the scope and time schedule of the co-operation between the Contractor and the LICENSEE during the design work and the scope, content and extent of the LICENSOR's participation.

[1/] These clauses (1.3 and 1.4) are optional and not always required. If clause 1.3 is removed, an appropriate change should be made in Annexure VII.

[2/] The number of meetings is only indicative.

(c) Provisional scope, schedule and content of the LICENSOR's participation in the procurement of equipment (Article 5.4), erection of the Plant (Article 5.5). The actual dates and durations are subject to review according to the progress of the work.

3. The LICENSOR's responsibilities for review of detailed engineering as defined in Articles 3.3.5 and Article 5.3.3(b), shall extend out not to be limited to the review of the following design document 3/ for conformity with the Process Engineering Design Package:

3.1 Project Engineering Documents

- Final Project Engineering Diagrams
- Layout arrangement of plant and elevation
- Engineering Flow Diagram, inlcuding P and I
- Equipment general specifications and engineering equipment list
- Line Designation Tables
- Requisitions for all items of equipments
- Bid comparisons
- Spare parts list

3.2 Design Engineering and Drafting Documents

- Specifications for pressure vessles
- Specifications for storage tanks
- Specifications for shell and tube exchangers
- Specifications for underground drainage, sewers
- Specifications for fire proofing
- Specifications for design of buildings
- Piping design guide
- Specifications for instruments, their installation, instrument process piping, instrument air piping
- Specifications for electrical design, installation
- Mechanical design of reactors, vessels
- Arrangement drawings of internals for shell and tube exchangers
- Piping arrangement drawings of specified areas
- Drawings and/or wiring diagrams of critical shut down system
- Piping around critical items e.g. reactor

3/ This is a check-list only.

3.3 Model Review (if appropriate)

3.4 Fabrication drawings of specified/critical equipment prepared by the fabricators.

This list shall be considered as informative only and shall be finalized at the First Detailed Engineering Meeting.

Commentary

In the case considered in this Agreement, the LICENSEE first concludes a License Agreement, then he prepares a tender speficiation based on the Process Engineering Design Package which is used to invite prospective contractors to bid for the delivery of the Plant. In this case, the Contractor is selected several months after the delivery of the Process Engineering Design Package. The whole Process Engineering is worked out by the LICENSOR with the co-operation and approval of the LICENSEE provided at the Basic Design Meetings. In this way the LICENSEE's responsibility in accepting the design proposed by the LICENSOR is greatly extended. After the Contractor has been appointed, the First Detailed Engineering Meeting is the first occasion, for the Contractor, the LICENSEE and the LICENSOR to meet and agree on the details of the future common work with the scope fixed in clauses 2(a) and (b) above.

It is however, possible for the LICENSEE to appoint his Contractor any time before the delivery of the Process Engineering Package. This solution reduces his tasks and responsibilities but prevents him from taking full advantage of what a detailed and precise Tender Specification could give him in the conclusion of the contract for the construction of the Plant. In the latter case clause 1.6 of this Annexure is of particular importance.

The LICENSEE will usually find it difficult to extend the LICENSOR's obligations beyond those fixed in the Agreement at the time of the First Detailed Engineering Meeting. So it is most appropriate to agree in the Agreement itself on the LICENSOR's obligations, identify the scope, content and field of the LICENSOR's participation, and set an upper limit to the man-Days involved either for the whole or preferably for every kind of work required. So at the First Detailed Engineering Design Meeting the Parties will have only to agree on the precise details and the time schedule of the work within the limits set by the Agreement.

ANNEXURE VII

TIME SCHEDULE OF THE ENGINEERING SERVICES

1. Delivery of documents

No.	Documentation	Made by	Delivery date (day) from receipt of basic design data under Article 4.1
1.	Basic Data	Licensee	
2.	Basic Engineering Design Package (I. Part as per clause 1.3 of Annexure VI) 1/	Licensor	
3.	Basic Engineering Design Package (complete)	Licensor	

2. Basic Design Meetings

No.	Held at	Date	Duration	Participants (persons) Licensee	Contractor
1.	Licensor's office	....	(5) Days	x	(2)
2.	"	....	(5) Days	x	(2)
3.	"	....	(5) Days	x	(2)

(illustrative example only)

3. Detailed Meetings

To be agreed upon at the First Basic Design Meeting.

No.	Scope	Place	Duration	Licensor's participants (qualification and number)

Maximum total man-Days expected for the Licensor's peronnel:

4. Licensor's participation in procurement

No.	Equipment item	Manufacturer	Expected supervision date	Duration

Maximum man-days:

1/ This could be detailed further to cover other documents in Annexure VIII and should be reconsidered and amplified after the Contractor is appointed.

ANNEXURE VIII

SCOPE AND CONTENT OF THE PROCESS ENGINEERING DESIGN PACKAGE

1. Scope of work of the LICENSOR

The LICENSOR shall supply the Process Engineering Design Package which shall provide sufficient process and mechanical design data so that a qualified engineering contractor can carry out the following:

(a) Execution of detailed engineering design;

(b) Procurement of all equipment and materials required for the construction of the Plant;

(c) Construction of the Plant;

(d) Start-Up and Commissioning of the Plant; and

(e) Prepare safety and maintenance instruction for the Plant.

1.1 The LICENSOR shall provide all data for the Process Engineering Design Package in the language. All data will be specified in ( ) Units.

1.2 The LICENSOR shall approve as agreed with the LICENSEE:

(a) The Contractor's detailed engineering design for the Plant;

(b) Specifications for the procurement of critical items of equipment.

2. Contribution of the LICENSEE

2.1 The LICENSEE shall supply the LICENSOR with the Basic Design Data according to the description in Annexure VI.

3. Content of the Process Engineering Design Package (check-list)

3.1 Basis of design and process description

This section of the package shall have information contained under the following headings:

3.1.1 Basis of design for all cases

3.1.2 Feed and product specifications and properties

3.1.3 Battery limit conditions

3.1.4 Description of flow; this includes normal operations, Start-Up, shutdown and alternative operations

3.1.5 Design features of process

3.1.6 Physical and chemical properties for streams whose properties have not been defined in clause 3.1.2 above and are considered essential within the process, e.g. reactor effluent streams will have their physical and where relevant chemical properties listed. Hazardous materials used within the unit will have their properties listed within this section.

3.1.7 Summary of estimated utilities, including electrical power, steam, condensate, boiler feed water, fuel, cooling water, process water, plant air, etc. This will be a schedule of estimated individual users, totalling up to the maximum estimated utility quantities for the unit. This over-all maximum will be for one consistent case for each utility. Where the estimated maximum utility quantity for a particular item of equipment is not part of this consistent case, this maximum will be stated separately.

3.1.8 Estimated catalyst and chemical consumption. Initial catalyst charge and subsequent catalyst and chemical consumption will be tabulated for each unit.

3.1.9 List of effluent streams. Liquid and gaseous effluents requiring further treatment before disposal will be tabulated. This listing would be limited to streams produced from the process only and would not include furnace effluents.

3.1.10 Process flowsheets.

These diagrams will contain the following information:

- All process equipment shown diagrammatically marked with an equipment number;
- Operating temperature and pressure of equipment;
- Main process lines (shown marked with a stream number where applicable to the mass balance) including direction of flow;
- Main process controls;
- All lines, essential for understanding the mass balance around each piece of equipment will be shown (and only those);
- All figures will be given in the defined units of measurements;
- Heat and Material Balance, and Pressure Balance

For each stream number on the Process Flowsheet, the following information shall be given where required for complete understanding of the heat and material balance, and pressure conditions.

- Total hourly flow rate (mass/volume);
- Hourly molar flow rate for each major components;
- Molecular weight;
- Pressure;
- Temperature;
- Density.

3.1.11 Materials of construction flowsheet. There will be included a "Materials of Construction Flowsheet" to provide the information as described in Exhibit.[1/]

3.2 Process and engineering design specifications

The information contained within this section will be presented under the following headings, details of which are further developed in this section.

3.2.1 Equipment list

This will include at least the following:

- Equipment identification letter and number;
- Equipment description.

3.2.2 Equipment data sheets and specifications

3.2.2.1 Vessels

A standard process sketch will be provided showing:

- Maximum operating temperatures and pressures;
- Mechanical design temperature and pressure;
- Materials of construction and corrosion allowance;
- Diameter and height or length;
- Number, type and spacing of trays for towers;
- Number, size, rating and location of nozzles (location of nozzles will only apply to special height requirements of nozzles; orientation is not part of this scope unless for process design purposes);
- High and low liquid levels;
- Insulation requirements;

1/ Sample exhibit to be added: It is recommended that such exhibits should be provided by the LICENSOR and checked by the LICENSEE and the Contractor.

- Details of special internals such as pans, distributors, mist eliminators, supports, etc.;
- Catalyst type, size of bed, bulk density and design.

Where applicable, tray process information will be provided. (See "Exhibit - Trays Process Specification Sheet"). 1/

Specific design and fabrication requirements will be detailed, e.g. regular temperature/pressure cycles will be specified

3.2.2.2 Heat exchangers and air coolers

Specification sheets will be provided giving all process and mechanical design data which is required. (See "Exhibit - Shell and Tube Exchanger Process Specification Sheet" - and "Exhibit - Air cooled Exchanger Process Specification Sheet" for data requirements). 1/

Further specific design information which would be provided if necessary to establish the design includes, for example:

- Limiting transfer rates where applicable;
- Limiting viscosities and pour points;
- Vaporization and condensation curves;
- Restrictions on combining air fin services;
- Alternative specifications for individual services;
- Specific design and fabrication requirements.

In general, all necessary data to prepare ratings will be provided, however, complete ratings will not be provided.

Where kettle type exchangers are to be used, the specification shall include a sketch or specific information giving:

- Vapour space;
- Surge volume required;
- Nozzles;
- Instrumentation, etc.

Generally only the Materials of Construction will be given in the "Construction" section of the specification sheets.

1/ Sample exhibit to be added: It is recommended that such exhibits should be provided by the LICENSOR and checked by the LICENSEE and the Contractor.

3.2.2.3 Fired heaters

Specification sheets will be provided giving all process and mechancial design data which is required. (see "Exhibit - Fired Heater Process Specification" for data requirements.) 1/

Further specific design information which will be provided includes, for example:

- Vaporization curves;
- Limiting fluid peak temperatures;
- Limiting transfer rates or velocities;
- Type of heaters and coil arrangement;
- Control specifications;
- Firing equipment;
- Whether steam - air decoking is required;
- Specific design and fabrication requirements;
- Whether oil temperature and pressure profile required from vendor;
- Type of terminal fittings;
- Fuel type and conditions.

3.2.2.4 Pumps

Specification sheets will be provided giving all process and mechanical design data which is required.

Data will be inlcuded for alternative duties.

Further specific design information which may be provided includes, for example:

- Corrosion allowance;
- Alternative specifications if necessary for individual services;
- Sealing requirements;
- Flushing requirements;
- Specific design and fabrication requirements

1/ Sample exhibit to be added: It is recommended that such exhibits should be provided by the LICENSOR and checked by the LICENSEE and the Contractor.

3.2.2.5 Compressors

Specification sheets will be provided giving all process and mechanical design data which is required.

(All design cases will be included).

Further specific design information which will be provided includes, for example:

- Materials of construction;
- Corrosion allowance;
- Special mechanical features required;
- Control requirements;
- Specific design and fabrication requirements.

3.2.2.6 Miscellaneous equipment

This includes all mechanical handling equipment, package units such as inert gas generators, driers, specialities such as scrubbers, cycle timers and vacuum equipment and miscellaneous items such as filters, strainers and process steam traps. Complete duty specification sheets will be provided which would include all process and mechanical design data as required for the equipment. Such specifications may inlcude design and fabrication requirements.

3.2.2.7 Relief valves

Specification sheets will be provided giving all process design data which is required.

Certain emergency risks as identified in Exhibit may require review by detailed engineering contractor after equipment selection. The relief header will normally be designed by the engineering contractor.

3.2.2.8 Instruments

Specification sheets will be provided giving all process design data which is required. Data for any special

instruments required for Start-Up, shut-down and safety, will be included.

Further specific design information which will be provided includes, for example:

- Material of construction;
- Vaporization across valves, sealing, purging or flushing requirements, including any special process design considerations, i.e. pour point;
- Alternative operating conditions (specifically for minimum and maximum flow, to ensure proper control and readability of all instruments);
- Specific mechanical design and fabrication requirements will be detailed.

This information will be supplied for all major instruments. Detailed data on minor instruments, e.g. pressure gauges, level gauges, etc., will not be included.

3.2.3 Relief valve loading listing

A summary will be provided of the loads from each relief valve for each emergency condition under which the relief valve opens, e.g. fire, power failure, steam failure (and other utility failures), blocked-in condition, etc.

3.2.4 Process line summary list

A summary will be provided for all process lines. However, it will be the responsibility of the engineering Contractor to check the hydraulics of the unit.

3.2.5 Preliminary engineering flowsheets (P and ID)

This will be a complete first issue of the Engineering Flowsheet and will include:

- All process equipment;
- Line sizes and material specification for all lines;
- Maximum operating temperatures, insulation tracing and jacketing requirements of lines (heat conservation, personnel protection, process stabilization or "not insulated" only);

- All valves and check valves;
- Significant equipment details;
- Tower and vertical drum tangent line elevations;
- Horizontal drum minimum elevations and slope;
- Relative elevations of all equipment and piping where gravity or 2-phase flow is taking place, e.g. reboilers, condensers, seal pots;
- Direction of flow on lines;
- Required line slope, relative location of equipment or special conditions such as required vertical loop dimensions, gravity lines with or without pockets, etc.;
- Vents and drains additional to Engineering Standards required for process reasons;
- Steam, hot water or solvent tracing of lines and instruments;
- Gas or liquid purging or flushing of control valves, instruments or relief valves;
- All start-up, bypass, shutdown and emergency lines and lines for alternate operations;
- All instruments required for proper operation of the plant (indicating any special types required);
- Instrument numbers;
- Any special instructions, e.g. dead leg distances on slurry lines;
- Utility distribution systems would not be included on these flow sheets.

3.2.6 Preliminary plot plan

This will be a suggested plot plan based on the LICENSOR's Know-How of requirements of normal and emergency operation, safety and maintenance requirements. It will include preliminary layout of the equipment and elevation diagrams.

- Special requirements (analysers, sample connection);
- Recommended suppliers.

3.2.7 Drainage and effluent disposal

This will cover the suggested layout and materials of construction.

3.2.8 Basic data for piping

- Fluid handled;
- Operating pressure and temperature;
- Design pressure and temperature;
- What phase? Liquid, vapour or both?
- Specific gravity and viscosity;
- Construction materials;
- Insulation required;
- What kind of test is necessary for the pipe (pneumatic or hydrostatic) if any special test is required, explain it;
- List of the main lines.

3.2.9 Auxiliary services

Steam (all the pressure levels), cooling water, process water, inert gases, plant and instrument air, chemicals, etc. consumed in each equipment and a summary.

3.2.10 Catalyst, chemicals

- Specific characteristics, name, size, quantity.
- Recommended suppliers. Preferred supplier. State reasons.

3.2.11 Vent system

- Equipment required, fluid, flow, temperature and pressure.
- Special requirements.
- Suggested piping arrangement where required.
- The materials of the pipe and equipment must be referred to the (ASTM) code.

3.2.12 Safety requirements

- Equipment required.
- Monitors, eyewashers, shower and sprinkles location.
- Special requirements.

3.2.13 Building specifications

- Suggested layout of the plant buildings, control room, electrical switch room, and other building.
- Indicative sizes of the respective buildings.
- Type of construction in each case.

3.3 [1/] Basic data for operating manual

The operating guide will include an outline of Start-Up, shutdown and alternative operations. It will also indicate emergency procedures covering utility failures and major operating upsets. Its scope will be sufficient for the engineering Contractor to prepare a comprehensive operating manual. In addition, this section will describe special safety features incorporated in the design of the unit. Data will include:

- Start-Up procedures;
- Normal operation procedure;
- Normal shutdown procedure;
- Emergency shutdown procedure;
- Reduced drawings of heaters, vessels, towers and reactors;
- Reduced drawings of process and mechanical P and I drawings;
- Data sheets of mechanical equipment.

with the following details:

3.3.1 Description of the process:

(a) Description of Process. A brief discussion of process flow to provide adequate background to the plant operating personnel.

(b) Process specifications and Process Flow Chart. Quality of feedstocks, composition of various streams and designed yields and

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[1/] The Operating Manual will usually be prepared by the LICENSOR and revised and amplified by the Contractor. (Article 6) This Manual shall be checked by the LICENSOR. Sometimes the LICENSOR's senior trainees at the LICENSOR's plants help prepare the Operating Manual, particulary when translation is required.

qualities of products, intermediates and by-products.

3.3.2 Process Operating Conditions:

A simpliefied discussion of cause and effect, exemplified where possible, of operating variables with consequent changes in yields, purities, etc.

3.3.3 Details of Operating Procedures:

(a) Preliminary operations - preparation and inspection of equipment before Start-Up. Run-in procedure on pumps, compressors, etc.

(b) Start-Up procedures.

(c) Normal operation.

(d) Shut down procedure.

(e) Special operations - Catalyst regeneration, switching of cyclic systems, steam air decoking etc.

(f) Emergency Procedure - anticipated emergencies and recommended procedures to result in maximum safety of personnel and equipment.

(g) Detailed flow charts and process equipment.

3.3.4 Control Systems:

Employed with details on any special provisions and its bearing on the operations.

3.3.5 Equipment Summary:

Details on equipment by categories and in accordance with the agreed coding system.

3.3.6 Utility and Utility Summary:

On the basis of utility levels agreed to for the Plant, utility requirements on guaranteed and expected figures for both Plant and its auxiliary/off-site facilities.

3.3.7 Operating Records:

The suggested format for proper maintenance of operating records through:

(a) Daily log sheet.

(b) Management control - exception reports.

(c) Product test record for quality control at various stages in the plant.

3.3.8 Personnel required for operations and maintenance:

Suggested organization for operations and maintenance of the plant giving:

(a) Superivory Staff - with duties and responsibilities

(b) Operating Staff - duties, responsibilities and operating positions.

3.3.9 Safety of Plant and personnel:

Rules and regulations governing conduct in the operating area with special precautions to be followed. First aid facilities to be provided shall be discussed e.g. eye baths, emergency showers, etc. The proper use of special safety equipment will be described.

3.4 Basic data for maintenance manual

- Particular emphasis: preventive maintenance;
- Maintenance instructions for each equipment, including specific types of lubricant/grease required; 1/
- Periodicity of major shutdown for regular overhead/maintenance.

1/ This may be restricted to critical items: The Contractor will in any case check this and provide data for all the equipment in a Maintenance Manual to be prepared by him.

3.5 Analytical Methods Manual describing in detail all the methods of analysis for all raw materials, process streams products, by-products, catalysts and chemicals required for the efficient operation of the Plant.

3.6 List of catalysts and chemicals required for the initial operation of the Plant and for one year's production, indicating specifications, quantities, recommended source of procurement and packing, storage and handling instruction.

3.7 General design information

The information contained in this section will essentially be akin to the data supplied by the LICENSEE as outlined in clause 2.1. However, as some data may be supplied by the LICENSOR, the total design information is reproduced for the benefit of the engineering Contractor.

This data will include but not necessarily be limited to:

- Outlet steam conditions for equipment feeding steam into Plant headers;
- Inlet steam conditions of equipment using steam from Plant headers;
- Battery limit conditions for boiler and steam generator feedwater;
- Battery limit conditions for condensate return systems;
- Voltage and frequence for electrical power;
- Analyses of available water streams;
- Fuel data;
- Other available utility data;
- Climatic data;
- Site information;
- Equipment design information (e.g. preferred tube lengths, philosophy for design conditions, etc.);
- Relief and blowdown philosophy.

3.8 The LICENSOR's standard drawings

The standard drawings will be referenced in the Process and Engineering Design Specifications and represent design details and practices which are part of the mechanical specifications.

3.9 Name of vendors of critical equipment

No.	Equipment	Possible vendors	References

3.10 Mechanical specifications

The mechanical specifications will represent the LICENSOR's or the LICENSEE's current standard practice for design and installation of the equipment in the particular process unit.

ANNEXURE IX

CATEGORIES, QUALIFICATIONS AND EXPERIENCE OF PERSONS TO BE ASSIGNED BY LICENSOR. EXPENSES OF AND FACILITIES FOR LICENSOR'S PERSONNEL ASSIGNED TO WORK FOR THE LICENSEE

1. Terms and conditions of personnel services

1.1 The LICENSOR shall assign such qualified and competent personnel as is necessary for the proper and final implementation of the Agreement. Such personnel should be fit for working in a (tropical) climate.

1.2 At the First Detailed Engineering Meeting, the parties shall further agree upon the details about the expected initial number of each category of the LICENSOR's personnel and the duration of their assignments.

2. List of personnel to be assigned by the LICENSOR

2.1 The LICENSOR shall assign the following personnel for the period noted against each person/category of persons.

Category	Expected number	Total expected man-days
x x x	x x x	x x x
x x x	x x x	x x x

2.2 The period of stay mentioned above is only indicative and the parties shall agree on the definitive figures at the First Detailed Engineering Meeting. (Article 5.7)

3. Charges for the LICENSOR's assigned personnel

3.1 (a) The charges for the LICENSOR's assigned personnel for each Day of absence from Home Office shall be as follows:

(example only)

Rates per Day (currency)

- Start-Up Team Leader
- Specialist Engineers

(others may be specified)

(b) (It is recommended that this should not have an escalation clause. However, in some cases this may be required. This escalation in such cases should be based on an index specified in this clause, which index should be an officially published index of the LICENSOR's Government agencies).

The above charges are for an 8 hours per Day, 40 hours per week day time work.

3.2 Overtime charges

Overtime charges in accordance with the Agreement shall be paid as follows:

Up to ( ) hours/week	( )% of normal rates
above ( ) hours/week	( )% of normal rates
for weekly and public holidays	( )% of normal rates
for night shift	( )% of normal rates

No additional payments will be made for overtime or night shift.

3.3 In addition to what is specified under clauses 3.1 and 3.2, the following allowances, services and facilities shall be paid by the LICENSEE to the LICENSOR's personnel deputed to work under the Agreement:

3.3.1 Local Allowance

The LICENSEE shall pay to each of the assigned personnel engaged in the work a living allowance at the rate of (amount in local currency) for each Day of presence at Site.

3.3.2 Travelling

Economy class return air fare for each assignment for each assigned personnel from the Home Office to Site by (air carrier) or an IATA carrier at the discretion of the LICENSEE.

Transport within (LICENSEE's country) by plane (economy class) or rail (class) on the rail route for the assigned personnel on their arrival in and departure from Site and travelling on official work.

3.3.3 The LICENSEE shall also provide free of cost to the LICENSOR's assigned personnel the following:

3.3.3.1 Furnished residential accommodation, as well as water, electricity and gas for domestic use.

3.3.3.2 Furnished office accommodation, as well as secretarial assistance and facilities for official communications including telephone and telex services.

3.3.3.3 Medical assistance to the personnel and their facilities to the extent available at the LICENSEE's own or nominated medical centre(s).

ANNEXURE X

CATEGORIES, QUALIFICATIONS AND EXPERIENCE OF

PERSONS TO BE TRAINED BY THE LICENSOR

(Reference Article 6) (Illustrative Example only)

	Category	Qualifications	Experience	Period of training (months)
A. Managerial Personnel				
-	Plant Manager	-	-	X
-	Production Manager	-	-	X
B. Group of Engineers				
(Four)	Process Engineers	Degree in Chemical Engineering	Not less than ____ years in projects or plant operations or technical services, trouble shooting	X
(One)	Chemists for Process Laboratory	Degree or Diploma in Chemistry	Not less than ___ years in chemical plant laboratory or research laboratory	X
(Two)	Mechanical Engineers	Degree in Mechanical Engineering	Not less than ___ years experience in project engineering or construction or preventive plant maintenance or corrosion control or workshop.	X
(One)	Electrical Engineers	Graduate Electrical Engineers	Not less than ___ years experience in electrical installation covering different types of motors, PCC, power distribution or maintenance and procedure for preventive programmes of all electrical equipment.	X
C. Foremen				
(Two)	Instrument Foreman	Diploma in Instrument/ Electrical Engineering	Not less than ___ years in maintenance of instruments	X

(List of plants in which to be trained to be attached.)

ANNEXURE XI

GUARANTEE FIGURES FOR CONSUMPTION OF RAW MATERIALS
AND UTILITIES AND FOR QUANTITY AND COMPOSITION OF EFFLUENTS

1. Raw Material Specificatons

The raw material (natural gas) specifications should contain data on:

(i) Source

(ii) Pressure and temperature at Battery Limits of Plant Site. 1/

(iii) Analysis of the gas, including, to the extent possible, the following:

	% by volume	
Methane	%	
Ethane	%	
Propane	%	
Butane	%	If available, the quantitiy in
Pentane	%	% in iso-form and normal-form
Hexane	%	should be given
Nitrogen	%	
Carbon Dioxide	%	
Inerts (specify)	%	
Oxygen	%	
Water Content	%	
Total Sulphur	ppm v/v	
Sulphur as H_2S	ppm v/v	
Sulphur as Organics	ppm v/v (including COS) 2/	
Lower Calorific Value	Kcals/Nm^3	

1/ Upper and lower limits of pressure should be indicated as this may have a bearing on the standard design pressure of equipment at the Plant inlet point.

2/ If data on Organic Sulphur, as ppm COA, Mercaptans, Thiophenes etc. is available, this should be indicated.

2. Guarantees for the Consumption of Raw Materials and Utilities

(indicative for Ammonia/Urea Complex)

2.1 Ammonia Plant

2.1.1 The guarantees for the consumption of raw materials and utilities for the Ammonia Plant are:

Items	Units	Units per metric ton of ammonia
(a) Consumptions		
- Natural gas 1/	Millions of Kcal	
- HP Steam	Metric tons	
- Electrical Power 2/	Kwh	
- Cooling water ($30^{o}C$) ($T = 10^{o}C$)	m^3	
- Boiler and Feed water ($110^{o}C$, 120 kg/cm^2)	Metric tons	
(b) Output		
- MP Steam	Metric tons	
- LP Steam	Metric tons	
- Purge gas	Millions of Kcal	
- Boiler Feed water Preheating	Millions of Kcal	
- Condensates	Metric tons	

2.1.2 The consumption of natural gas is based upon the following characteristics, within the limits specified.

(Generally, these should be part of the gas characteristics given in Annexure VII, clause 1.1. However, not all the characteristics given therein are required to be mentioned here.)

2.1.3 In the event that there are variations in the gas analysis within the following limits:

1/ Natural Gas consumption includes requirements as feedstock and direct fuel.

2/ Electric Power consumption is for the Ammonia Plant only and excludes lighting, instrumentation and air-conditioning.

(Specify limits at which the Plant can operate.) The Guarantee for gas consumption, shall be as mutually agreed, in accordance with Article 3.5.

2.1.3.1 It being agreed that if the saturated hydrocarbon content of the gases (adjusted for hydrocarbons higher than methane) remains within the agreed limits, the agreed gas consumption shall be directly proportional to the lower heating value of the gas.

2.1.4 In case the gas analysis is outside the agreed limits, the parties shall discuss modifications, if any, to be made in the Plant(s) and the effect on the time schedule and payments to the LICENSOR.

2.1.4.1 If either the LICENSEE or the LICENSOR apprehends that the gas analysis is likely to change outside the agreed limits he shall promptly inform the other party, and a review meeting shall be arranged within (30) Days thereafter at (Site) to consider the implications thereof, in accordance with Article 5.3.

2.1.5 All consumptions of steam, cooling water and power are subject to review after detailed design by the Contractor.

2.2 Urea Plant

2.2.1 The guarantees for the consumption of raw materials and utiltities for the Urea Plant are:

Items	Units	Units per metric ton of urea
(a) Consumptions		
- Ammonia (as 100%)	Metric tons	
- HP Steam	Metric tons	
- Electric Power 3/	Kwh	
- Cooling Water (32°C)	m^3	
(b) Productions		
- LP Steam	Metric tons	
- Condensate	Metric tons	

3/ Electric Power consumption is for the Urea Plant only and excludes lighting, instrumentation and air-conditioning.

3. Quality and Quantity of Effluents

The quantity of effluents from the Plant shall not exceed the following under normal operating conditions: 1/

- From Ammonia Plant

- Flow rate	3.3 t/hr
- Quality	Waste water saturated with CO_2 at 42° with approx. 50 ppm K_2CO_3 and traces of DEA

- From Urea Plant

- Flow rate	39 t/hr
- Quantity	Condensate at $55^{\circ}C$ containing approx. 200 ppm NH_3 and 400 ppm urea.

Note: In some cases in compliance with local standards the process condensate may require further treatment within the Battery Limits of the Plant, e.g. under 2. above, the effluent from various sections of the Urea Plant may require treatment, and the final quality will be different.

- Cooling Tower System

(a)	Losses (evaporation)	400 m^3/h
(b)	Blow down and mist loss	230 m^3/h
(c) (i)	Ammonia and urea content in blow down	___ ppm NH_3, _____ ppm urea
(ii)	Other characteristics of the blow down.	

The effluents shall be delivered at agreed designated points in the Plant's Battery Limits.

1/ The figures given are typical for one particular process in each case. The quality of effluents and gaseous emissions should conform to national standards.

ANNEXURE XII

FORM OF BANK GUARANTEE

Bank Guarantee for Advance Payment

This Guarantee No. ... made this day ..... between (_____) a Company incorporated and having its Registered Office at ..... (hereinafter called BANK */, which expression shall unless repugnant to the context or contrary to the meaning thereof include its successors and assigns) of the one part, and ..... (hereinafter callled LICENSEE which expression shall unless repugnant to the context or contrary to the meaning thereof, include its successors and assigns) of the other part.

1. WHEREAS in Articles 10.1 of the Agreement dated ..... (hereinafter called Agreement), between the LICENSEE and ..... a company incorporated in ..... (hereinafter called LICENSOR which expression shall unless repugnant to the context or contrary to the meaning thereof include its successors and assigns) for supply of a (fertilizer) Plant, as envisaged in the Agreement it is stipulated that the sum of ..... will be paid by ..... as advance payment against a Bank Guarantee of equal amount to be issued by the BANK.

2. WHEREAS in fulfilment of the said Agreement and against receipt of said advance by (name of LICENSOR), the LICENSOR has agreed to furnish a Bank Guarantee as hereinafter contained.

3. In consideration of the above, the BANK hereby guarantees as a direct responsibility, to pay to the LICENSEE any amount up to a total sum of .....

4. The BANK shall effect payment under this letter of guarantee immediately upon the LICENSEE's written request stating that the LICENSOR did not fulfil his Contractual obligations without being entitled to enquire whether this payment is lawfully asked for or not.

5. In any case, however, the BANK's responsibility under this letter of guarantee comes into force as soon as and as far as the advance payment of ..... has been received by the BANK in favour of the LICENSOR.

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*/ This could be a Bonding Company and this could then be a Bond.

6. This letter of guarantee shall be initially valid for a period of ..... months from the Effective Date and shall be extended by suitable periods in accordance with Agreement (but not more than 6 (six) months at a time). This guarantee shall be returned to the BANK after its expiry unless extended beyond this period for any reason whatsoever.

7. In the event of Force Majeure or in the event of recourse to arbitration according to the Agreement, the validity of the present guarantee shall be extended for a period to be mutually agreed upon.

8. This guarantee shall be in addition to and shall not affect or be affected by any other security now or hereafter held by the LICENSEE and the LICENSEE at his discretion, and without any further consent from the BANK and LICENSEE's right against the BANK may, compound with or give time or other indulgence to or make any other arrangement with the LICENSOR and nothing done or omitted to be done by the LICENSEE in pursuance of any authority contained in this guarantee shall affect or discharge the liability of the BANK.

(Bank)

_____

_____

ANNEXURE XIII

MECHANICAL COMPLETION AND
READY FOR START-UP

The Performance Guarantee Test shall be run only after the Mechanical Completion Certificate has been issued and the Plant's "Ready for Start-Up" condition has been demonstrated.

1. "Mechanical Completion"

shall mean that the Licensed Plant has reached a stage when adequate checking has shown that:

(a) all columns, vessels, pumps, heat exchangers, piping and other mechanical equipment have been installed, cleaned and flushed out in full conformity with flow schemes, construction drawings, project specifications and manufacturers recommendations;

(b) all instruments, control valves, differential pressure devices interlocks, programmers and other instrumentation are correctly installed functioning and that all preliminary adjustments have been made;

(c) all electrical supplies have been installed and protected as prescribed; that motors have the correct voltage supply, the correct speed, HP and direction of rotation and are free with the associated equipment to turn without obstruction;

(d) all relief devices, relief valves and bursting discs are correctly installed for the safe functioning of the Licensed Plant;

(e) all effluent handling facilities, flares and incinerators are ready to accept effluent/wastes;

(f) all ventilation systems and other systems for the protection of the operators and the environment are available and functioning;

(g) all safety facilities, fire-fighting, first aid, are adequately available.

2. "Ready for Start-Up"

shall mean that the Licensed Plant has reached a stage when all conditions relating to Mechanical Completion have been accomplished and that:

(a) all legally required tests have been carried out and licenses and governmental authorizations have been granted;

(b) sufficient trained operators and maintenance personnel familiar with the unit and the ..... Process (including competent interpretors) are available, and that the laboratory is ready to provide full analytical service;

(c) all utilities and services are available in the quantitites required under the conditions prescribed;

(d) all pressure and vacuum drop testing has been satisfactorily completed, with all instruments correctly protected during testing and correctly returned to service thereafter;

(e) all preliminary process operations have been carried out and all equipment has been cleaned, dried and returned to a state of readinesss to accept process materials;

(f) all mechanical equipment has been adequately tested under load and has been properly lubricated;

(g) all necessary feedstock, chemicals, catalysts are in storage or available in sufficient quantities to permit Start-Up and subsequent continuous operation;

(g) the Plant has been sufficiently cleaned up to permit safe movement of operators.