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**UNIDO MODEL FORM
OF COST-REIMBURSABLE CONTRACT
FOR THE
CONSTRUCTION OF A FERTILIZER PLANT
INCLUDING GUIDELINES
AND TECHNICAL ANNEXURES**

Prepared by the
DEPARTMENT FOR INDUSTRIAL PROMOTION,
CONSULTATIONS AND TECHNOLOGY

204

Abbreviations

C and F	cost and freight
CIF	cost, insurance, freight
DIN	Deutsche Industrie-Norm
FOB	free on board
FOR	free on rail
STP	standard temperature and pressure

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 co-operation.*

The General Assembly, in its resolution 3362 (S-VII) of 16 September 1975, decided that the System of Consultations called for by the Lima Declaration and Plan of Action on Industrial Development and Co-operation should be established at the global regional, interregional and sectoral levels and that UNIDO, at the request of the countries concerned, should provide a forum for the negotiation 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 at Vienna from 17 to 21 January 1977, and recommended that UNIDO should examine contract procedures intended to ensure the successful construction and operation of fertilizer plants.**

The Second Consultation Meeting on the Fertilizer Industry was convened at Innsbruck, Austria, from 6 to 10 November 1978, and examined the progress made by UNIDO in preparing four types of model forms of contract along with general guidelines for their use. It was recommended that UNIDO should continue to work on preparing four types of model forms of contract, and present final drafts of the turnkey lump-sum and cost-reimbursable model forms of contract to the next Consultation meeting.***

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 contract.

Since the final drafts of both model forms of contract could not be approved at the Third Consultation, it was recommended that an international group of experts should be convened by UNIDO to complete the examination of both model forms of contract. 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

*Report of the Second General Conference of the United Nations Industrial Development Organization (ID/CONF.3/31), chap. IV, "Lima Declaration and Plan of Action on Industrial Development and Co-operation", para. 66.

**See "Report of the First Consultation Meeting on the Fertilizer Industry, Vienna, 17-21 January 1977" (ID/WG.242/8/Rev.1), paras. 39 and 64.

***See Report of the Second Consultation Meeting on the Fertilizer Industry, Innsbruck, Austria, 6-10 November 1978 (ID/221), paras. 14-16 and 89-94.

forms of contract; in cases of disagreement on specific clauses, the various alternatives should be presented and given equal weight.*

The experts met at Vienna twice, from 23 February to 6 March 1981 and from 4 to 6 May 1981, and finally completed the text of both model forms of contract.

In pursuance of 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 model form of semi-turnkey contract was drafted taking into account the negotiated positions of the parties reflected in the turnkey lump-sum and cost-reimbursable model forms of contract. The licensing agreement was prepared taking into consideration the negotiated positions reflected in a similar model agreement on the petrochemical industry.

*See Report of the Third Consultation on the Fertilizer Industry, Sao Paulo, Brazil, 29 September-2 October 1980, ID/260, paras. 2 and 16-22.

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INTRODUCTION

An expert group meeting convened at Bangkok in July 1975, as part of the UNIDO/Economic and Social Commission for Asia and the Pacific (ESCAP) priority project on regional co-operation in the ESCAP region in chemical fertilizer production and distribution, recommended that general guidelines should be prepared for the formulation of contracts for fertilizer plants.

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

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. ^{1/} The Seminar considered pre-contracting and contracting methods, guarantees and penalties, arbitration, insurance and model forms of contract.

The participants of the Seminar stated that the type of contract used by a country for the construction of a fertilizer or chemical process plant depended on that country's experience and needs in a particular situation. Furthermore, there was a need to ensure that contracts would be implemented in a spirit of co-operation between the purchaser and the contractor.

The participants found that the model forms of contract that currently existed were not entirely suitable for meeting the requirements of developing countries for the construction of fertilizer and chemical processing plants, and significant changes would have to be incorporated before they could be adopted for common use. In order to protect the interests of both the purchaser and the contractor in entering into a contract, it was necessary that certain fundamental technical, legal and contractual safeguards should be maintained for their mutual protection. The participants therefore proposed that UNIDO should develop model forms of contract.

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, inadequate use has been made of: (a) legal securities available by way of bonds and other instruments, which may be used to secure the contractor's performance, and (b) suitable technical guarantees and warranties of the plant and technology.

As a first step towards the development of model forms of contract, the participants identified several areas for particular coverage in appropriate parts of each model form of 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.

^{1/} For the report of the meeting, see ID/WG.259/26/Rev.2.

In order to guide and assist users of the model forms of contracts in applying them to contract negotiations, it was considered that UNIDO should prepare guidelines that would cover pre-contracting practices, preparation of technical specifications and scope of work, and an explanatory commentary on the principle clauses of the model forms of 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.

To implement the recommendations, UNIDO requested the assistance of consultants experienced in the preparation and use of contracts to draft five different model forms of contract: (a) turnkey lump-sum; (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.

The Working Group of Consultants met in April, June and August of 1978 to discuss the contents of the five model forms of contract and adopt a uniform approach to their preparation. The consultants recommended that one model form of contract, the cost-reimbursable contract, should be presented to the Second Consultation Meeting as the preliminary draft of that type of model contract. As background information, the Second Consultation Meeting should be presented with the four other model forms of contract, as submitted to UNIDO by the institution or person that had prepared them, as well as preliminary draft guidelines for the use of UNIDO model forms of contract for the construction of a fertilizer plant. The fertilizer plant in question is a specific ammonia/urea complex, which is the one most widely used in developing countries.

The five model forms of contract were originally drafted following a uniform list of 46 main articles and 29 technical annexures. The essential differences between these model 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.

The Second Consultation Meeting on the Fertilizer Industry, held in November 1978, considered the five model forms of contract prepared by UNIDO. The participants agreed to examine only the draft cost-reimbursable contract (ID/WG.281/12 and Add.1) and set up a working group to discuss it. The participants recognized that the draft, as submitted, did not fully take into account the points of view of contractors and expressed the opinion that these would be valuable in arriving at a final model form of contract that would be acceptable to both purchasers and contractors.

The Second Consultation Meeting 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 on the Fertilizer Industry. Furthermore, the final drafts of the model forms of cost-reimbursable and turnkey lump-sum contracts should be prepared as follows, UNIDO should: (a) invite comments on the first drafts of both contracts; (b) consolidate those comments and incorporate them as appropriate in the revised text of each model form of contract; (c) convene an expert group meeting comprising representatives of purchasers and contractors from developing and developed countries to consider and finalize the revised text of both model forms of contract; and (d) circulate the final drafts to the Governments of member States and present the drafts to the Third Consultation.

UNIDO invited written comments on the model forms of turnkey lump-sum and cost-reimbursable contract, and revised drafts of both model forms of contract were then prepared, taking into account those comments and further informal discussions with some representatives of contractors.

An Expert Group Meeting on UNIDO Model Forms of Contract for Fertilizer Plants was convened at Vienna from 26 to 30 November 1979 to consider the revised texts and annexures of 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. ^{2/} The participants agreed that, rather than discussing the model forms of contract article by article, it would be appropriate to consider the main principles on which the model forms of contract were based.

The participants recognized that the model forms of contract and guidelines for their use being developed by UNIDO could meet a real need in developing countries by improving their skills in contract drafting and negotiation. Developing countries would thereby obtain greater contractual assurance that the fertilizer plants they purchased would be completed on time and would operate successfully at near rated capacity producing specification-grade products.

The participants recommended that UNIDO should prepare revised drafts of the turnkey lump-sum and cost-reimbursable model forms of contract, taking into account comments made at the meeting, and present them to the Third Consultation. Written comments should then be invited and submitted to the Consultation itself.

Revised drafts of both model forms of contract were prepared taking into account the comments made by the participants. As recommended, the order of the articles was changed to correspond to the plan of implementing the work and some articles were combined, thereby reducing the number of articles to 40. Thereafter, UNIDO distributed to Governments the final drafts of both model forms of contract and the comments of an international group of contractors on them.

The Third Consultation on the Fertilizer Industry, held in October 1980, examined the revised drafts prepared by UNIDO, namely the third draft of the model form of cost-reimbursable contract (ID/WG.318/3 and Add.1) and the second draft of the model form of turnkey lump-sum contract (ID/WG.318/1 and Add.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 forms of contract were realistic documents that should be commented upon article by article and approved, the short time available for discussion precluded a thorough examination of them at the meeting. It was agreed to concentrate on the second draft of the turnkey lump-sum contract in a working group set up for that purpose.

The UNIDO secretariat explained that the model forms of contract were guidelines that clearly spelt out the obligations of the parties in a balanced way but, as such, they were not legally binding documents for the parties. It was recognized that a general contract form was no substitute for specific contracts, however the model forms of contract were useful documents for the developing countries because of their comprehensiveness.

^{2/} For the report of the meeting, see ID/WG.306/4.

In considering the turnkey lump-sum contract in detail, agreement was reached on many points 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 form of contract, taking into account the legitimate interests of both parties.

The Third Consultation recommended that, in finalizing the model forms of contract, UNIDO should adopt the following procedures:

(a) An international group of experts should be convened by UNIDO to complete the examination of the UNIDO model forms of turnkey lump-sum and cost-reimbursable contract. The experts should be selected by UNIDO from developed and developing countries, with due regard to an equitable geographical distribution, and should include the members of the drafting committee of the working group on that subject convened at the Third Consultation;

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

(c) When publishing the model forms of contract, UNIDO should acknowledge that they were finalized by an international group of experts.

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 lump-sum and cost-reimbursable contracts for the construction of a fertilizer plant. Extensive and constructive discussions between participating purchasers and contractors facilitated the finalization of both the cost-reimbursable contract, and the pending articles of the turnkey lump-sum contract not discussed at the Third Consultation, with fewer areas of genuine disagreement.

However, as some articles of the turnkey lump-sum contract discussed at the Third Consultation required further discussion, in the opinion of several participants, the experts agreed that an additional meeting should be held, with a smaller participation. Four participants, of whom two were purchasers and two contractors, were nominated by the experts to complete finally both model forms of contract on their behalf.

The additional expert group meeting was convened at Vienna from 4 to 6 May 1981 to finalize the model forms of contract, after discussing the few pending articles and checking the full texts of each model form of contract for conformity with the agreements reached between purchasers and contractors.

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 higher built-in safety and reliability in fertilizer 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 without brackets are indicative, whereas those in brackets are negotiable. The model forms of contract, 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.

The annexures to the model forms of turnkey lump-sum and cost-reimbursable contracts were brought into line with their respective texts by UNIDO, taking into account also the needs of field personnel in charge of implementing the contracts. The guidelines for each model form of contract were prepared in co-operation with the international group of experts and, later, a small group of them discussed and finalized both sets of guidelines.

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 lump-sum and cost-reimbursable model forms of contract. The obligations, liabilities and compensations of the parties in the semi-turnkey model form of contract lie in between and largely follow the terms of the other two model forms of contract.

In preparing the fourth and last model form of contract, the supply of know-how and engineering services, the discussions at the Second Consultation on the Petrochemical Industry, held in June 1981, were taken into consideration, which recommended the use of the term "licensing agreement" instead of "licensing contract", in order to conform with current practice. ^{3/} This recommendation was also adopted for the fertilizer industry.

In general, licensing agreements are much simpler documents than engineering contracts. So far, UNIDO has only fully discussed engineering contracts in the fertilizer industry whilst a licensing agreement has already been negotiated for the petrochemical industry (UNIDO/PC.50/Rev.1). 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 that was prepared for the petrochemical industry.

The annexures to and guidelines for the model forms of semi-turnkey contract and licensing and engineering services agreement have been brought into line with their respective texts by UNIDO. The guidelines have been complemented by explanations on selecting a suitable model form of contract according to the specific conditions of individual developing countries.

The Model Form of the Semi-Turnkey Contract, together with its guidelines and annexures, was finalized by a group of experts in July 1984, and the final version was edited thereafter by the UNIDO secretariat, in line with the recommendations of the experts.

^{3/} See Report of the Second Consultation on the Petrochemical Industry, Istanbul, Turkey, 22-26 June 1981 (ID/273), para. 49.

Part One

GUIDELINES FOR THE MODEL FORM OF SEMI-TURNKEY CONTRACT

I. GENERAL GUIDELINES FOR THE MODEL FORM OF SEMI-TURNKEY CONTRACT

The aim of the guidelines is to inform purchasers choosing a model form of contract, particularly in developing countries, of the conditions and obligations to which they could be bound under that particular contract, and the safeguards and guarantees that should be sought accordingly in an actual negotiation. The model forms of contract do not replace the parties' judgement or contractual skills. Rather, they provide a basis for achieving a fair balance between mutual obligations, liabilities and financial compensations, according to the particular requirements of most developing countries.

The guidelines are presented in two parts: (a) general guidelines, which give the main features and obligations of the parties under the contract; and (b) guidelines for specific articles, which explain 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 purchaser's project management team, including outside expertise, and the qualifications and capability of the contractor selected, are the essential components for the successful implementation of a project; there is no substitute for them.

The semi-turnkey contract would appear to be basically a lump-sum contract for the supply of all the plant, equipment and materials, and services for the project, with civil engineering, erection and commissioning services being undertaken by the purchaser or his subcontractors. The extent of the scope of the contractor's services that are covered by the lump-sum price could vary from case to case. The contract, however, is more than a lump-sum contract, and has been rightly termed as "semi-turnkey", because it places on the contractor the responsibility for proving the performance guarantees. It is, at the same time, different from a turnkey contract to the extent that the satisfactory completion and commissioning of the project depends not only on the contractor delivering the scope of his works and services satisfactorily but also on the purchaser fulfilling his obligations satisfactorily.

The UNIDO Model Form of Semi-Turnkey Contract follows, in general, the methodology laid down in most such contracts, although the UNIDO model imposes more rigid conditions on the contractor for meeting his obligations than most contracts. Basically, the contract calls upon the purchaser to provide land for the plant, the necessary permission and approval of the Government, to undertake the civil engineering and erection of the plant and to provide the operating and maintenance staff, the feedstock and chemicals for start-up and operation of the plant; to make payments to the contractor according to an agreed schedule, and to pay for all freight, customs clearance and duties.

The contractor is required, for an agreed contract price, to supply the complete plant and equipment on a free on board basis, which includes the provision of all the know-how, design and engineering services; to procure, inspect, supply and deliver, free on board, all the equipment (within the agreed battery limits). In addition, he has to provide personnel for the supervision of the civil works, erection and testing of the plant; commissioning and start-up of the plant (using the staff of the purchaser, some of whom he is under an obligation to train) and to demonstrate that the plant can produce products that meet the specifications and capacity laid down in the Contract.

In some lump-sum contracts covering the supply of equipment and services, the contractor is given the freedom to procure and supply equipment without consultation with the purchaser except, perhaps, in the drawing up of the list of approved vendors. The UNIDO model forms of contract, however, envisage that the purchaser would be continuously associated with the project so that his requirements and interests were fully taken into account. Consultations with the purchaser, for example, in the matter of design lay-out would ensure that the layout allowed for future expansion, and in the matter of equipment procurement, consultations would ensure that the purchaser had access to proven equipment. In addition, the association of the purchaser with the implementation of the project in every aspect would facilitate the transfer of know-how and experience to the purchaser and also increase his knowledge of project implementation. Thus, the objective of the UNIDO model forms of contract is not only to ensure that purchasers in developing countries acquire good and efficient plants but also to ensure that in that process, there is technology transfer.

The UNIDO model form of contract therefore calls for arrangements whereby the purchaser, should he so wish, receives all technical information in the contract, and remains in touch with the project by:

(a) Specifying, in consultation with the contractor, the vendors from whom critical equipment is to be purchased;

(b) Being able to approve all the layout plans for the plant, in order to provide for future expansion and orderly site development;

(c) Having direct access to the basic documentation provided by the process licensor(s) to the contractor;

(d) Being able to post engineers at the contractor's offices to look at the detailed engineering and procurement specifications (without seeing the subcontractor's prices);

(e) Approving all changes in the technical parameters and materials of construction stated in the contract, or other changes in the equipment or construction specifications;

(f) Being able to inspect the equipment independently, although this provision is normal in most semi-turnkey contracts.

While the purchaser has substantial powers in requesting changes, it should be clearly understood that any change that increases the cost of equipment or of site construction would have to be paid for by the purchaser by additional payments (under article 15). Therefore, before signing a semi-turnkey contract, the purchaser must carefully check all the technical specifications included therein, in particular, the design basis, the equipment specifications, and the feedstock and product specifications. Consultants should be appointed for this purpose if the purchaser does not have the necessary experience.

While the purchaser has rights under the contract to make changes, those rights should be judiciously exercised for it is the contractor who must supply the equipment in a given time and later demonstrate the performance guarantees, which are quite rigid in the UNIDO model forms of contract.

The model form of contract lays great emphasis on the early completion of the plant, on demonstrating its ability to perform, and on the correction of latent defects that appear within a period of 12 months after the plant has completed its performance guarantee tests.

Consequently, substantial payments are tied to the completion dates of the plant. The performance guarantees for capacity (up to 95 per cent) and for quality of products are "make-good" guarantees without limitation of liability on the part of the contractor, and some payments are retained up to 12 months after completion of guarantee tests to cover equipment warranties and latent defects.

It should be stressed that such rigid conditions may make the contract more expensive than standard semi-turnkey contracts. However, the purchaser is provided with more surety in obtaining a properly working plant.

In using the model form of contract, it should be noted that the figures and periods of time mentioned in its various articles and clauses are illustrative and are not binding on the parties; they are based upon general experience. The figures and periods of time that are put into an actual contract would have to be negotiated by the parties on a case-to-case basis.

This model form of contract has been drawn up for an ammonia/urea plant with a capacity for manufacturing 1,000 tonnes of ammonia per day and 1,725 tonnes of urea per day with natural gas as a feedstock. The model form of contract can, however, be used to set up other kinds and sizes of fertilizer plants as well, with suitable modifications.

The technical annexures to the model form of contract detail all the technical parameters of the works, the procedures to be followed for implementing the various provisions of the contract, the performance guarantees to be demonstrated by the contractor, and the procedure for proving them. As such, they represent a check-list and an example of its contents for establishing an ammonia/urea plant.

The technical annexures to an actual contract should, therefore, be specific to the individual project.

II. GUIDELINES FOR SPECIFIC ARTICLES OF THE MODEL FORM OF SEMI-TURNKEY CONTRACT

Article 1. Definitions

This Article contains the definitions of the terms used in the Contract. Wherever the defined terms are subsequently used in the Contract, the initial letter of each substantive word is capitalized, e.g. "effective date of the contract" becomes "Effective Date of the Contract" to indicate that the term has been defined in Article 1.

The parties to the Contract could add additional definitions if it was felt necessary to do so or if substantial changes were made in the model form of Contract during negotiations.

This Article includes the definition of "Engineer", which has been used in the UNIDO Model Forms of Turnkey Lump-Sum and Semi-Turnkey Contracts in preference to the word "Technical Advisor" used in the UNIDO Model Form of Cost-Reimbursable Contract. Where the Engineer has a statutory legal function, a suitable change may be made in his definition in the Contract. Considering that in the model form of Contract the Engineer represents the PURCHASER and takes decisions on his behalf, it is necessary to spell out clearly the terms of delegation of authority to him.

Article 2. Object of the Contract and scheduling of delivery

This Article gives the general objectives of the Contract, including the overall time schedule. The general objectives are a statement of the type of Plant covered by the semi-turnkey Contract, and its location.

In the model form of cost-reimbursable Contract, a total project cost has been estimated in this Article. In a turnkey contract this was not felt to be necessary, for the Contract Price (Article 20) contains all the elements of the total project price covered by the Contract. In a large measure the same is true for the semi-turnkey Contract. To arrive at the total project cost, the PURCHASER has to add those elements for which he is solely responsible, such as the cost of land, infrastructure and utilities; customs duties (if any), civil engineering, erection costs; interest charges during construction, consultancy fees, PURCHASER's Site and head office expenses, to the Contract Price for the Equipment.

- 2.3 The training of the PURCHASER's personnel is one of the most important factors leading to the success of the project and, hence, it has been specifically singled out in the objectives of the Contract.
- 2.4 This Article contains the time schedule for the Plant. The importance of the time schedule for any plant, particularly for one in the developing countries, cannot be over-emphasized. For instance, by the time all the Equipment has arrived at the Site, the PURCHASER will already have spent around \$US 250 million for a large Ammonia/Urea Plant, and interest on this investment alone amounts to about \$US 68,000 per Day of delay. After the Mechanical Completion of the Plant, the PURCHASER's investment (at 1982 prices) would be around \$US 360 million and delay would cost about \$US 100,000 per Day in interest alone.

In addition, the foreign exchange cost of imports (if fertilizer is in short supply in the country), or the value of exports (if the project is export oriented) that would be lost would amount to about \$US 430,000 per Day of delay (at \$US 250 per Tonne of urea).

For these reasons, liquidated damages are provided in Article 27.1 for delays in the CONTRACTOR completing his Services. But the liquidated damages would not compensate the PURCHASER for all the losses that he would suffer for delays.

Delay in the implementation of the project is also not in the interest of the CONTRACTOR since he has undertaken to provide the Plant, Equipment and Services falling within his scope for a semi-lump-sum price. Any delay in the implementation of the project would, therefore, affect not only his profits but could even cause him financial loss. It is, therefore, necessary that both the PURCHASER and the CONTRACTOR should strictly adhere to the time schedule as far as possible and take care to ensure that delays are avoided.

The figures in this Article indicate achievable dates for an Ammonia/Urea Plant. However, a realistic time schedule should be fixed, taking into account the specific elements of the case. The time schedule figures are, therefore, shown in brackets. The detailed time schedule is given in annexure XV.

In developing countries there can be several reasons for delays, even in turnkey contracts, and even more so in semi-turnkey contracts. The most important are delays in pre-contracting procedures; but even after the Contract has been signed, there are often substantial delays in making the Contract effective owing to governmental procedures and/or procedures of financing institutions, the latter being the more cumbersome in many countries. After the Contract comes into force, the PURCHASER may incur further delays in securing the Site, contracting for civil engineering and erection, and regarding the availability of feedstock, and, sometimes, delays in giving approvals (which are discussed later). It is essential for the CONTRACTOR to provide the basic civil engineering load data and information on erection in good time to meet the time schedule.

The monitoring of the time schedule is very important and this is discussed in Article 11.

Article 3. Overall scope of work and division of responsibility

This Article outlines the overall work required to build the Plant under two main headings. Article 3.1, which is common to all contracts except licensing agreements, enumerates the scope of the work to be done for establishing a plant. Article 3.2 allocates obligations and responsibilities for the different items of work that are to be undertaken by the CONTRACTOR or by the PURCHASER. In some cases, individual functions for an item of work are allocated to the CONTRACTOR and the PURCHASER, e.g. Article 3.2.6 of the model form of semi-turnkey Contract provides that the PURCHASER shall supply the feedstock and other raw materials and catalysts for the Start-Up of the Plant, but the CONTRACTOR shall supply complete specifications in good time to allow the PURCHASER to purchase the raw materials.

It should be noted that in a semi-turnkey contract, the responsibilities of the CONTRACTOR and the PURCHASER are fairly balanced, with the CONTRACTOR being responsible for all overseas work and the PURCHASER for all site work. This division of responsibility should be clearly spelt out.

- 3.1.4 To establish the list of Equipment for the Plant, it is necessary that the main technical parameters of the Equipment should be specified and, in particular, the materials of construction should be agreed upon. This is to be done at the contractual stage, but modifications could take place later by mutual agreement. However, more important, is the identification of Critical Items, which should be specified in greater detail.
- 3.1.5 The CONTRACTOR and the PURCHASER should jointly pre-qualify the Subcontractors for the supply of Critical Items of Equipment, e.g. the centrifugal compressors in an Ammonia Plant. It is recommended that only those suppliers who have already furnished similar equipment to satisfactorily working plants should be pre-qualified as Subcontractors.
- 3.2.2 The design basis of the Plant is usually provided by the PURCHASER at the tender stage and is amplified where necessary, during Contract negotiations. In providing the design data, the PURCHASER should, therefore, take every care to see that the data is complete and reliable.

There are, however, two views on the question as to who is ultimately responsible for the correctness of the design basis. One view, as reflected in text A, makes the CONTRACTOR responsible on the grounds that, in agreeing to his final Contract Price, he has checked and satisfied himself regarding the reliability of the design data. Even so, exponents of this view agree that where there are variations in soil characteristics (Article 4.4.2) or in feedstock characteristics (Article 5.14.1), these may require contractual changes. This is because soil characteristics cannot always be assessed until detailed soil tests have been carried out, and feedstock characteristics cannot be ensured by the CONTRACTOR, as the supply of feedstock is outside the scope of his Contract.

The other view, as reflected in text B, only requires the CONTRACTOR to review the contractual design data and puts the responsibility for the reliability of the data on the PURCHASER. In accordance with this view, it would appear that if the CONTRACTOR, during his review, finds that changes are required in the design basis, the PURCHASER shall have to pay for these changes.

- 3.2.4 Article 3.2.4 requires the CONTRACTOR to supervise and direct the erection of Equipment, the testing of the erected Equipment, sections of the Plant and the complete Plant, the carrying out of all pre-commissioning procedures and the Start-Up and operation of the Plant until the completion of the Performance Guarantee Tests. These activities are to be carried out by the PURCHASER's personnel or by parties appointed by the PURCHASER. The extent of the CONTRACTOR's supervision and direction would depend not only on the capability of the PURCHASER's personnel and/or parties engaged to carry out these activities, but also on the number of the CONTRACTOR's supervisory personnel available at the Site. It is, therefore, very important for the PURCHASER and the CONTRACTOR to estimate the requirement of CONTRACTOR's personnel - not only in terms of man-months but also in terms of the category of expatriate personnel required in advance - and to provide for this in annexure XXVII. The number and category of CONTRACTOR's personnel required would, to a large extent, depend on the availability of trained personnel in the PURCHASER's country and,

consequently, on the extent of the supervision required. It would nevertheless be useful to provide for some flexibility in this respect and to make provision to ensure that the CONTRACTOR is in a position to bring in additional personnel should it become necessary.

- 3.2.8 This Article enables the PURCHASER to enter, at his option, into separate agreements with the CONTRACTOR to obtain the management assistance and technical advisory services that are specified under Article 17. The CONTRACTOR's obligation to provide these services, even though through separate agreements, should be laid down in the Contract to avoid the possibility that, later on, the CONTRACTOR may express his inability to accept this additional responsibility.
- 3.3 It is necessary in a semi-turnkey contract to provide a general Article relating to the overall obligations of the CONTRACTOR for it is not always possible to anticipate all the activities needed for such a project at the contractual stage. Hence, it is provided that any activity or work not specifically mentioned as being that of the PURCHASER, which is necessary for the establishment of the Plant, should be considered as being included in the CONTRACTOR's responsibilities. It has, however, to be understood that the activities that are to be considered as part of the CONTRACTOR's scope are usually offshore activities and not those activities that clearly fall within the scope of the PURCHASER.

Articles 4 and 5. Obligations of the CONTRACTOR and of the PURCHASER

Articles 4 and 5 detail the obligations of the CONTRACTOR and the PURCHASER respectively. In those cases where there are corresponding obligations between the CONTRACTOR and the PURCHASER, they have been included in both Articles where necessary (e.g. Articles 4.21 and 5.14) to avoid difficulties of interpretation and understanding. Thus, Articles 4 and 5 should be read in conjunction with each other.

- 4.4 This Article, which refers to the design basis, is essentially an amplification of Article 3.2.2, which has already been discussed.

Text A places on the CONTRACTOR the entire responsibility for having checked the design basis and for obtaining all the necessary information.

In text B, the PURCHASER shall provide all information pertaining to local laws for review by the CONTRACTOR subject, however, to the CONTRACTOR obtaining all the information required to carry out his obligations under the Contract. Thus, responsibility for the design basis and all local regulations is borne by the PURCHASER.

In all cases, as already mentioned under Article 3.2.2, two factors, soil characteristics and feedstock characteristics, would need to be re-checked. The former, before commencement of the Civil Works, and the latter, before the meeting contemplated under Article 6.8 and, again, at least six months before Initial Operation because feedstock characteristics can change with time. Articles 4.4.2 and 5.14.1 provide for variations in such cases.

4.4.2 Soil characteristics at any given Site would need to be investigated in detail through soil tests. Soil tests are especially necessary to determine the foundation requirements wherever heavy items of Plant and Equipment are to be located. As the number and nature of the soil tests required could vary from Site to Site, it is essential for the PURCHASER and the CONTRACTOR to agree upon the soil tests to be carried out. Article 4.14 envisages that the CONTRACTOR will not only supervise the carrying out of the soil tests but also review all the results of the tests. In case these results indicate a significant change in the soil characteristics, this Article also provides that the CONTRACTOR and the PURCHASER will review the matter further and agree on the resultant change in the design of the Equipment and also changes, if any, in the contractual obligations of the parties.

4.5 The CONTRACTOR's obligation to supply the know-how from particular process licensors is contained in this Article. However, if the CONTRACTOR is himself the supplier of the know-how, this Article would need appropriate modifications.

Articles 4.5 and 7.2 obligate the CONTRACTOR to provide the PURCHASER with documentation on the latest know-how available to the licensors at the signing of the Contract (or later, if mutually agreed upon), and the CONTRACTOR to make the detailed engineering according to the latest design standards known to him at the time of design.

In some cases, there may be objections on the part of licensors to giving all the design details (for instance, heat transfer coefficients used in the design of heat exchangers) to the PURCHASER, although they may be prepared to give them to the CONTRACTOR for checking of the basic engineering, if needed by the CONTRACTOR.

4.6 The model form of Contract, as drawn up by UNIDO, envisages that the CONTRACTOR would provide the basic and detailed civil engineering required for the construction of Civil Works, and that the PURCHASER, or parties engaged by him, would construct the Civil Works. There can be variations in the Contract to provide, say, for the CONTRACTOR providing only the basic civil engineering data and the PURCHASER, or parties appointed by him, carrying out the detailed civil engineering. It is, therefore, necessary for the parties to define clearly at the time of contractual negotiations the CONTRACTOR's precise responsibility in regard to civil engineering, and to provide for it in the Contract.

4.8 The words "notwithstanding anything to the contrary" in this Article are not meant to increase the contractual obligations of the CONTRACTOR with regard to the warranties, guarantees and liabilities. The purpose of these words is that if the Equipment supplied by the CONTRACTOR under the Contract, and particularly in the annexures, is inadequate to meet the contractual guarantees and warranties, the CONTRACTOR should take complete responsibility to correct it.

4.9 It is essential that the CONTRACTOR takes on the obligation to provide a complete Plant within the specified Battery Limits. This Article stresses that if any piece of equipment is required to complete the Works within Battery Limits (other than the exclusions specifically mentioned as being the PURCHASER's responsibility in annexure XIII), it has to be supplied by the CONTRACTOR, whether or not it is included in the list of machinery and Materials (annexures VIII, IX and X). This is the essence of Equipment supply under a semi-turnkey contract.

- 5.12 As has been pointed out earlier, it is the responsibility of the PURCHASER to provide personnel and/or parties to erect the Plant and Equipment, to test the Plant and Equipment individually, in sections and as a complete Plant, to Start-Up the Plant and to put it through the Performance Guarantee Tests. Although these activities are to be carried out under the supervision and direction of the CONTRACTOR, it still remains the responsibility of the PURCHASER to ensure that his personnel, or the parties appointed by him to carry out these activities, are trained, are capable of carrying out these activities and that they act on the instructions of and according to the directions provided by the CONTRACTOR. It has to be understood that the CONTRACTOR cannot be held responsible if the PURCHASER's personnel fail to carry out his instructions or directions. As failure to carry out the CONTRACTOR's instructions could not only result in diluting his responsibility or modifying the guarantees, but might also cause damage to the Plant and Equipment, Article 5.12 requires the CONTRACTOR to notify the PURCHASER of such lapses and provides for the two parties to consult with each other in order to take remedial measures. As the model form of semi-turnkey Contract places responsibility not only on the CONTRACTOR, but also on the PURCHASER for the successful implementation of the project, it becomes important to ensure that there is complete co-ordination and understanding between the CONTRACTOR's personnel and the PURCHASER's personnel.
- 5.15 The PURCHASER generally hires the operating personnel and they have to commence work under the supervision of the CONTRACTOR (from Start-Up to Provisional Acceptance). This Article covers the obligation of the PURCHASER to provide such personnel, while the CONTRACTOR develops the manpower and qualification chart.

Article 6. Co-operation and co-ordination between the
CONTRACTOR and the PURCHASER

This Article sets out the procedures for co-operation and co-ordination between the CONTRACTOR and the PURCHASER.

In a semi-turnkey contract there are many important details that have to be co-ordinated between the parties from time to time. Therefore, it is necessary to lay down in the Contract the precise methodology for technical meetings at which the different co-ordination and procedural matters shall be finalized or completed and their agenda.

The most important of these are the first ("kick-off") meeting in the (first) month after the Effective Date of the Contract (Article 6.5), and the second meeting to firm up the design in the fourth month (Article 6.8). In view of the importance of these meetings, some of the main points to be discussed have been detailed under Articles 6.7 and 6.8.

The design meetings should draw up a detailed check-list of the various records to be kept, approvals to be given, and items to be considered at various stages of the Contract.

Approvals from the PURCHASER in a semi-turnkey contract are not as extensive as in a cost-reimbursable contract, nevertheless, they are important for meeting the time schedule. Therefore, approvals should be given promptly by the PURCHASER, particularly for those items mentioned under annexure XV. The time allowed for the PURCHASER's approval is to be stated in Article 6.12 and is negotiable.

Article 7. Proprietary rights and licences, secrecy and patents

The processes used in the production of ammonia and urea are owned and patented by the licensor who may be the CONTRACTOR himself or another agency. It should be recognized that the licensor has the right to protect his invention, which is his intellectual property. Through a contract, the licensor is providing a licence to the PURCHASER, but only for the use of the process for the capacity specified in the Contract. The ownership continues to remain with the licensor. It is, therefore, necessary for the PURCHASER to accept an obligation to keep the information confidential and not to use it for non-contractual purposes.

In the model forms of contract, the know-how is made available through the CONTRACTOR. However, experience has shown that there could be cases where the CONTRACTOR is unable or unwilling to continue to provide the know-how. The provisions of Article 7.2 enable the PURCHASER to obtain the necessary information directly from the original process licensor(s).

7.3 Improvements and developments in technologies are a continuous process, and it is essential that adequate provision should be made in the Contract for the exchange of information between the suppliers of the technology (the licensor and the CONTRACTOR) and the PURCHASER so that, wherever practicable, they can be adopted.

This Article requires the licensor and the CONTRACTOR to make available to the PURCHASER for a certain period from the Effective Date of the Contract, all technical data and information relating to developments and improvements in operating and maintenance techniques and safety measures, free of charge, and, on payment, also proprietary information that could result in significant improvements in the capacity, reliability or efficiency of the Plant.

Conversely, the PURCHASER should make available to the licensor and the CONTRACTOR, free of charge, any improvements effected by him in operating or maintenance techniques during the same period.

The period during which a licensor would undertake to make the information available would depend largely on the licensor's policy. Where the PURCHASER is obtaining the process licence and know-how directly from the licensor, the period would have to be negotiated directly by the PURCHASER. In cases where the licence and know-how are made available by or through the CONTRACTOR (as in the UNIDO model forms of contract), the PURCHASER should ensure that the CONTRACTOR obligates the licensor to undertake the transfer of information for an adequately long period. The period recommended is 8 to 10 years in text A, and is subject to negotiation under text B.

The PURCHASER is required to treat as confidential (Articles 7.7 and 7.9) for a certain period (Article 7.11) the proprietary know-how and other confidential information given to him by the licensor and/or the CONTRACTOR. It would be desirable if the period for which the licensor/CONTRACTOR agrees to make the information available to the PURCHASER, and the period for which the PURCHASER is obliged to treat this information as confidential, are the same. Therefore, the periods of time to be stipulated in Articles 7.3 and 7.11 should be the same, and hence there are two alternative texts in Article 7.11 similar to those in Article 7.3.

7.5 Experience has shown that there are instances where, because of deficiency or defects, the intended performance in terms of capacity or efficiency is not attained. In such situations the PURCHASER can approach the CONTRACTOR/licensor in the first instance to review and recommend corrective action. In cases where the CONTRACTOR is unable or unwilling to provide assistance to the PURCHASER for corrective action, the standard secrecy provision could prevent the PURCHASER from approaching other agencies for assistance. The standard articles also could prevent the PURCHASER from seeking assistance from other agencies for expanding or modernizing his Plant at a later date after the CONTRACTOR has expressed his inability or unwillingness to assist. This becomes an anomalous position. The model form of contract recognizes such situations and in this Article details the conditions under which the PURCHASER can seek assistance from elsewhere without being held to have infringed the provisions of the secrecy clauses.

It is also possible that, after acquiring experience in the operation of the Plant, the PURCHASER may, on his own, de-bottleneck the Plant to increase production and/or improve efficiency. In such cases the PURCHASER shall not be held to have infringed the provisions of Article 7.

7.11 The period of time to be mentioned in this Article (text A or text B) should be the same as in Article 7.3 or could be different, depending on each case.

7.15 The model form of Contract envisages that the CONTRACTOR would provide or obtain for the PURCHASER the process licence and know-how. It is, therefore, appropriate that the CONTRACTOR should be solely responsible for indemnifying the PURCHASER for any claim or suit for patent infringement. In the event that any claim arises for patent infringement, the CONTRACTOR should have the option either to contest the suit or, alternatively, to make the necessary alterations in the Plant at his cost to eliminate the alleged infringement, provided such alterations do not affect the performance of the Plant. The question as to whether the CONTRACTOR's liability in regard to patent infringement should be restricted to a fixed amount or the amount that would be available to the CONTRACTOR from the licensor as compensation, or whether it should be unlimited, is one to which there is no single answer.

In text A, the CONTRACTOR is required to be liable without limitation in connection with a third party's patents or know-how. In text B, the CONTRACTOR has a limited liability, which is stated in this text of the Article. Text A considers that only the CONTRACTOR or his licensor can know whether he breaches a third party's patent or know-how, and since he is being paid for the licence, it is his duty to satisfy himself that there is no patent infringement. Hence, the PURCHASER should be held harmless. In text B, the CONTRACTOR limits his liability either to the amount paid to the licensors or recovered from them, because in a separate licence agreement between PURCHASER and licensor such a limitation would apply.

It should be noted that if there is a patent infringement, the compensation asked for by third parties can be very heavy. It is suggested that in any event a patent search in the PURCHASER's country should be undertaken, particularly where relatively new processes are being considered.

Under the provisions of the International Convention for the Protection of Industrial Property (the Paris Convention), countries that are signatories to the Convention protect each other's patents. Thus, a patent filed in one member country is protected from the date of its filing, even though it is filed later in another member country. This gives patent holders protection against the mala fide filing of patents in other member countries. However, in cases where the PURCHASER's country is not a party to the Paris Convention, difficulties could arise from patent applications filed by other parties before they have been filed in the PURCHASER's country but after they have been filed or granted in the original country. In such cases, the need for a patent search is even more important.

Article 8. Effective Date of the Contract

The Effective Date of the Contract is a firm and fixed point of time and forms the basis of control of the time schedule throughout the implementation of the Contract and is the point at which any expenditures under the Contract should be authorized, as otherwise such expenditures could become infructuous if the Contract did not come into force. It is, therefore, necessary to define the Effective Date clearly as has been done in Article 8 and to ensure that all activities relating to time are linked with this specific Effective Date.

In most developing countries, the approval of the Government to the Contract is necessary before the initial payments can be effected and the Contract becomes effective. The model form of Contract has recognized this position and has made Government approval for the Contract one of the pre-conditions for its effectiveness. As the approval of the Government could take time, in some cases between one and six months depending upon the procedures in force in each country, it would be necessary for the PURCHASER to ensure that the Contract Price remains firm during this period. The PURCHASER should also recognize that it would not be possible for the CONTRACTOR to keep the Contract Price firm indefinitely. Therefore, the PURCHASER and the CONTRACTOR should make a realistic estimate of the time required for Government approval and indicate that period in "Days" or in "months" in Article 8.2.

Instances are known of Government approval for Contracts in developing countries having been unduly delayed, resulting in variations in the Contract Price, which in turn again required Government approval. To obviate such a situation, the PURCHASER and the CONTRACTOR sometimes agree to a variation formula (escalation/de-escalation) linked with published price indexes in the CONTRACTOR's country. Once the Contract has been approved by the Government with the variation formula, any subsequent variation in the Contract Price on account of the delay in making the Contract effective would not again require approval.

If a Contract is negotiated on a price-variation basis, the price comparison by which a bidder is selected should not only be based upon the price tendered by him, but should also take into account the escalation anticipated in each bidder's country.

- 8.1.5 The normal procedure is for the Contract to become effective when, and
8.2 apart from the down payment, some surety, such as a letter of credit or an assurance from an international financing institution, is given for the balance of payments. In such cases, Article 8.1.5 will remain (and be amplified) and Article 8.2 can be altered.

However, in some countries the procedures for obtaining these sureties take time. Therefore, if acceptable to the CONTRACTOR (and this has been the case in some contracts in developing countries), the Contract becomes effective on the payment of the advance payment, subject to a letter of credit or guarantees from a financing institution being given within an agreed period of time. In such cases, Article 8.1.5 is not a condition for the Effective Date but the PURCHASER would have a definite obligation within a specified period of time to open the letter of credit or to obtain the required guarantees of payment. The period (to be stated in Article 8.2) would depend on the PURCHASER's estimate of the time required to complete the formalities, but normally it is from three to six months. In any case, it should not be excessive or the price may have to be re-negotiated.

Article 9. Assignment of the Contract

In the implementation of a project it would often be necessary for the CONTRACTOR to engage other agencies or Subcontractors to fulfil some of the CONTRACTOR's obligations. However, as the PURCHASER has chosen the CONTRACTOR on the basis of his experience and reputation and is paying the CONTRACTOR a fee for his engineering services, it is necessary for the PURCHASER to approve the subcontracting of any of the CONTRACTOR's engineering activities. Article 9 provides for this case. It also ensures that, despite such subcontracting, the responsibility for performance and the accountability for the results remain with the CONTRACTOR.

Often, large and established engineering contractors have offices or subsidiaries with engineering facilities in various countries. In the event that the Contract has been awarded on the basis of the engineering capabilities at one of the CONTRACTOR's offices or subsidiaries, the CONTRACTOR is required to obtain the PURCHASER's prior approval in case any part of the work is to be carried out at the CONTRACTOR's other offices or subsidiaries.

It has to be borne in mind, however, that financing institutions funding the project, particularly where supplier's credit is involved, may require a CONTRACTOR to assign the Contract to the institution. Should such a requirement be imposed, the parties could provide for assignment in the Contract to a specific financing institution. The model form of Contract gives the PURCHASER the right to assign his obligations as in some countries the PURCHASER could be a State organization and, sometimes, the Government of the country might transfer the obligations of the PURCHASER to another organization. However, such a change of assignment should not in any way reduce the PURCHASER's responsibilities in terms of the Contract. Similarly, the financing institutions financing the project may not permit the PURCHASER to assign the Contract to another agency without the approval of the financing institution. These, therefore, are issues that have to be settled on a case-to-case basis where financing is involved.

Article 10. Procurement of spare parts

In a semi-turnkey contract the procurement of the Equipment, Plant and Materials falls under the responsibility of the CONTRACTOR. However, experience has shown that the procurement of spare parts, even in a semi-turnkey contract, should be done on a cost-reimbursable basis for this method would better protect the interests of the PURCHASER. Nevertheless, the CONTRACTOR is not relieved from his responsibility to submit an accurate list of spare parts to the PURCHASER for approval, which is based upon his experience of the commercial operation of such plants.

In special cases where some equipment is being purchased on a cost-plus basis by the CONTRACTOR on behalf of the PURCHASER (e.g. air conditioning equipment for the housing), the same method of procurement can be used, and Article 10 can be modified accordingly. The title of this Article can also be modified to read "Procurement of spare parts and specialized equipment". Such equipment should be added to, and clearly specified in, annexure X.

Article 11. Time schedule

This Article lays down the procedure for monitoring the time schedule, which in the model form of Contract is based upon a computerized critical path network (CPN). The method of obtaining inputs on a monthly basis should be carefully worked out, otherwise the CPN could give false information.

Article 12. Delivery and execution of the Work(s)

This Article lays down the conditions for the supply of Equipment and Materials, the marking of goods and their dispatch to the Site, for the supply of documents and for the Start-Up and commissioning of the Plant. After the Plant is commissioned, the provisions of Articles 18 and 26 shall apply.

- 12.1 This deals with the supply of Equipment and Materials and ensures that the Equipment is "brand-new" (Article 12.1.1), that it conforms with the agreed technical specifications (Articles 12.1.2 and 12.1.3), and, where those are not specified, the list will amplify (Article 12.1.4), and that the Equipment is suitable for the use contemplated (Articles 12.1.5, 12.1.6). It is also agreed that Critical Items shall be obtained from selected Subcontractors (Article 12.1.7) and that the initial charge and one spare charge of each catalyst required, the imported chemicals and refrigerants etc. shall be included (Articles 12.1.8, 12.1.9, 12.1.10).
- 12.2 This Article deals with the marking, packing and dispatch of Equipment and Materials. Wherever the PURCHASER desires or is required by statutory rules to mark the packages in a specific manner, this should be specified here. Since the PURCHASER is responsible for storage at the Site, he should have the right, therefore, to request the CONTRACTOR to mark the packages in accordance with his requirements.
- In Article 12.2.6 the CONTRACTOR acknowledges that the size of packages permits them to be handled at the port of entry and transported to the Site. This is particularly important where inland sites are concerned, because limitations on the size of Equipment that can be moved to the Site may alter the engineering design (e.g. two carbon dioxide absorption towers, instead of one, in the Ammonia Plant).
- 12.3 This Article provides for the supply of documents from the CONTRACTOR. The important documents are penaltiiable under the Contract (annexure XV). In a semi-turnkey contract, experience has shown that the load drawings enabling the PURCHASER to carry out his civil engineering design are the most important from the point of view of the time schedule and this is emphasized by penalties. This Article should be read in conjunction with annexure XV.
- 12.4 This Article provides for the storage of Equipment and Materials at the Site. The PURCHASER has an interest in seeing that the Equipment is adequately protected at the Site, particularly when it is temporarily

stored. Since the CONTRACTOR is familiar with the type of Equipment and with possible reasons for its deterioration at the Site (high winds, heavy rainfall etc.), his Site representative has to advise on the storage to ensure that the Equipment is properly stored (Article 12.4.1).

12.5 This Article only lays down the time schedule for the training services. The training services themselves are given in Article 16.

Article 13. Supervision and direction

According to Article 5, it is the PURCHASER's responsibility to construct the Civil Works, to erect the Plant, to carry out all mechanical testing and Start-Up of the Plant. However, the PURCHASER's personnel or subcontractors responsible for civil construction, mechanical erection, Pre-commissioning and Commissioning of the Plant are required to work under the supervision of the CONTRACTOR. The CONTRACTOR's responsibilities in this regard have been laid down in Articles 13.1 to 13.4.

13.7 These Articles give the CONTRACTOR the right of access to the Site, to storage yards, fabrication shops etc. for Equipment being made in the PURCHASER's country and, equally, give the PURCHASER the right to visit all shops in other countries where Equipment is being made for the Plant. Since the CONTRACTOR is responsible for the successful Commissioning of the Plant and the demonstration of the Performance Guarantee Tests, he should have full information on the activities of the PURCHASER's personnel and his subcontractors relating to the erection of the project, and should also have the right to inspect the work in progress.

13.11 This Article gives the PURCHASER the right to engage third parties, who are not direct competitors of the CONTRACTOR, to check the work being carried out by the CONTRACTOR at his offices, for the PURCHASER may wish to engage an independent technical consultant to supervise the implementation of the project on his behalf. The PURCHASER should recognize that his consultants should neither disturb the CONTRACTOR's activity nor infringe the secrecy agreement entered into by the PURCHASER.

Article 14. Inspection, testing and certification

This Article deals with the inspection of the Plant. Since the CONTRACTOR is also the supplier of the Plant, while he undertakes his own inspection, he must allow the PURCHASER or his inspection agency to inspect the Equipment when required, and to be present at all tests on the Equipment.

In appointing his own inspectors, the PURCHASER should ensure that they have substantial experience in the inspection of chemical plants. However, Article 14.13 states that the presence of the PURCHASER's representatives during the inspection in the workshops of the CONTRACTOR or his Subcontractors does not relieve the CONTRACTOR from his obligations under the Contract, such as good workmanship, and other liabilities for quality etc. of the Equipment.

Article 15. Variations, changes and additions to the scope of the Contract

This Article lays down a smooth working procedure for making changes and variations, which can sometimes be substantial in a semi-turnkey contract. It is essential, however, that such changes, particularly when they affect the

price, time schedule or the technical parameters and materials of construction of the Equipment, are embodied in written change orders. The carrying out by the CONTRACTOR of verbal arrangements can lead to disputes. Detailed procedures are given in annexure XIX for making changes according to this Article or Modifications under Article 29. It should be pointed out that payments for changes under Article 15 are to be made outside the payments laid down in the Contract (Article 20). Where there are foreign exchange regulations, it may be advantageous to lay aside a sum of money (by appropriate changes in Article 20) for this purpose.

15.10 This Article deals with disputes as to whether a particular variation is part of the CONTRACTOR's contractual responsibilities, or whether it requires the PURCHASER to pay additional costs. The Article provides that in the first instance the advice of a neutral person may be taken, and if this is unacceptable, resort may be made to arbitration. This independent expert should be an expert in the particular field to which the dispute pertains and need not necessarily be the neutral person contemplated in Article 37.1.1.

15.11 These Articles stress that whenever there are any changes in price, time and schedules, or technical specifications of the Equipment, these should be embodied in written change orders to be signed by authorized representatives of the PURCHASER and the CONTRACTOR.

15.12 Often, changes have been requested orally by the PURCHASER's Site representatives and there have been subsequent disputes about the payments and the effect of such changes on the Contract. It is essential, therefore, that not only should the procedure laid down in Article 15 be followed, but all changes should be embodied in written change orders.

Article 16. Training

The appropriate training of the PURCHASER's personnel is one of the most important prerequisites for the proper operation of the Plant. Therefore, it is recommended that the PURCHASER make a very careful selection of people to be sent for training in the plant(s) selected under the Contract. When selecting people for this task, the PURCHASER should try to ensure that the trained staff are employed for the Commissioning period as well as for the normal operation of the Plant.

The CONTRACTOR has an obligation to provide training, at a reasonable cost in plants that have been in operation for some years and that are reference plants in the CONTRACTOR's offer, to selected personnel of the PURCHASER. It may be desirable to arrange this training in plants built by the CONTRACTOR in other developing countries so that the trainees are fully exposed to the problems of operation and maintenance in developing countries.

As a reciprocal arrangement for training in other plants, the PURCHASER should consider the possibility of providing training in future to others at reasonable fees.

In Article 16.2, the CONTRACTOR not only has the obligation to train the PURCHASER's personnel abroad, but also to organize and supervise a training programme at the Site (annexure XVIII). For the latter purpose, training aids may be needed (e.g. a simulator) and these may form part of the supply list, and be included in annexure VIII.

However, Article 16 does not provide for further training of the same staff in case of possible inefficiency of the first trainees and/or unavailability of trained personnel at the time of Start-Up. In the event that, in spite of the original training programme, further training becomes necessary, the PURCHASER and the CONTRACTOR could agree upon the conditions thereof.

Article 17. Management and technical advisory services

Many developing countries often require continuing technical assistance to operate a plant successfully. The PURCHASER's operating and maintenance personnel frequently do not have the necessary experience to operate the Plant successfully despite the adequate training being given to such personnel. Furthermore, it is very important to establish correct systems and procedures for maintenance and operations at the outset. Hence, smooth operation is facilitated by providing for suitable management assistance.

The CONTRACTOR also has a commitment in ensuring the success of the Plant. A Plant that performs indifferently after the PURCHASER has taken it over from the CONTRACTOR is often not good for the CONTRACTOR's reputation.

- 17.1 This Article enables the PURCHASER, at his option, to request the CONTRACTOR, at an appropriate stage and at extra cost, to enter into a management assistance agreement for a period of 12 months after Provisional Acceptance of the Plant. Since the CONTRACTOR is contractually bound by his warranties and obligations to correct latent defects until Final Acceptance of the Plant, which is 12 months after its Provisional Acceptance, it would also be advantageous for the CONTRACTOR to continue to manage the operations for the 12-month period between Provisional and Final Acceptance of the Plant. This period could be increased for some personnel (Article 17.2).
- 17.3 Experience has shown that it is beneficial for a smooth operation of the Plant that the CONTRACTOR provides, at the PURCHASER's option, technical advisory services for a specified number of years under a separate agreement. Such an agreement would require the CONTRACTOR to make experienced personnel available to review the Plant's performance periodically and offer recommendations for improvements, and to identify Plant problems and suggest remedial measures.
- 17.4 Although the agreements envisaged in Article 17 are optional and the PURCHASER has a defined period to exercise his option, the CONTRACTOR accepts this position in the Contract itself. However, Article 17.4 provides that, while both the management assistance and technical advisory service agreements stem from the Contract, they are wholly separate and distinct from the liabilities and responsibilities contained in the Contract and would have to be negotiated separately.
- 17.5 This Article defines the number and type of personnel that can be retained under the provisions of Article 17.2.

Article 18. Completion of the Plant and conditions of Provisional and Final Acceptance

In every contract the stages of implementation should be clearly identified in order to adopt a procedure for certifying that each stage has been properly completed in accordance with the Contract. This is important in

a semi-turnkey contract for the PURCHASER is associated from the beginning with the implementation of the project, and has also certain well-defined obligations to discharge, particularly in civil engineering and erection.

This Article deals with the certificates of work completion and acceptance of the Plant linked to the main stages of project implementation. The semi-turnkey Contract calls for a Mechanical Completion Certificate at the end of erection and dry tests; a Provisional Acceptance Certificate on completion of the Performance Guarantee Tests, and a Final Acceptance Certificate issued 12 months after Provisional Acceptance, by which time the Equipment warranties and other obligations (including that for latent defects) are over.

In normal practice, Plants are fully accepted once the Performance Guarantee Test runs have been satisfactorily completed. Experience has shown that this arrangement is unsatisfactory and does not provide adequate time for latent design defects to show up. As latent defects usually appear in the first 12 months of operation, the Contract provides for continuance of the CONTRACTOR's contractual responsibility for design defects until the stage of Final Acceptance, which is reached 12 months after Provisional Acceptance.

In a semi-turnkey contract, the actual testing and Commissioning of the Plant including the running of the Performance Guarantee Tests are to be demonstrated by the CONTRACTOR with the assistance of the PURCHASER's personnel. To avoid the possibility of any disagreement between the parties in this area, it would be necessary to lay down strict procedures in the protocol covering Performance Guarantee Tests envisaged in Article 26.4 and annexure XXXI.

Article 19. Extension of time 4/

This Article defines the occurrences beyond control for which an extension of time to the Contract schedule are allowed. The PURCHASER should, in the circumstances envisaged, give a reasonable extension of time to the CONTRACTOR. However, since additional payments may be involved, this aspect should be carefully negotiated.

In Article 19.1, there are two views on whether force majeure conditions in the PURCHASER's country should be treated as a factor that would warrant an extension of time and the compensation of cost.

One view, which is reflected in text B, is that in the event of delay, because of force majeure in the PURCHASER's country, the CONTRACTOR should be granted not only a reasonable extension of time but also compensation for the additional cost involved on account of the delay. This view stresses that it would be difficult for the CONTRACTOR adequately to calculate and make allowances in the Contract Price for force majeure events in the PURCHASER's country and that, if compensation for delay on this account was provided for in the Contract, it would be possible for the PURCHASER to obtain more competitive quotations from experienced engineering contractors. It would also avoid situations where an experienced and competent CONTRACTOR is excluded from consideration simply because he has provided for a higher allowance for force majeure and thereby quoted a higher Contract Price. In other words, the risk of force majeure in the PURCHASER's country should not be transferred to the CONTRACTOR.

4/ Text A and text B have the heading "Extension of time" but only text B has the additional heading "and compensation of cost".

The other view, which is expressed in text A, is that force majeure, whether in the PURCHASER's country or in the CONTRACTOR's country, is beyond the control of the parties and should be treated alike in both cases. In other words, where the PURCHASER is not compensated for increases in project cost, or loss of production owing to delays arising from force majeure in the CONTRACTOR's country, it would not be correct or reasonable to provide for any compensation to the CONTRACTOR for delays arising out of force majeure in the PURCHASER's country.

It should be noted that it is not a normal practice in contracts to provide compensation for delays caused by force majeure. However, as many leading engineering contractors have suffered substantial losses in recent years, because of force majeure situations in developing countries, it is likely that pressures may develop to change international practice. This is also one of the reasons for the two texts.

The wording of text B could include in the definition of force majeure strikes at the Site, if these were beyond the CONTRACTOR's control. This would mean that the PURCHASER might have to pay for strikes of the Subcontractors at the Site.

Article 20. Contract Price, terms of payment, bonuses
and incentives

Articles covering Contract Price and terms of payment are specific to each project and may need substantial changes, particularly when a project is financed by loans. In financed projects, lending agencies often have their own rules on payment conditions.

The model forms of contract are based upon a cash contract and involve the principle of payments being tied to the accomplishment of specific work. However, the figures in brackets are only indicative and in an actual contract would have to be settled on a case-to-case basis.

20.1.1 No provision is made in the model form of Contract for price escalation, for it recommends a fixed-price Contract.

Often PURCHASERS in developing countries wish to have a price as fixed as possible, mainly from the point of view of the allocation of resources. However, since the CONTRACTOR would have to introduce contingencies into his price to cover escalation, it might result in a higher Contract Price being paid. Some PURCHASERS, on the other hand, feel that competitive bidding would keep such contingencies to a minimum.

20.2 These Articles provide a breakdown of the entire Contract Price to facilitate payments. However, in some cases this separation
20.6 (e.g. Articles 20.2 and 20.3) may increase the tax liability within the PURCHASER's country. Therefore, the breakdown of prices should be carefully considered.

Article 20.4 is an optional article and only to be used if the civil engineering design is to be done by the CONTRACTOR.

Article 20.6 includes the procurement services for the purchase of spare parts under an overall fixed price, although the purchase is actually being undertaken on a cost-reimbursable basis (Article 20.6). This means that the PURCHASER can buy as many spare parts as possible within this ceiling. The working of this Article may be made differently, if desired, to make this price truly cost reimbursable.

It also has to be noted that while the Contract envisages a firm price for the CONTRACTOR's obligations, as described in Articles 20.2 to 20.6, the Contract provides for payment to the CONTRACTOR's personnel on a reimbursable basis. The basis for paying the various charges for the CONTRACTOR's personnel has been described in annexure XXVII. It is, however, desirable to estimate and fix the total man-months, preferably until the Commissioning of the Plant, and provide for the cost on account of any increase in the man-months being borne by the CONTRACTOR or the PURCHASER, depending on who is responsible for the delay. In the absence of such a provision, there could be a tendency on the part of the CONTRACTOR to use more expatriate personnel and man-months than are strictly necessary and this, in turn, could result in an escalation in Plant costs, requiring additional financing. Such a provision is also in the interest of the CONTRACTOR inasmuch as he needs to plan the assignment of expatriates in advance and has to have some assurance that the PURCHASER would not delay the implementation of the project unduly.

20.7 These deal with the payments to be made to the CONTRACTOR's staff at
to the Site and should be read in conjunction with annexure XXVII.
20.9

20.10 These Articles deal with the payment schedule for each of the
to CONTRACTOR's Services.
20.16

It should be noted that in the periods (which are subject to negotiation) indicated in the model form of Contract, substantial amounts are kept until the PURCHASER can be satisfied about the operation of the Plant. The amounts held back are as follows:
(a) until the completion of training: 25 per cent of the fees for training services; (b) until Provisional Acceptance: 25 per cent of the licensor's fees, 10 per cent of the cost of Equipment and Materials and 5 per cent of the cost of spare parts; (c) until Final Acceptance: 5 per cent of the cost of Equipment and Materials and 5 per cent of the cost of spare parts.

20.17 These Articles lay down the certificates or other documentation
to (bills of lading, acceptance certificates etc.) against which
20.18 the payments under Articles 20.10 to 20.16 shall be paid.

The payments under Articles 20.10 to 20.14 envisage that a certain percentage of the payment due would be held over until the completion of the activity to which the payment was linked and the issuance of a certificate by the PURCHASER that that activity had been completed. This arrangement is intended to ensure the satisfactory completion of the activity in accordance with its schedule. The PURCHASER, however, has to appreciate that the holding over of payments due to the CONTRACTOR has financial implications for the CONTRACTOR and that while there is a case for holding over payments until the activity has been completed, there should be no delay whatsoever in the issuance of the necessary certificate. The PURCHASER should, therefore, arrange for the completion of the activity to be checked as soon as he has been notified by the CONTRACTOR, and for the issuance of the necessary certificate so that the CONTRACTOR does not incur unnecessary financing charges.

- 20.19 These Articles deal with the CONTRACTOR's rights to receive Provisional
to Acceptance payments, if the Plant has not been Started-Up 30 months
20.20 after Final Shipment of the Equipment through no fault of the
CONTRACTOR.

In semi-turnkey contracts the CONTRACTOR has a time limit for running Performance Guarantee Tests after shipment of the Plant and if these cannot be run through no fault of the CONTRACTOR, he can claim the payments due under Article 20.19. In the event that such a claim is disputed by the PURCHASER, a procedure is laid down in Article 20.20 that protects the PURCHASER.

- 20.27 These Articles provide a bonus or incentive payment to the CONTRACTOR if he demonstrates the Performance Guarantees earlier than (36) months after the Effective Date of the Contract.

It is suggested that this bonus should be of the same order as the liquidated damages for delay in supply of 95 per cent of the Equipment and Materials (Article 27.1.2).

Article 21. Performance bonds and bank guarantees

This Article requires the CONTRACTOR to provide not only a bank guarantee to secure the advance payment, but also a performance bond to guarantee the full and faithful discharge of all his obligations under the Contract. The performance bond is necessary to ensure that the PURCHASER's interests are fully protected and that the CONTRACTOR does not repudiate any of his responsibilities during the implementation of the project.

A performance bond or Performance Guarantee is generally issued by a commercial bank in the CONTRACTOR's country, but it can also be obtained from a bonding company. In the United States of America it is customary for a bonding company to issue a performance bond.

In a Performance Guarantee issued by a commercial bank, provision may be made to enable the PURCHASER to invoke the guarantee, should the CONTRACTOR default on his obligations, without having to obtain the CONTRACTOR's concurrence or an arbitration decree or an order from a court of competent jurisdiction. However, in a performance bond issued by a bonding company, it would normally not be possible for the PURCHASER to draw upon the bond unless the default was accepted by the CONTRACTOR or was established to the satisfaction of the bonding company.

The coverage in a Performance Guarantee is generally between 10 per cent to 15 per cent of the Contract Price. In the case of performance bonds the value could be and should be substantially higher.

In the case of a Performance Guarantee issued by a bank, the PURCHASER should ensure that it fully allows him to draw upon the guarantee if there is a default on the part of the CONTRACTOR, without the CONTRACTOR having to concede the default or to establish the default to the satisfaction of a court or the bank itself. A draft of such a bank guarantee is given in annexure XXII, A.

Some financing institutions insist on a bank guarantee and require that, in the case of default by the Contractor, the guarantee should be drawn upon and the funds placed at the disposal of the financing institution which, in turn, would make the required funds available to the PURCHASER for rectifying the default. In such cases, the amount covered by the guarantee is only available to the PURCHASER through the financing institution.

In the case of a performance bond from a bonding company, it is possible to obtain a bond whereby the bonding company is obligated to finish the Contract by appointing a new CONTRACTOR if the first one does not perform or abandons the work. This bond is not very effective in a cost-reimbursable contract but could be of value in a semi-turnkey contract, although it could give rise to some problems, which need to be considered on a case-to-case basis. A draft of such a bond is given in annexure XXII, B.

Article 21 should be read in conjunction with the wording suggested in annexures XXII and XXIII, for the wording of bank guarantees is of major importance.

- 21.2 Regarding the bank guarantee to cover advance payments, it is standard practice to make a provision in the guarantee according to which its value is automatically reduced to the extent of the value of the CONTRACTOR's Services as and when they are carried out.

Article 22. Indemnification

- 22.1 In this Article, the CONTRACTOR assumes complete responsibility for all costs, claims, suits or legal actions brought or prosecuted by anyone in connection with the activities of the CONTRACTOR pursuant to this Contract. The PURCHASER is protected from liability for actions of the CONTRACTOR that may be the subject of law suits, claims or damages. This protection is required because the PURCHASER may not be aware of occurrences such as breaches by the CONTRACTOR of licensing arrangements with third parties.
- 22.2 Conversely, the PURCHASER is obliged to indemnify or protect the CONTRACTOR from claims, damages, losses etc. arising out of the work of the CONTRACTOR's personnel primarily at the Site. This protection is necessary because the CONTRACTOR has no control over the work at the Site, and the PURCHASER's insurance policies normally cover such risks.

Article 23. Project accounting and audit

In a semi-turnkey project, the CONTRACTOR has his internal accounting system for the purchase of Equipment and this is not open for inspection by the PURCHASER.

However, the PURCHASER has a right to inspect the records of the CONTRACTOR for any additional payments made to him arising out of Articles 15, 19 etc., where such payments have been agreed to be made on an actual cost-plus basis or on time charges at the CONTRACTOR's home office. For this purpose, the agreed time charges are set out in annexure XXVII.

With regard to payments made by the PURCHASER to the CONTRACTOR, some developing countries, particularly when public-sector agencies are involved, want to check overseas payments during their own audits. For this reason, the CONTRACTOR is required to keep records of such payments for 2 years (Article 23.1).

Where auditing and accounting are not required, most of this Article could be eliminated. However, Article 23.2 should remain, as it is tied up with Article 36.2.2, which covers extra payments to be paid to the CONTRACTOR for changes in local laws and statutes requiring changes in the CONTRACTOR's Services or supplies.

Article 24. Insurance

In developing countries the contracting parties do not always take full advantage of the insurance coverage that is currently available. This Article lists the various policies available and specifies the responsibilities of the CONTRACTOR and the PURCHASER for taking them out. It also requests the CONTRACTOR to maintain corporate insurance coverage including, where applicable, a professional indemnity insurance to cover mistakes in design etc.

It should be noted that the professional indemnity insurance, if any, obtained by the CONTRACTOR would cover his total corporate activities and not only his performance under the Contract. The professional indemnity insurance policy is by nature a confidential document and the CONTRACTOR is not obliged to disclose its contents to the PURCHASER. Professional indemnity insurance cover also has a limited application.

In general, CONTRACTORS are careful in taking out insurance policies where a contract is involved. However, where CONTRACTORS do not do so, the PURCHASER has the right to take out insurance policies, which are the CONTRACTOR's responsibility at the CONTRACTOR's cost (Article 24.3). However, some insurance, such as corporate coverage, can only be taken out by the CONTRACTOR.

In a semi-turnkey contract most insurance policies are to be taken out by the PURCHASER for work at the Site. Therefore, the PURCHASER should be careful to provide adequate coverage. Although consequential loss insurance is not currently available for design faults, UNIDO is attempting to work out an arrangement for this purpose, hence the reason for Article 24.5.

At the same time, consequential loss cover for production breakdowns owing to any normal cause such as equipment failure, power interruptions etc. would be available when the Plant is operating satisfactorily (usually at least six months after Provisional Acceptance), and the PURCHASER may wish to take advantage of the availability of such cover.

The insurance covers referred to in Article XXIV are interfaced and interrelated. While they have been identified as specific and separate covers in the Article, in many countries it might be possible to obtain an "umbrella" policy, which provides for these various covers, in order to obtain the maximum economies in the premiums payable. It would, therefore, be useful for the PURCHASER to investigate the insurance covers available and explore the possibilities of evolving the optimum arrangement.

Article 25. Guarantee for workmanship during engineering and construction of the Works

This Article deals with guarantees of good workmanship in the manufacture of the Equipment for the Plant, and the guarantee that the proper standards shall be used. These guarantees are only for the Equipment supply and pre-operation stage of the project and expire when the warranties under Article 28 become effective. The CONTRACTOR's warranties starting from Provisional Acceptance are set forth under Article 28 whereas Article 25 deals with the same subject during construction up to Provisional Acceptance.

Article 26. Guarantees and Performance Guarantee Tests

This Article, dealing with the Performance Guarantees of the Plant and the procedures for running the Performance Guarantee Tests, is one of the most important Articles in the Contract. It should be carefully co-ordinated with annexures XXX and XXXI.

The UNIDO model forms of contract call for two types of guarantees: Absolute Guarantees and Penaltiible Guarantees, which are defined in Article 26.2.

Absolute Guarantees are defined as those guarantees that the CONTRACTOR shall establish and demonstrate without any limitation of liability as to his obligation to rectify the Plant to meet those guarantees, and which cannot be satisfied by the payment of liquidated damages. The CONTRACTOR is thus obliged to "make good" the Plant to make it capable of achieving the guarantees.

Penaltiible Guarantees are those guarantees that can be satisfied by the CONTRACTOR on the payment of liquidated damages. If the CONTRACTOR is unable to meet those guarantees, he can either rectify the Plant to make it capable of meeting those Penaltiible Guarantees or, at his option, pay liquidated damages and thereby free himself of any further obligations in regard to the fulfilment of the Penaltiible Guarantees.

While the model forms of contract are firm on the need for Absolute Guarantees on the capacity of the Plant(s) and the quality of the Products, they allow for negotiations on other guarantees, which can be either Absolute or Penaltiible.

Absolute Guarantees. These are in all cases:

(a) The capacity of the Ammonia and Urea Plants up to 95 per cent of their capacity. The Absolute Guarantees are defined at 95 per cent rather than 100 per cent of capacity because if there is a small difference in the capacity of a major piece of Equipment, it may be better to accept an adequate penalty rather than insist on the deficiency being corrected or the Equipment being replaced in cases that entail a disproportionately long period of time or loss of production during replacement. Furthermore, fertilizer plants are capital-intensive and, therefore, cannot be viable unless they operate at or near rated capacity;

(b) The quality of the ammonia and the urea Products, for the quality specifications detailed in annexure XVI of the Contract must conform to market requirements, otherwise the products may be unsaleable or only saleable at a discount.

Penaltiible Guarantees. These are in all cases:

(a) The capacity of the Plants if below 100 per cent, but above 95 per cent of their capacity;

(b) The quality and quantity of carbon dioxide that is adequate and suitable to produce 100 per cent of the guaranteed capacity of urea. Since the production of 95 per cent of the capacity of urea is an Absolute Guarantee, which cannot be met without producing 95 per cent of the requirement of carbon dioxide for the Urea Plant, it becomes indirectly an Absolute Guarantee at 95 per cent;

(c) The adequacy of utilities and Off-Sites to sustain the continuous production of ammonia and urea at 100 per cent capacity. Since the obligation exists to produce at least 95 per cent of the capacities of the Ammonia and Urea Plants as Absolute Guarantees, to this extent the utilities and Off-Sites have to be absolutely sufficient. Hence, Article 26.4.4 requires the Ammonia and Urea Plants to be run simultaneously for 7 Days;

(d) The capacity of the steam and power plant. Since the plant is often dimensioned to be larger than required, there is a separate guarantee for it but this guarantee is penaltiible because the necessity to produce power for 95 per cent of overall capacity is covered by the Absolute Guarantees for the production of ammonia and urea.

Negotiable guarantees. The guarantees mentioned in Article 26.3.3 are negotiable and after deciding during negotiations whether they become Absolute or Penaltiible, they should be transferred accordingly as new headings to Article 26.3.1 (Absolute Guarantees) or Article 26.3.2 (Penaltiible Guarantees). Thereafter, Article 26.3.3 would become redundant and disappear in the final Contract.

The negotiable guarantees include the following:

(a) The quality of effluents or emissions from the Plant. Whether these are Absolute or Penaltiible depends upon the location of the Site and statutory legal enactments. If there are legal requirements covering gaseous emissions at the Site, then these would have to be Absolute Guarantees, otherwise the Plant could be shut down. However, if the Site is in a remote location near the sea, the emissions and effluents can be penaltiible;

(b) The consumption of raw materials and utilities. The model forms of contract use the concept of a guaranteed overall cost figure for raw materials and utilities, which is calculated according to the method given in Article 27.2.4. Thus, excess consumption of one item can be made up by a lower consumption of other items, so long as the overall cost of manufacture is maintained. Whether these guarantees would be Absolute or Penaltiible would depend on individual cases. For instance:

- (i) If the cost of feedstock, fuel and water is low and these are easily available, then the guarantees for consumption of feedstock and utilities can be penaltiible. However, if the cost is high, then an Absolute Guarantee could be considered, say, not over 105 per cent of the daily guaranteed cost of raw materials and utilities; between 100 per cent and 105 per cent of the guarantees, the cost of utilities could be penaltiible;
- (ii) The consumption of raw materials (ammonia) for the Urea Plant could be penaltiible if there was surplus saleable ammonia in the capacity of the Ammonia Plant. However, if the capacity of the Ammonia Plant is just equivalent to the requirements of the Urea Plant, there should be a limit on the excess consumption of ammonia beyond which there should be an Absolute Guarantee.

To facilitate negotiations on these guarantees, they have been drawn up in the form contained in Article 26.3.3.

Performance Guarantee Tests

There have been cases in developing countries where Guarantees were successfully demonstrated in limited test periods of 72 hours, but the Plants did not operate continuously thereafter. The model form of Contract therefore calls for the continuous operation of the Plant at near rated capacity (say 90 per cent) during 20 Days followed immediately by a guarantee test run of 10 Days at 100 per cent capacity. The test for the consumption of raw materials and utilities shall be run during any consecutive 7-Day period within the 10-Day test period.

Recently, some developing countries have secured extended periods of continuous operation (up to about 90 Days at an average 85 per cent of capacity) before the guarantee test run was demonstrated for a period of about 10 to 14 Days. The extended continuous test run stipulated in the Contract is also necessary to demonstrate the Plant's ability to operate consistently at or near rated capacity.

The model form of Contract suggests that the guarantee test runs should be taken within 90 Days of Commissioning so that defects are promptly identified, for there is urgency to attain production stabilization at or near rated capacity as early as possible to enable the Plant to start earning revenue. It also provides for situations where the CONTRACTOR, either on account of faults attributable to him or to the PURCHASER, is unable to perform the guarantee test runs in the time prescribed (see also annexure XXXI).

Article 26.6 stipulates that after the successful completion of the Performance Guarantee Tests, the CONTRACTOR shall prepare a report on the Performance Guarantee Tests and submit it to the PURCHASER for approval. In most cases, the Performance Guarantee Test report is prepared jointly by the CONTRACTOR and the PURCHASER so that there will be no disputes subsequently and no delay in the PURCHASER according his approval. Although the responsibility for the preparation of the report has been placed on the CONTRACTOR, it would be advantageous if the parties agreed to prepare the report jointly.

In Article 26.7 a time limit is placed on the CONTRACTOR's obligations to run Performance Guarantee Tests if within a specified period after Mechanical Completion extended by an agreed term in the event of force majeure, the Plant cannot be Started-Up for reasons not attributable to the CONTRACTOR. In text A the period specified is 18 months, in text B this period is negotiable. It is normal to provide for a "cut-off" point in such contracts and the period selected would depend upon Site conditions. If the Plant had its own feedstock source, power station and water supply, there would be little outside infrastructure that could delay the Start-Up. Conversely, if the Plant was dependent upon public utilities for the supply of feedstock, electricity and water, the delays outside the PURCHASER's control could be substantial and, hence, a longer period would be required before the CONTRACTOR was relieved of his obligations to run Performance Guarantee Tests. However, it should be stressed that to provide for an unduly long period would be onerous to the CONTRACTOR.

In case the Plant cannot be Started-Up within the period stipulated above, Article 26.8 has been added to allow the Plant to be Started-Up and tested with the CONTRACTOR's help but at additional cost, even if the Plant has passed the period stated in Article 26.7 without operation. It should be emphasized that if a Plant stays idle for a substantial time after Mechanical Completion, its subsequent performance will depend upon the maintenance of the Plant during the intervening period.

Article 27. Liquidated damages

Liquidated damages may be described as "lump-sum payments" by way of settlement for the breach of certain obligations under the Contract. Their objective is to give an incentive to the Contractor for the strict fulfilment of specific contractual duties. However, the payment of liquidated damages by the CONTRACTOR does not relieve him of his other responsibilities under the Contract (Article 27.5).

The PURCHASER should appreciate that if he were to contribute partially or fully to the CONTRACTOR's failure to discharge his obligations, the CONTRACTOR would be relieved of part or the whole of the liability for the payment of liquidated damages.

- 27.1 This Article provides liquidated damages for delay in the delivery of technical documents, in the timely supply of Equipment and Materials and, in text A, in the obtaining of Commercial Production (not in text B).
- 27.2 This Article provides liquidated damages for the non-fulfilment of the Penaltiible Guarantees (provided the Absolute Guarantees have been met) as required under the terms of the Contract. The failure by the CONTRACTOR to fulfil these specific obligations would result in the assessment and payment of liquidated damages in accordance with Articles 27.2.1 to 27.2.12.
- 27.3 In text A a time limit of 9 months after Initial Operation is set for the CONTRACTOR to complete the Performance Guarantee Tests, subject to agreed extension(s) for making repairs, after which liquidated damages are payable for delays. Any significant delay in stabilizing the Plant and in performing the guarantee test runs could affect production and the PURCHASER's profit and should, therefore, be subject to penalty. The penalty suggested is 1 per cent for each month of delay up to a maximum of 9 per cent of the Contract Price. By proposing the removal of this Article in text B, neither a time limit is set nor are liquidated damages payable.
- 27.4 This Article lays down that if within 18 months after Initial Operation the Absolute Guarantees have not been met, subject to agreed extensions, the PURCHASER has the right to obtain the help of a third party to rectify the Plant to enable it to meet its Absolute Guarantees, and all costs of modifications required are to be borne by the CONTRACTOR. The determination of costs should be made by mutual agreement through arbitration.

If the CONTRACTOR, through his own fault, is unable to demonstrate that the Plant can operate successfully within the period stipulated above, he is unlikely to make it do so. Hence, the PURCHASER should have the right to bring in a third party.

Article 28. Warranties

This Article provides the conditions of warranties for the Plant as a whole and for the sections of the Equipment, Materials, tools and supplies etc., that are incorporated in the overall Works. The warranties specified provide the basis for the Plant and Equipment etc. conforming to the technical specifications, engineering specifications, fabrication workmanship and materials.

- 28.2 The PURCHASER must be assured of the satisfactory and continuous operation of the Plant and Equipment and, accordingly, Article 28.2
- 28.4 requires the CONTRACTOR to warrant the Plant and Works for 12 months from the date of Provisional Acceptance (completion of Performance Guarantee Tests), or 30 months from the last date of shipment of Equipment if the Plant cannot be Started-Up for reasons beyond the CONTRACTOR's control. The conditions of warranty must apply to defects or failures of the Works or any parts of the Works owing to faulty or

improper design, manufacture etc., and the CONTRACTOR is bound under Article 28.3 to correct all such defects and failure without cost to the PURCHASER. The CONTRACTOR is also fully liable for all costs that may be incurred by the PURCHASER in connection with corrective work, rectification or modification.

- 28.5 This Article ensures that the replacement of Equipment is accomplished in as reasonably short a time as possible and provides for the commencement of new warranty periods for both repaired or replaced items for a further 12 months. In text A this is an "evergreen" warranty, for the failure of a part within 12 months and continues until the part is supplied, which lasts for 12 months or more. In text B this warranty period is limited to a maximum of 24 months.

Article 29. Rectification of defects and Modifications to the Works

This Article deals with the details for correcting defects and making Modifications to the Works. There are two periods when the PURCHASER's rights and the CONTRACTOR's obligations are affected. The first is the period up to the running of the Performance Guarantee Tests, and the second is the period when Rectifications and Modifications are required after a test has failed.

- 29.2 This lays down the procedures to be followed when a repair or
to Rectification of the Equipment is required, either before or after a
29.3 Performance Guarantee Test. The CONTRACTOR and the PURCHASER should agree on the method. The PURCHASER can make suggestions with the help of third parties, but in the final analysis the decision must be that of the CONTRACTOR.
- 29.4 After repairs or Rectifications have been carried out, the PURCHASER has the right to insist on new tests being run to ascertain that the parts have been properly repaired or rectified.
- 29.5 This Article deals with the method to be followed, and the liabilities of each party, if Equipment is to be replaced. It states that since the CONTRACTOR made the mistake in the first place, he should be responsible for the cost not only of replacement but also of erection at the Site, and of any Modifications to the Civil Works that may be required. However, the total costs to the CONTRACTOR on this account are fixed at an agreed maximum percentage of the Contract Price. The faulty Equipment is returned to the Contractor (after replacement). Article 29.5.1 lays out the procedure for the payment of duties in the eventuality of the replacement of Equipment.
- 29.6 If, after all the CONTRACTOR's efforts, the Absolute Guarantees still cannot be met, the PURCHASER, after giving due notice, may himself or with the help of third parties take all measures to correct the Works at the cost of the CONTRACTOR.

Article 30. Liabilities, set-off and waiver

This Article provides the basis of the liability to which the CONTRACTOR is subject and sets out the consequences in the event of failures, defaults or omissions under this Contract.

- 30.4 This Article limits the total liability of the CONTRACTOR to an expressed percentage of the total Contract Price (aside from reimbursement of monies under insurance policies), except for his obligation to meet the Absolute Guarantees and warranties. Consequently, the foregoing does

not restrict the CONTRACTOR's liability to make good defects or inadequacies for which the CONTRACTOR is liable pursuant to the other provisions in the Contract, particularly his liability for meeting the Absolute Guarantees. If the CONTRACTOR does not make good such defects or inadequacies the PURCHASER may make them good at his own discretion and the CONTRACTOR shall be liable to compensate the PURCHASER for such costs.

- 30.5 This Article exempts the CONTRACTOR from liability under the Contract for loss of future profits of the PURCHASER or for consequential loss to the PURCHASER arising from any reason.
- 30.6 This Article provides that, if the CONTRACTOR has failed within a reasonable time to rectify or make good any defect, after being required to do so by the PURCHASER, the PURCHASER may do so. Text A states that the PURCHASER may undertake the repairs as he deems fit at the CONTRACTOR's expense (in accordance with Article 29) in order to avoid production losses. Text B requires that such repairs should be undertaken only after giving due written notice to the CONTRACTOR indicating the exact details of the defects that the PURCHASER wishes to put right and only when the cost of such repairs is reasonable.
- 30.7 Text A provides that any bond, payment or undertaking given by the CONTRACTOR should not limit his liability under the Contract, particularly if the liability exceeds the bond or payment, for customarily the performance bond may be limited to only 10 to 15 per cent of the Contract Price and the actual non-performance costs may be much more. Text B suggests that the whole Article should be removed because it is too general and not specific enough, and also covers payments and undertakings apart from bonds.
- 30.8 This Article covers the right of set-off in favour of the PURCHASER. Text A gives this right to the PURCHASER provided that he has a legitimate claim against the CONTRACTOR that has not been satisfied under the Contract. However, the PURCHASER is obliged to inform the CONTRACTOR who has the right, within a specified period, to go to a court of competent jurisdiction before the right of set-off may be invoked. Text B does not permit any set-off by the PURCHASER on the contention that payments are made on a work-progress basis and that the CONTRACTOR is required to submit performance bonds. It should be noted that there can be cases where the right of automatic set-off is not permitted either by law or by the terms of the financing arrangements.

Article 31. Taxes and levies

This Article deals with taxes and levies and particularly income or corporate taxes. Some contracts provide for all taxes (including income taxes on the CONTRACTOR's work) being paid by the PURCHASER. This arrangement may become complicated under certain conditions or, in some cases, may be unlawful. In such cases, taxes must be included in the CONTRACTOR's price. Nevertheless, it is suggested that both parties obtain the services of a competent tax expert to advise them.

- 31.1 This Article lays down that the CONTRACTOR is fully responsible for all taxes outside the PURCHASER's country including licence fees, royalties, Equipment and Materials supplied, and the CONTRACTOR's Services abroad.

- 31.2 The CONTRACTOR's liability for taxes in the PURCHASER's country should be drawn up on a case-to-case basis taking into account the provision and requirements of tax laws, the existence of an agreement, if any, between the country of the PURCHASER and the country of the CONTRACTOR for the avoidance of double taxation etc.

It would be reasonable to assure the CONTRACTOR a fee for his Services net of taxes that does not vary with changes in the tax situation. In such cases, it would be appropriate for the fee to be indicated in the Contract as being net of taxes and for the PURCHASER to take on the tax liability. However, in some countries, the tax laws require every recipient of income to be liable for the payment of taxes. In such cases, it is customary for the parties to gross up the payment due to the CONTRACTOR after providing for the prevailing rate of taxation. However, problems could arise in cases where the rate of taxation is altered to the disadvantage of the CONTRACTOR.

Therefore, care should be taken to ensure that the CONTRACTOR is insulated from changes in the tax laws; otherwise he is likely to build into the Contract Price a contingency to cover the risk of tax variations. Efforts should also be made by the parties to minimize the tax burden, and care should be taken to ensure that whenever the PURCHASER has taken on the tax liability, the CONTRACTOR reimburses the PURCHASER with any tax saving that he may have in his country, particularly from double-taxation laws.

Since tax provisions vary significantly from country to country, this Article has to be drawn up by the parties concerned and hence, it has been left blank in the model form of Contract although self-explanatory footnotes have been added.

Article 32. Suspension of Work

This Article governs those situations where for some reason all or part of the Work under the Contract is required to be suspended. Article 32 provides that, in the event that a suspension period is unspecified, the PURCHASER shall specify it in writing within 45 Days from the first Day of suspension. During this period the CONTRACTOR is not allowed to remove from the Site any Materials or part(s) of the Works without the permission of the PURCHASER (Article 32.3).

- 32.4 These Articles cover the payments due in the event that the suspension to period does not exceed 90 Days (Article 32.4), is in excess of 90 Days
32.6 (Article 32.5) or, in text A, exceeds 365 Days, and in text B exceeds 180 Days (Article 32.6). In the event of suspension(s), the PURCHASER is required to grant commensurate extension(s) of time to compensate the CONTRACTOR for losses of time affecting the Contract schedule. Furthermore, payments and/or reimbursements should be defrayed by the PURCHASER in the event that the CONTRACTOR reasonably justifies his additional costs suffered as result of the suspension. In any event, the right to go to arbitration is preserved to settle disputes arising from these circumstances.
- 32.7 The validity of the Contract would not be affected in circumstances of suspension for the parties are required under this Article to make endeavours to resume Work as soon as possible.

Article 33. Termination or cancellation of the Contract

This Article specifies the conditions upon which termination of the Contract may occur, and draws a distinction between the situations in which termination can take place and those in which cancellation of the Contract may be made.

It should be stressed that the circumstances that may result in the termination of the Contract under Article 33 do not include any of the occurrences that are covered by force majeure, as defined in Article 34, except under Article 34.5 where termination can be contemplated. The PURCHASER should realize that the right to terminate ought not to be abused and only conditions of severe magnitude might merit consideration of termination. In a financed Contract, the termination of the Contract would be governed by the conditions attached to the financing arrangements.

33.3 It is important to acknowledge the rights of the parties in a situation and where termination notice has been given. Article 33.3 covers the basis
33.5 for legitimate payments due to the CONTRACTOR, which shall be discharged. Article 33.5 establishes the right of the PURCHASER to receive certain documents that are necessary for completing the Contract using the technology acquired.

Articles 33.5.1 and 33.5.2 enumerate the documentation to be received by the PURCHASER in the event of termination. In Article 33.5.1, under text A, the PURCHASER has the right to receive the process licensor's documentation to the extent that he has made payments pursuant to Articles 20.2. In text B, this is to be mutually agreed on a case-to-case basis, based upon whether the PURCHASER is entitled to the licence or not and taking into account the stage at which the Contract is terminated.

In Article 33.5.2.2, under text A, the PURCHASER is entitled to receive all the engineering calculations (print-outs) made by the CONTRACTOR up to the date of termination. In text B, this Article is removed because the CONTRACTOR is not in a position to give all his detailed engineering calculations, except those available at the Site.

33.7 The PURCHASER's right to cancel the Contract stems from situations where the CONTRACTOR has gravely defaulted or delayed execution of the Work, or has been involved in circumstances resulting in insolvency or bankruptcy, or where he has abandoned the Work.

In Article 33.7.5, text A gives the PURCHASER the right to cancel the Contract if proper disclosures, according to Article 40, are not made by the CONTRACTOR. In text B, this Article is removed.

Article 34. Force majeure

The concept of force majeure as expressed in this model form of Contract is defined in Article 34.1. The party invoking force majeure is obliged to take all reasonable steps to overcome the circumstances of force majeure to the degree possible in order to facilitate the execution of the Contract.

However, if force majeure circumstances prevent or continue to delay the performance of obligations, the party affected is obliged to give appropriate notice specifying the conditions constituting force majeure. In some instances, proof may be required by the other party that conditions of force majeure do in fact exist.

- 34.1 Since the definition of force majeure could differ in different jurisdictions, certain causes of force majeure that could be encountered are enumerated in Article 34.1. These include strikes or lock-outs, except where it is within the power of the party invoking the force majeure to prevent them.
- 34.5 This Article covers the options that the parties have in the event that force majeure continues uninterrupted for a period of 9 months. Text A requires the parties, in cases where force majeure extends beyond 9 months, to seek arbitration if they are unable to amend the terms of the Contract to cover prevailing force majeure circumstances or to reach an agreement to terminate the Contract. When the implementation of the Contract has been affected by force majeure, and not for any other reason within the control of either party, the parties should not have the unilateral right to terminate the Contract and even the decision to terminate the Contract should be by mutual agreement.
- Text B, however, gives the parties the right to terminate the Contract in the event that force majeure has continued for a period beyond 9 months and the parties are unable to come to an agreement to amend the terms of the Contract because of the prevailing force majeure situation.
- 34.6 This Article acknowledges that the PURCHASER's inability to make payments under the Contract shall not be claimed to be or considered to be a legitimate force majeure within the scope of this Contract. In cases of unusual circumstances the right to arbitration is preserved.

Article 35. Language governing the Contract

This Article governs the language to be used in the Contract. It has been the practice to write contracts in an internationally recognized language, employing terms and expressions commonly used and understood by the contracting parties.

In cases where the Contract is written in two versions using different languages, the official version should be specified in this Article.

Article 36. Applicable laws and conformity with local statutes

- 36.1 This Article deals with the laws that shall be applicable to the Contract. Normally the laws would be those of a neutral country but in some countries, particularly where public-sector projects are concerned, only the laws of the PURCHASER's country may be permitted. Hence, this Article should be considered on a case-to-case basis.
- 36.2 This Article covers the consequences of any laws enacted in the PURCHASER's country after the Effective Date of the Contract and lays down a procedure for modifications, if required.

Article 37. Settlement of disputes and arbitration

This Article deals with the settlement of disputes, which has been particularly detailed in the model form of Contract so that Article 37 can, to the extent possible, stand on its own merits and permit (through an annexure to be formulated later) an ad hoc arbitration that may be quicker and cheaper than existing methods. Alternatively, Article 37 provides for the use of the

procedures of an agreed arbitration court such as the International Chamber of Commerce. In this case, the applicable rules of procedure should be specified in a new annexure.

In all cases, the model form of Contract calls for an attempt at reconciliation before formal arbitration. In the first instance the parties are required to nominate a Neutral Independent Person to reconcile any dispute. In case the parties cannot agree to a Neutral Independent Person, or the differences cannot be reconciled within 6 months, the parties shall proceed to arbitration.

As has been pointed out above, the model form of Contract recognizes attempts at reconciliation before formal arbitration. However, should it become necessary, arbitration should be resorted to before any legal or equitable proceedings are instituted, as under the laws of some countries it may not be possible to resort to arbitration, once legal proceedings have been instituted.

- 37.6 It is agreed that during arbitration proceedings both parties shall carry on their obligations under the Contract and continue the work on the disputed portion provided that, if the CONTRACTOR claims additional costs, the PURCHASER shall give him a bank guarantee (Article 37.6.1) covering such costs but payable only at, and to the extent of, the arbitration award in favour of the CONTRACTOR.
- 37.8 It is suggested that the venue of arbitration should be in a neutral country.

Article 38. General provisions

This Article consists of provisions of a general nature common to contracts of this type.

- 38.7 This Article gives the PURCHASER the right to sell the Products in any market without restrictions being imposed by the CONTRACTOR. However, in some cases, licensors, particularly when they are producers themselves, may impose marketing restrictions on products manufactured under their licence. This situation should be discussed and clarified at the tender stage.

Article 39. Notices and approvals

This is a standard Article dealing with the addresses to which notices are to be sent. It also indicates (Article 39.3) that all approvals required under the Contract shall be in writing.

Article 40. Disclosures

- 40.1 This Article lays down that no commissions should be received by the CONTRACTOR from any Vendor from whom procurement is being made on behalf of the PURCHASER, and if any are received, they should be refunded to the PURCHASER.
- 40.2 Text A of this Article prescribes that no commission should be paid to third parties, except the bona fide agents of the CONTRACTOR in the PURCHASER's country, in relation to the award of the Contract. Even when payments are made to agents in the PURCHASER's country, the CONTRACTOR is required to disclose details of such payments to the

PURCHASER, for there have been instances in developing countries of agents using a part of their commission to influence the award of contracts to particular parties.

Text B stresses that in order to protect the CONTRACTOR's commercial interests and activities, the CONTRACTOR should not be required to disclose his financial arrangements with his bona fide agents. However, the need is recognized to prevent the CONTRACTOR from paying a fee or commission to any employee of the PURCHASER in relation to the award of the Contract.

Part Two

TEXT OF THE MODEL FORM OF SEMI-TURNKEY CONTRACT

III. TEXT OF THE MODEL FORM OF SEMI-TURNKEY CONTRACT

ARTICLE 1

Definitions

Unless the context otherwise requires, the following expressions shall have the following meanings assigned to them in this Article.

- 1.1 "PURCHASER" shall mean the party named as such in this Contract or his successors or permitted assigns.
- 1.2 "CONTRACTOR" shall mean the party named as such in this Contract or his successors or permitted assigns.
- 1.3 "Contract" shall mean this Contract (together with the annexures) entered into between the PURCHASER and the CONTRACTOR for the execution of the Works howsoever made, together with all of the documents to which reference has been made in the Contract documents, including such amendments and/or changes (properly made from time to time by mutual agreement between the parties) to the documents constituting this Contract.
- 1.4 "Absolute Guarantees" shall mean the Performance Guarantees of the Ammonia and Urea Plants as set forth in Articles 26.2.1, 26.3.1 and annexures XVI and XXX.
- 1.5 "Act of Bankruptcy" shall have the meaning assigned to it by the bankruptcy acts in the applicable jurisdiction under governing laws.
- 1.6 "Approval" shall have the meaning ascribed to it in Article 39.3.
- 1.7 "Battery Limits" shall be defined as the overall limits which include the facilities embodying the Plant as detailed in annexure III.
 - 1.7.1 The Battery Limits of each individual plant (the Ammonia and Urea Plants) shall include all the facilities existent between the points at which raw materials and influent streams enter the Plant and the points at which finished materials and effluent streams leave the Plant and shall be deemed to include, except where otherwise provided, the storage for the Products.
- 1.8 "Civil Works" shall mean all the buildings, roads, foundations and any other work requiring civil engineering.
- 1.9 "Commercial Production" shall mean the continuous production of specification-grade ammonia and urea at the rate and for the period specified in Article 18.7.
- 1.10 "Commissioning" shall mean the activities necessary to take the Plant from the stage of Initial Operation to the continuous production of specification-grade Products.
- 1.11 "Confidential Information" shall mean the confidential information defined as such in Article 7.

- 1.12 "CONTRACTOR's Equipment" shall mean any equipment, sheds, materials, tools, stores or things brought on to the Site by or on behalf of the CONTRACTOR for the execution of the Contract, but not for permanent incorporation in the Plant.
- 1.13 "Contract Price" shall mean the total amount referred to in Article 20.1 subject, however, to any valid adjustments made through the application of the relevant contractual provisions provided.
- 1.14 "CONTRACTOR's Services" shall mean the services to be provided and the work to be done by the CONTRACTOR in the execution of the Works, as set out in the Contract.
- 1.15 "Critical Items" shall mean all the Equipment specifically designated as such in annexure VIII.
- 1.16 "Day(s)" shall mean calendar day(s).
- 1.17 "Effective Date of the Contract" shall mean the date that the Contract comes into force in accordance with Article 8.
- 1.18 "Engineer" shall mean the person(s) or firm(s) appointed from time to time and designated by the PURCHASER as his representative with specified authority to review all work on the PURCHASER's behalf and to give such instructions and/or grant such approvals as may be necessary for the purposes of this Contract.
- 1.19 "Equipment" shall mean all the equipment, machinery, instruments, commissioning equipment and spares and all other items to be supplied by the CONTRACTOR for incorporation in the Plant.
- 1.20 "Final Acceptance" shall mean the acceptance by the PURCHASER of the Works in accordance with Article 18 and specifically Article 18.13 and the issue of a Final Acceptance Certificate.
- 1.21 "FOB", "FOR" and "CIF" shall have the meanings assigned to them in Incoterms 1953, published by the International Chamber of Commerce, as revised up to the signing of the Contract.
- 1.22 "Initial Operation" shall mean providing the first input of the feedstock to the Plant concerned.
- 1.23 "Materials" shall mean the chemicals, catalysts and other consumable materials to be supplied by the CONTRACTOR in accordance with annexures IX and XI.
- 1.24 "Mechanical Completion" shall mean the time when the physical construction of the Plant(s) has been completed, all mechanical tests as specified under annexure XX have been satisfactorily completed (in accordance with the detailed procedures as shall be agreed between the parties), and the Mechanical Completion Certificates of each of the Plants and inclusive of facilities within the Plants and all sections of the Off-Sites within Battery Limits have been issued.
- 1.25 "Modifications" or "Modify" shall have the meaning ascribed to them in Article 29 and shall in all cases cover the work and/or services of the CONTRACTOR within the scope of the Contract which require implementation by change order.

- 1.26 "Neutral Independent Person" or "Independent Consultant" shall mean a third party selected by the CONTRACTOR and the PURCHASER by mutual agreement to carry out functions in accordance with the Contract and, in particular, Article 37.
- 1.27 "Penaltiable Guarantees" shall mean the Performance Guarantees of the Plant(s) as set forth in Articles 26.2.2 and 26.3.2.
- 1.28 "Performance Guarantees" shall mean the Absolute Guarantees and the Penaltiable Guarantees.
- 1.29 "Performance Guarantee Tests" shall mean the test operation of each individual Plant and the Plant as a whole to be undertaken for the purpose of demonstrating the Performance Guarantees, as specified in Article 26 and annexure XXXI.
- 1.30 "Plant" shall mean the Ammonia Plant, the Urea Plant, the Off-Sites and the administrative, maintenance, laboratory and other facilities, as defined in this sub-Article and in the annexures, to be supplied by the CONTRACTOR under the terms of this Contract, to be constructed at the Site by the PURCHASER and in respect of which the CONTRACTOR's Services are to be provided.
- 1.30.1 "Ammonia Plant" shall mean the facilities for the production of ammonia, as described in annexure VIII.
- 1.30.2 "Urea Plant" shall mean the facilities for the production of urea, as described in annexure VII.
- 1.30.3 "Off-Sites" shall mean the facilities demarcated and indicated in the general annexures and the plot plan attached to annexure III.
- 1.31 "Pre-commissioning" shall include cleaning, testing and all other activities necessary to get the Plant ready for Initial Operation.
- 1.32 "Products" shall mean the ammonia and the carbon dioxide produced in the Ammonia Plant and the urea produced in the Urea Plant, of such quality as specified in annexure XVI.
- 1.33 "Provisional Acceptance" shall mean the Provisional Acceptance of the Plant by the PURCHASER and the issue of a Certificate of Provisional Acceptance in accordance with Article 18 after meeting the Performance Guarantees specified in Article 26 and annexures XVI and XXX.
- 1.34 "Ready for Operation" shall mean that the Plant(s) concerned have completed the Mechanical Completion Tests and is (are) ready for Initial Operation.
- 1.35 "Rectification" or "Rectify" shall have the meaning ascribed to them in Article 29 and shall in all cases cover work and/or services of the CONTRACTOR within the scope of the Contract which do not require implementation by change order and do not involve any increase in price.
- 1.36 "Site" shall mean the land upon which the Works are to be constructed as specified in annexure I.

- 1.37 "Subcontractor" shall mean any person or firm to whom any part of the CONTRACTOR's Services or the execution of any part of the Works is subcontracted by the CONTRACTOR.
- 1.38 "Start-Up" shall refer to the date by which the operations of Pre-commissioning and Commissioning shall have been completed and the Plant(s) commences (commence) the production of Product(s).
- 1.39 "Technical Documentation" shall mean the technical documents described in annexure XV to be supplied by the CONTRACTOR under the Contract and shall include all other technical documentation required to be supplied by the CONTRACTOR.
- 1.40 "Tonne(s)" refers (refer) to metric Tonne(s).
- 1.41 "Vendor(s)" shall mean the person or persons from whom the supply of any part of the Plant and in particular the spare parts is obtained by the PURCHASER in accordance with Article 10.
- 1.42 "Work(s)" shall mean the whole of the Work(s), Equipment, Plant (as defined in this Article) and matters and things to be done, furnished, performed, accomplished and provided by the CONTRACTOR (inclusive of his services under this Contract).

ARTICLE 2

Object of the Contract and scheduling of delivery

- 2.1 The object of this Contract is to establish a modern, reliable, efficient and integrated Plant for the production of ammonia and (prilled, uncoated) urea, together with the required utilities and Off-Sites required for the purpose of the Contract. The scope of the Contract covers a semi-turnkey supply, which includes the grant of licence and supply of know-how, the provision of basic and detailed engineering and basic civil engineering data, the supply of the Equipment and Materials, the supervision of the erection works, the supervision of the Commissioning and Start-Up of the Plant, and the demonstration of the capability of the Plant to produce Products continuously at a capacity of (1,000) Tonnes per Day of ammonia and (1,725) Tonnes per Day of urea with a stream factor of 330 Days per calendar year. The scope of the Contract also covers the provision by the Purchaser of land, infrastructure facilities, Civil Works, feedstocks and utilities, personnel for the erection, operation and maintenance of the Plant, and such other items of equipment, facilities and services which are not within the Contractor's obligations but are required for establishing the Plant and for carrying out the Performance Guarantee Tests.
- 2.2 The location of the Plant shall be at (name of town) in (country).
- 2.3 The Contract includes the provision of training services and facilities for the PURCHASER's personnel, both at the Site and elsewhere, to enable it to operate and manage the Works at optimum capacity and efficiency.
- 2.4 The time schedule(s) required to be maintained to complete the Plant on time shall be as follows and the CONTRACTOR and the PURCHASER shall take all the necessary steps as provided in the Contract. The periods referred to herein in respect of the time schedule(s) shall commence from the Effective Date of the Contract in each case.
- 2.4.1 Basic engineering and know-how documents including basic civil engineering data shall be made available to the PURCHASER from (2 to 8) months.
- 2.4.2 Construction of Equipment foundations and Plant buildings shall start in the (10th) month, and all major Plant buildings shall be completed (except for finishing) in the (24th) month. The buildings and foundations shall, however, be ready in time for machinery erection.
- 2.4.3 FOB delivery of Equipment (with the exception of the Critical Items) shall commence no later than in the (14th) month and shall end (95 per cent by value) no later than in the (24th) month.
- 2.4.4 Delivery FOB of Critical Items shall not exceed (26) months.
- 2.4.5 Erection of the Plant shall start in the (15th) month.

- 2.4.6 The Plant shall be mechanically completed by the (32nd) month, and shall be Started-Up within 2 months thereafter.
- 2.4.7 The Plant shall be in Commercial Production on or before the end of the (36th) month.
- 2.4.8 Training of the PURCHASER's personnel outside the Plant shall be completed by the (_____) month.

ARTICLE 3

Overall scope of work and division of responsibility

- 3.1 In pursuance of the objectives contained in Article 2, the scope of the work required for the establishment of the Plant is as follows:
- 3.1.1 Establishment of the design basis of the Plant.
 - 3.1.2 Supply of know-how and basic engineering, including but not limited to:
 - Process flow diagrams
 - Material and energy balances
 - Equipment data and specifications
 - Piping and instrument diagrams and specifications
 - Plant layout
 - Electric, steam and other distribution systems
 - Effluent and emission specifications
 - Operation manuals
 - Maintenance manuals
 - 3.1.3 The detailed engineering for the Plant.
 - 3.1.4 Establishment of the list of Equipment and Materials and identification of Critical Items.
 - 3.1.5 Pre-qualifying Subcontractors for the supply of Critical Items.
 - 3.1.6 Procurement of all Equipment and Materials for the Plant in accordance with but not limited to the itemized lists contained in annexures VIII, IX and XI.
 - 3.1.7 Inspection of Equipment during fabrication, on completion, and after packing, and providing certificates of inspection.
 - 3.1.8 Providing test certificates for Equipment wherever laid down under the laws of the country of fabrication and/or the laws of (PURCHASER's country).
 - 3.1.9 Packing and transportation consisting of:
 - 3.1.9.1 Packing of the Equipment and Materials in seaworthy/roadworthy packing, marking of the packages, and transport of the Equipment from the fabricators' workshops to the point of dispatch, FOB/FOR as the case may be.
 - 3.1.9.2 Transport of the Equipment and Materials from point of dispatch FOB/FOR to the Site, including loading and unloading at harbours and customs clearance, if any.
 - 3.1.10 Taking out all necessary insurance coverage.
 - 3.1.11 Purchasing and acquiring the Site.
 - 3.1.12 Clearing, levelling and the development of the Site.

- 3.1.13 Testing the soil characteristics of the Site, and in particular testing the points at which heavy loads are to expected.
- 3.1.14 Construction of roads within the Battery Limits.
- 3.1.15 (Optional.) Construction of railway sidings within the Battery Limits and connection to the national rail network.
- 3.1.16 Arranging for all telephone and other similar facilities for communications within the Site and from the Site to other places.
- 3.1.17 Construction of all Civil Works within the Battery Limits consisting of:
 - 3.1.17.1. Civil engineering design.
 - 3.1.17.2. Construction of the Civil Works.
- 3.1.18 Construction of housing for erection and Start-Up personnel.
- 3.1.19 Construction of housing for permanent staff and workers for the operation of the Plant.
- 3.1.20 Receipt and inspection of Equipment and Materials at the Site and making claims for insurance or for short supply, if required.
- 3.1.21 Storage of Equipment and Materials at the Site prior to erection.
- 3.1.22 Providing all erection equipment, tools and tackle and erection materials.
- 3.1.23 Erecting all Equipment.
- 3.1.24 Providing training for plant managers, plant engineers, plant operators, maintenance and administrative personnel.
- 3.1.25 Testing all erected Equipment individually, by section and as a complete Plant, and carrying out all Pre-commissioning procedures.
- 3.1.26 Supplying feedstock, chemicals and all other material inputs, including outside-purchased utilities, necessary for the Start-Up of the Plant.
- 3.1.27 Commissioning and Start-Up of the Plant, until Products are obtained.
- 3.1.28 Operation of the Plant from Start-Up until completion of the Performance Guarantee Tests for the Plant.
- 3.1.29 Conducting and completing the Performance Guarantee Tests.

- 3.1.30 (Optional.) Providing management of the operations of the Plant after Mechanical Completion and until satisfactory completion of the Performance Guarantee Tests and Provisional Acceptance of the Plant, pursuant to the provisions of Article 17.1.
- 3.1.31 (Optional.) Providing management assistance following Provisional Acceptance of the Plant until Final Acceptance as specified in Article 17.2.
- 3.1.32 (Optional.) Providing technical advisory services in accordance with terms and conditions to cover those services referred to in Article 17.7.

3.2 For each of the functions described in the scope of work above, the obligations of the CONTRACTOR and the PURCHASER (as expressed in Articles 4 and 5 and elsewhere in the Contract) and the responsibilities for co-operation, co-ordination, tests, guarantees, Commissioning and conditions of acceptance as laid down elsewhere in the Contract shall be as follows:

3.2.1 The PURCHASER shall be responsible for the work to be undertaken under Article 3.1.11 to 3.1.16, 3.1.17.2, 3.1.18 and 3.1.19. Unless otherwise agreed between the CONTRACTOR and PURCHASER, the PURCHASER shall also be responsible for the work under Article 3.1.17.

Text A

Text B

3.2.2 Unless otherwise agreed the CONTRACTOR shall be responsible for the design basis as stated in Article 3.1.1 above, and the CONTRACTOR also agrees and acknowledges that he shall accept final responsibility for the accuracy, suitability and adequacy of the information supplied by the PURCHASER, and shall ensure that the operational characteristics of the Plant are secure and guaranteeable.

3.2.2. The CONTRACTOR shall review the design basis laid down in annexures II and IV in accordance with Article 4.4.

3.2.3 The PURCHASER shall be responsible for the work to be undertaken under Articles 3.1.9.2, 3.1.20, 3.1.21, 3.1.22 and 3.1.26, however, with the assistance of and/or verifications by the CONTRACTOR whenever required as provided for particularly under Articles 4, 5 and 6, or elsewhere in the Contract.

3.2.4 The PURCHASER, the PURCHASER's personnel and/or parties appointed by the PURCHASER working under the supervision and direction of the CONTRACTOR shall undertake the work under Articles 3.1.23, 3.1.25, 3.1.27 and 3.1.28.

- 3.2.5 The CONTRACTOR and the PURCHASER shall be responsible for taking out the insurances referred to in Article 3.1.10, in accordance with Article 24.
- 3.2.6 The PURCHASER shall be responsible for providing the Start-Up feedstocks and other materials as contemplated under Article 3.1.26, subject to the CONTRACTOR giving adequate advance notification of the dates when they shall be required together with complete specifications of materials which may or may not be specified in the Contract, as provided in Article 5.14.
- 3.2.7 The CONTRACTOR shall be responsible for the work to be undertaken under Articles 3.1.2 to 3.1.8, 3.1.9.1 and 3.1.24. The CONTRACTOR shall be responsible for the supervision of the erection, testing, Commissioning and operation of the Plant until completion of the Performance Guarantee Tests, as stated in Articles 3.1.23, 3.1.25, 3.1.27 and 3.1.28 and for demonstrating the Performance Guarantee Tests pursuant to Articles 3.1.28 and 3.1.29 (utilizing the personnel of the PURCHASER).
- 3.2.8 (Optional.) The management assistance and technical services contemplated under Articles 3.1.30, 3.1.31 and 3.1.32 shall be embodied in separate agreements to be entered into by the PURCHASER and the CONTRACTOR. The CONTRACTOR shall execute such an agreement at the option of the PURCHASER on terms to be mutually established before the completion of the Performance Guarantee Tests.
- 3.3 In the event that any activity or work of the type necessary for the successful implementation of this Contract is not particularly mentioned in the scope of work above or in the specifications, drawings, or any of the annexures of this Contract, but becomes necessary to ensure the successful operation of the Plant according to the specifications laid down in the Contract and the intent thereof, such activity or work shall also become part of this Contract as if the same had been originally included in the scope or work. The PURCHASER and the CONTRACTOR shall mutually agree on the quantum of work to be undertaken by each party in such an eventuality, it being understood that the CONTRACTOR is obligated to supply all the Equipment for a complete plant within Battery Limits, except where otherwise provided in the Contract.
- 3.4 The PURCHASER and the CONTRACTOR may by mutual agreement amend or change the conditions governing the responsibilities or work to be undertaken. All amendments and/or changes to be incorporated in the terms of the Contract shall be properly made by duly constituted and authorized representatives of the parties herein, and such amendments and/or changes would constitute part of the Contract.

ARTICLE 4

Obligations of the CONTRACTOR

- 4.1 The overall obligations of the CONTRACTOR pursuant to this Contract and for specific items in the scope of the work and division of responsibilities are described more particularly in this Article, and in annexure VI, as well as in other relevant parts of this Contract.
- 4.2 The CONTRACTOR shall, commencing within 7 Days of the Effective Date of the Contract, proceed with the utmost diligence and care in carrying out all of the Services specified as his obligations in the Contract and provide such documentation indicated in annexure XV.
- 4.3 The CONTRACTOR shall execute the work in accordance with good engineering practice pursuant to the specifications and basis of the design stipulated in the Contract. The execution of the work shall be subject to such variations, changes and additions that may be required to be incorporated in accordance with the provisions of Article 15.

Text A

Text B

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| 4.4 The CONTRACTOR acknowledges that he has fully satisfied himself as to the nature and location and suitability of the Site, the applicable laws, agreements and regulations, the general and local conditions applicable to the CONTRACTOR's work, particularly those bearing upon physical and meteorological conditions at the Site, and all other matters which can in any way affect the CONTRACTOR's work, Services, obligations, or the costs thereof to the CONTRACTOR under this Contract. The CONTRACTOR has reviewed all exploratory work done by or for the PURCHASER and information presented in the drawings and technical specifications and other pertinent documentation. The CONTRACTOR shall review any other information provided by the PURCHASER, particularly bearing on transportation, disposal, handling and storage of Equipment and Materials, availability of water and power, uncertainty of climatic and soil conditions. Any failure of the CONTRACTOR to | 4.4 The PURCHASER shall provide the CONTRACTOR with information pertaining to the suitability of the Site, the applicable laws, rules and regulations, or import restrictions in (<u>PURCHASER's country</u>) that is available to the PURCHASER. The CONTRACTOR shall review all such information, and obtain from the PURCHASER such other information as he may consider necessary to carry out his work. |
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acquaint himself with all the necessary data and information shall not relieve him from his ultimate responsibilities under the Contract, and in any event shall not be cause for any claims for increases in the payments pursuant to the Contract.

4.4.1 The design basis for the Works is contained in annexures II and IV. However, this shall be reviewed by the CONTRACTOR. If the review by the CONTRACTOR shows inadequacies in the design basis, the PURCHASER and the CONTRACTOR shall meet to discuss changes in the Contract specifications and the resultant changes in the CONTRACTOR's obligations or price, if any. These changes will be embodied in a change order pursuant to Article 15.

4.4.2 If the soil tests conducted under Article 4.14 indicate that the load-bearing capacity is less than as indicated in annexure IV, the PURCHASER and the CONTRACTOR shall mutually agree on the resultant change and implications for the design of the Equipment, if any. Any changes in contractual obligations shall be embodied in a change order pursuant to Article 15.

4.5 The CONTRACTOR shall provide or obtain as the case may be the know-how for various processes from the process licensor(s) as follows:

Ammonia Plant	(<u>name of licensor(s)</u>)
Urea Plant	(<u>name of licensor(s)</u>)
(Specify any other, e.g. water treatment)	

and shall design the Plant in conformity with the basic engineering criteria of the process licensor(s). Documentation relative to all know-how and basic engineering provided by the CONTRACTOR or obtained from the licensor(s) shall be provided to the PURCHASER by the CONTRACTOR. The CONTRACTOR also hereby agrees that such documents referred to in this Article 4.5 shall cover and be based upon the commercially proven know-how available to the process licensor(s) (such documentation to cover the state-of-the-art of the know-how at the time of the signing of the Contract, or if mutually agreed to, at a later date) and that the detailed engineering shall be undertaken by the CONTRACTOR according to the latest design standards available and/or known to the CONTRACTOR at the time of design. The CONTRACTOR further specifically agrees to provide documentary evidence of the acceptance by the process licensor(s) of the conditions governing the supply of know-how and basic engineering referred to herein, and furthermore shall ensure that the process licensor(s) is (are) in full agreement with the requirements of Articles 7 and 33 of this Contract in connection therewith.

4.6 The CONTRACTOR shall undertake the detailed engineering of the Work(s) and shall perform the basic and detailed engineering and civil engineering of the Plant in order that:

- 4.6.1 The Plant shall constitute, when assembled, a technological entity, capable of producing the Products of the quality and quantity in accordance with the criteria and Performance Guarantees set out in this Contract and complying with the performance figures contained in this Contract.
- 4.6.2 The design work undertaken shall obligate the CONTRACTOR to place at the disposal of the PURCHASER all data and documentation required by the latter to carry out his obligations in accordance with Article 3 and Article 5, so that the Plant can meet the time schedules laid down in the Contract.
- 4.7 The CONTRACTOR shall carry out the engineering of the Plant(s) in accordance with the standards and codes laid down in Article 25 and annexure II. Where specialized design criteria are being used, the PURCHASER shall be advised of such specialized design codes. Notwithstanding the use of the codes and standards indicated in Article 25, if the CONTRACTOR is aware up to the date of signing the Contract of superior engineering codes or design methods, or where experience from previous contracts has resulted in proven improvements, the CONTRACTOR shall use such improved methods or codes in the design of the Plant and, where required, shall make these appropriate data and design methods available to the PURCHASER. The CONTRACTOR shall also take into account all safety rules/regulations normal to industry practice, and safety regulations prescribed in (PURCHASER's country), as stated in annexure II.
- 4.8 The CONTRACTOR shall be responsible for the selection of Subcontractors. Provided, however, that wherever specified in annexure VIII and/or annexure XII the Equipment so specified therein shall be obtained from the selected Subcontractors. The CONTRACTOR agrees and acknowledges that notwithstanding anything to the contrary expressed, the CONTRACTOR shall assume complete responsibility for all the terms of warranty and guarantee provisions and such other criteria established by this Contract for the Equipment and Materials.
- 4.9 The CONTRACTOR shall be responsible for the supply of the complete Equipment and Materials in accordance with Article 12 and as expressed elsewhere in this Contract. The list of Equipment as well as Materials in annexures VIII, IX, X and XI shall represent supply from the CONTRACTOR, which together with annexure XIII (with the exclusions therein), to be provided by the PURCHASER, shall represent the complete Plant. The CONTRACTOR shall establish and submit to the PURCHASER a more complete list of Equipment and Materials to be procured under this Contract, within 4 months from the Effective Date of the Contract. Any additional item(s) required but not specified in annexures VIII, IX, X and XI shall be supplied by the CONTRACTOR. The CONTRACTOR shall supply a complete Plant for the production of (1,000) Tonnes per Day of ammonia and (1,725) Tonnes per Day of urea, together with all the specified Off-Sites within the Battery Limits as specified in annexure III, excluding those items which are the PURCHASER's responsibility as specified in Article 5 and other exclusions as may be expressed in the Contract.

- 4.10 The CONTRACTOR shall ensure that all supply of Equipment under the Contract is undertaken so as to enable the Plant to meet the objectives stated in Article 2, and the time schedules contained in annexure XV.
- 4.11 The CONTRACTOR shall undertake, in association with the PURCHASER, the procurement of spare parts, in accordance with the provisions of Article 10 and annexure XXVI of this Contract.
- 4.12 The CONTRACTOR shall inspect all Equipment in accordance with Article 14 and arrange for all test certificates and shall arrange for all packing, export permits and transportation FOB to the point of dispatch.
- 4.13 The limitations as to the size and weight of packages at the port of entry and to the Site are contained in the annexures to this Contract, and the CONTRACTOR shall design the Plant and procure the Equipment accordingly.
- 4.14 While design soil conditions are contained in annexure IV of the Contract, the PURCHASER and CONTRACTOR shall agree upon the soil tests to be carried out. The CONTRACTOR shall supervise the soil tests carried out at points where heavy loads are to be expected, and shall also review all load tests. If the results of the soil tests indicate a bearing capacity different from that contained in annexure IV, the CONTRACTOR and the PURCHASER shall review this in accordance with Article 4.4.2.
- 4.15 The CONTRACTOR shall check the detailed design and material specifications for Civil Works submitted by the PURCHASER for the CONTRACTOR's review, for compliance with the specifications and drawings supplied by the CONTRACTOR (inclusive of all pipe areas and supports and those exposed to corrosive agents/environments).
- 4.16 The CONTRACTOR shall assist the PURCHASER in inspecting all Equipment at the Site and shall make arrangements for the speedy replacement of any shortages in receipt, or of any damaged Equipment.
- 4.17 The CONTRACTOR shall provide a list of erection equipment and materials required for the erection of the Plant.
- 4.18 The CONTRACTOR shall provide an adequate number of qualified personnel for the supervision of the Civil Works, erection and mechanical testing, and direction of Commissioning, Start-Up and Initial Operation of the Plant. The CONTRACTOR shall provide the necessary supervisory personnel as agreed to in annexure XXVII and shall ensure that all such personnel reach the Site in time so as to meet the requirements of the time schedule contained in annexure XV.
- 4.19 The CONTRACTOR shall supply all technical documentation required for the implementation of the project (and in particular the Technical Documentation stated in annexure XV) within the dates contained in annexure XV and, in any event in sufficient time to meet the requirements of the time schedules contained in annexure XV.
- 4.20 The CONTRACTOR's personnel at the Site shall direct and supervise the carrying out of all mechanical testing of the Plant and the CONTRACTOR's personnel shall assist in the Start-Up and operation of the Plant until completion of the Performance Guarantee Tests, under the direction of the CONTRACTOR.

- 4.21 While the PURCHASER shall provide all feedstocks, outside utilities, chemicals and other materials required for the operation of the Plant in accordance with Article 5.14, the CONTRACTOR shall supply a first charge of all catalysts, and the chemicals included in the CONTRACTOR's scope of supply in annexures IX and XI. The maximum quantity per hour and conditions of outside utilities (power, water etc.) shall be intimated by the CONTRACTOR to the PURCHASER within 9 months of the Effective Date of the Contract. The requirement for the Initial Operation of the Plant and for subsequent operation until Provisional Acceptance shall be intimated by the CONTRACTOR to the PURCHASER at least 9 months before the Mechanical Completion of the Plant.
- 4.22 The CONTRACTOR shall satisfactorily demonstrate to the PURCHASER the carrying out of the Performance Guarantee Tests in accordance with the provisions laid down in the Contract.
- 4.23 The CONTRACTOR shall commence the Performance Guarantee Tests of the Ammonia Plant and of the Urea Plant within (90) Days after the Start-Up of the respective Plant, but in any event not later than 6 months after Mechanical Completion of the respective Plant, provided that the PURCHASER has carried out his obligation to supply feedstock, outside utilities, chemicals and other agreed materials, and has provided the agreed number of operating and maintenance staff as well as an agreed complement of spare parts. The CONTRACTOR shall be allowed to extend this period and repeat the Performance Guarantee Tests in accordance with Article 26 and annexure XXXI.
- 4.24 The CONTRACTOR shall provide training to the PURCHASER's personnel in accordance with Article 16. The CONTRACTOR shall ensure that the amount and level of training (to be arranged by the CONTRACTOR within or outside the country of the PURCHASER) of the PURCHASER's personnel is adequate for the smooth operation and maintenance of the Plant in peak condition.
- 4.25 Throughout the performance of the Work the CONTRACTOR shall ensure that he, his employees, agents and invitees and his Subcontractors, their employees, agents and invitees while upon the Site, comply with all applicable laws, rules and regulations. The CONTRACTOR shall at all times maintain good order among his employees and shall not employ on the Site any person unfit, undesirable, or anyone not skilled in the work assigned to him.
- 4.26 The CONTRACTOR shall provide the PURCHASER with (_____) m² of office space and facilities and secretarial and typing services and telephone and telex services for the (number) of representatives of the PURCHASER assigned to the CONTRACTOR's offices.
- 4.27 The CONTRACTOR shall be responsible for taking out and keeping in force the various insurance policies which are his responsibility under Article 24.
- 4.28 Within 6 months of the Provisional Acceptance of the Plant (as specified in Article 18 of this Contract) the CONTRACTOR shall prepare for the Plant a set of "as-built" drawings or their equivalent.

- 4.29 (Optional.) The CONTRACTOR shall agree to grant an option to the PURCHASER for the execution of a separate agreement providing for technical advisory services to be provided by the CONTRACTOR to the PURCHASER upon mutually acceptable terms. Such an agreement shall become effective immediately following Provisional Acceptance of the Plant and shall have a duration of not less than (____) years. For the purposes of this Contract, the rights and obligations envisaged in such an agreement for technical advisory services shall be considered to be wholly separate and distinct from the liabilities and the responsibilities contained in this Contract. The terms of such an agreement shall include (but shall not be restricted to) any one and/or other of the following matters:
- 4.29.1 Provision of senior advisory personnel to conduct a half-yearly review of the Plant and the efficiency of its operation.
 - 4.29.2 Recommendations as to the improvement of Plant operations.
 - 4.29.3 Provision of answers to technical queries related to Plant operations.
- 4.30 At the option of the PURCHASER, the CONTRACTOR shall enter into a separate agreement with the PURCHASER (as provided in Article 3.2.7) to manage the Plant, or to assist the PURCHASER to manage the Plant, as the PURCHASER may desire, for a period of (____) months after completion of the Performance Guarantee Tests, on terms to be mutually agreed when the option is exercised.

ARTICLE 5

Obligations of the PURCHASER

- 5.1 The obligation to be undertaken by the PURCHASER shall be as defined in this Article and as elsewhere in the Contract. The PURCHASER shall carry out his obligations so as to enable the CONTRACTOR to meet the time schedules contained in annexure XV.
- 5.2 The PURCHASER undertakes to supply the information and data required as a basis for the design contained in annexures II and IV. The CONTRACTOR shall be obliged to review the information and data for the design basis so specified, and shall expeditiously advise the PURCHASER on the adequacy and relevance of the information and data provided.
- 5.3 The PURCHASER shall obtain and make available to the CONTRACTOR all necessary permits/approvals and/or licences from local authorities and/or the Government as may be necessary for the execution of the Contract inclusive of visas for the CONTRACTOR's personnel, entry permits etc.
- 5.4 The PURCHASER shall be responsible (unless otherwise agreed) for the transportation of Equipment from the port of dispatch 5/ (FOB) to the entry port (C and F) in the PURCHASER's country, for clearance at the port of entry and for transportation of the Equipment and Materials to the Site.
- 5.5 The PURCHASER shall be responsible for the payment of all customs duties.
- 5.6 The PURCHASER shall be responsible (unless otherwise agreed) for the transportation of Equipment and Materials from the port of dispatch (FOB) to the port of entry (CIF/FOR) in the PURCHASER's country, for clearance at the port of entry and for transportation of the Equipment and Materials to the Site.
- 5.7 The PURCHASER shall be responsible for the timely design and construction of all road, rail and other communications within the Battery Limits and for the Off-Sites.
- 5.8 The PURCHASER shall be responsible for carrying out soil tests. The CONTRACTOR shall, however, indicate the points at which heavy loads are to be expected, and shall also supervise such work relating to load tests, evaluate the results and shall convey his consent as to the adequacy of the load-bearing and soil tests. However, in the event of the CONTRACTOR's disagreement with the results of such tests, then, the PURCHASER and the CONTRACTOR shall determine the future course of action. The PURCHASER shall give at least (45) Days notice to the CONTRACTOR of the date on which such tests are to be commenced.
- 5.9 Except where otherwise agreed between PURCHASER and CONTRACTOR, the PURCHASER shall be responsible for the design of all Civil Works. For

5/ If transportation is by rail, appropriate changes should be made.

this purpose, the CONTRACTOR shall ensure the timely supply of Technical Documentation relating to the design of the Civil Works in accordance with annexure XV.

- 5.10 The PURCHASER shall be responsible for the construction of all Civil Works.
- 5.11 The Plant shall be erected by the PURCHASER or by such other party/parties appointed by the PURCHASER (from a list of pre-qualified parties mutually agreed between the CONTRACTOR and the PURCHASER), under the supervision of the CONTRACTOR's personnel.
- 5.12 The PURCHASER, his personnel and or agents shall carry out all reasonable instructions issued by the CONTRACTOR in regard to erection, Start-Up and Commissioning of the Plant.

Whenever in the opinion of the CONTRACTOR, the failure of the PURCHASER, his personnel and/or agents would have implications on the timely completion and satisfactory performance of the warranties and guarantees, the CONTRACTOR shall notify the PURCHASER in writing. This shall be discussed in the co-ordination meetings contemplated under Article 6.9.

In the event that the necessary corrective action is not carried out by the PURCHASER, the CONTRACTOR's obligations in regard to the guarantees and warranties shall consequently stand modified to the extent that the CONTRACTOR's instructions have not been carried out.

- 5.13 Whenever any approval(s) are required from the PURCHASER under the provisions of this Contract, such approval(s) or reasons for withholding such approval(s) shall be conveyed to the CONTRACTOR within (___) Days of receipt unless otherwise provided in this Contract. If no reply is received from the PURCHASER within the period specified, such items submitted for approval shall be deemed to be approved.
- 5.14 The PURCHASER shall provide feedstocks, outside utilities, chemicals and other materials required for the Start-Up, operation and maintenance of the Plant, unless otherwise specifically stated to be the responsibility of the CONTRACTOR in the Contract. The CONTRACTOR shall be obligated to advise the PURCHASER of the requirements for the supply of outside utilities, chemicals and other materials in accordance with the requirements of Article 4.21.
 - 5.14.1 The feedstocks shall be in accordance with the specifications contained in this Contract or with such deviations as have been specified in this Contract. In the event of broader deviations, the parties hereto shall determine the technical changes required, if any, and this may constitute the basis for a change order under Article 15.
- 5.15 The PURCHASER shall provide operations and maintenance personnel for the Start-Up and operation of the Plant under the supervision of the CONTRACTOR throughout the period from the beginning of the mechanical testing of the Equipment until the date of Provisional Acceptance of the Plant, in adequate numbers and competence commensurate with the

requirements of manning, which requirements are to be developed by the CONTRACTOR in the form of a manpower and qualifications chart, which is to be agreed by the PURCHASER.

- 5.16 The PURCHASER shall delegate for training such personnel as are required to be trained under annexure XVIII of the Contract.
- 5.17 The PURCHASER shall provide the CONTRACTOR and his personnel deputed to the Site with such facilities as are detailed in annexure XVIII.
- 5.18 The PURCHASER shall be responsible for making all payments to the CONTRACTOR in accordance with the provisions of this Contract.
- 5.19 In connection with the procurement of Equipment and Spare Parts under Article 10, the PURCHASER shall be responsible for making all payments to the Vendors, in accordance with the procurement purchase orders issued to them in the name of the PURCHASER, on the advice of the CONTRACTOR.
- 5.20 The PURCHASER shall provide the CONTRACTOR with office space, secretarial facilities and typing services for the CONTRACTOR's personnel assigned to the PURCHASER's office or to the Site.
- 5.21 The PURCHASER shall take out and maintain the insurance policies which are his specific responsibility as defined in Article 24.

ARTICLE 6

Co-operation and co-ordination between
the CONTRACTOR and the PURCHASER

- 6.1 The parties to this Contract hereby agree to undertake all reasonable co-operation to implement the Works as stipulated in the Contract. The parties to the Contract through their designated representatives shall meet periodically to take stock of the progress of Work, and suggest ways and means to improve the operations and to expedite the Work and resolve outstanding issues between the parties. Minutes of meetings shall be recorded and circulated for confirmation and necessary action.
- 6.2 The PURCHASER and the CONTRACTOR shall each appoint a project manager to co-ordinate and monitor the Work under this Contract with permission to act in accordance with specific terms of authority.
- 6.3 All notices, instructions and decisions on the meetings shall be given in writing. Minutes of meetings between the CONTRACTOR and the PURCHASER or their authorized representatives held at the Site, or in the office of the PURCHASER or the CONTRACTOR, after confirmation, shall have the same effect as notices in writing.
- 6.4 The CONTRACTOR shall submit drawings, Equipment specifications, and other documents required for approval or distribution to the PURCHASER under this Contract within the time limits specified in annexure XV. The PURCHASER shall return such drawings, specifications and documents within the period specified in Article 5.13.
- 6.5 Within 30 Days from the Effective Date of the Contract, a meeting shall be held in (PURCHASER's country) between the CONTRACTOR and the PURCHASER to discuss all matters of common interest, including but not restricted to, the finalization of the co-ordination procedure, the detailed time schedule and a critical examination of the design basis.
- 6.6 If any changes are made in the design basis, these shall be embodied in a document in accordance with Article 15.
- 6.7 The co-ordination procedure shall include but shall not be limited to:
- 6.7.1 Procedure for giving instructions, decisions and approvals.
 - 6.7.2 Assignment of responsibilities to the project managers and engineers of both the CONTRACTOR and the PURCHASER.
 - 6.7.3 Procedure for submission of drawings, Equipment specifications and other documents as may be required for approval.
 - 6.7.4 Procedure for approval on behalf of the PURCHASER.
 - 6.7.5 Procedure for accounting the invoicing for the payments receivable by the CONTRACTOR, in accordance with Article 20.
 - 6.7.6 Procedure for approving and effecting payment to the CONTRACTOR pursuant to Article 20.

- 6.7.7 Address lists and telephone numbers of the project managers and/or engineers of the CONTRACTOR and the PURCHASER responsible for any work under this Contract.
 - 6.7.8 Procedure for drawings and documents distribution for the CONTRACTOR and the PURCHASER.
 - 6.7.9 Procedure for the approval of technical specifications where not specified in the Contract.
 - 6.7.10 Procedure for the furnishing of Subcontractor's lists or sources of procurement of Equipment as may be necessary.
 - 6.7.11 Limitation of authority relative to Contract amendments and/or modifications.
 - 6.7.12 Division of responsibilities for the provision of permits and approvals (as more particularly referred to in Article 5.3) with a clear delineation of the specific responsibilities for obtaining necessary permits, approvals, on the part of the PURCHASER and the CONTRACTOR respectively.
- 6.8 Within (4) months from the Effective Date of the Contract, a further meeting shall be held at (PURCHASER's country) between the CONTRACTOR and the PURCHASER to discuss the progress of Work completed up to that time. This meeting shall, in accordance with the Contract, review and finalize the following listed matters and those items that are not yet concluded:
- 6.8.1 The detailed Plant layout and the line drawings of the buildings.
 - 6.8.2 The final list of Equipment, including sizes, materials of construction, and Subcontractors who have been already identified.
 - 6.8.3 The critical path network, which shall be prepared by the CONTRACTOR.
 - 6.8.4 Any problems arising from the detailed soil investigations.
 - 6.8.5 Establishment of the procedure and details for training of the PURCHASER's personnel.
 - 6.8.6 The co-ordination procedure referred to above in Article 6.7 shall be revised as required in accordance with the agreed minutes of the meeting referred to above, and shall thereafter be finalized.
 - 6.8.7 Procedures for customs clearance and payment of import duties and taxes etc.
 - 6.8.8 Procedure for clearance by the PURCHASER of the CONTRACTOR's personnel coming to the Site.
 - 6.8.9 The method agreed for computation of overtime, if applicable.

- 6.8.10 Facilities to be provided to the CONTRACTOR's personnel at the Site by the PURCHASER.
- 6.8.11 The CONTRACTOR shall prepare for discussion at the meeting a detailed list of technical specifications of the Equipment as well as layout and piping and instrumentation diagrams, where such diagrams have not been previously submitted to the PURCHASER. Such specifications shall conform to the technical specifications contained in annexure VIII. Where the CONTRACTOR requests deviations, he shall obtain the PURCHASER's approval at the meeting.
- 6.9 As soon as construction at the Site commences, review meetings shall be held at the Site regularly to review the progress at the Site, to estimate the work done for the purpose of maintaining the critical path network (Article 11) and to discuss and settle outstanding issues. Costs in connection with any review meetings shall be borne by each party for its own personnel. All office facilities shall be provided by the PURCHASER.
- 6.10 The design services to be undertaken by the CONTRACTOR shall be undertaken entirely from his offices at (agreed places) and the prior approval of the PURCHASER shall be required to carry out any part of the work at other offices.
- 6.11 The PURCHASER shall have the right to review the completed Work of the CONTRACTOR in the CONTRACTOR's offices so as to monitor the progress and status of the Work. Such review shall be reasonable both in scope and time so as not to interfere unduly with the CONTRACTOR's Work.
- 6.12 The CONTRACTOR shall submit drawings, Equipment and Material specifications, and other documents, where required, for approval or distribution to the PURCHASER under this Contract. The PURCHASER shall respond with such approval or disapproval as required (with reasons to be indicated if certain of the requirements under the Contract do not appear to have been met with technically and/or commercially) or suggest modifications within a period of (____) Days after the date of submission, after which period such of these documents as require approval shall be deemed to be approved.
- 6.13 In the event that the PURCHASER requires changes, additions and modifications, these shall be reviewed by the CONTRACTOR within (30) Days of receipt and the provisions of Articles 15 and 29 shall apply. If the CONTRACTOR does not request a change order within (30) Days, it shall be assumed that the changes proposed by the PURCHASER are accepted.
- 6.14 In the event of a request for a review by the CONTRACTOR, the same terms as those applicable to Article 6.13 shall apply, and if urgent resolution of a matter is required the said (30)-Day period referred to in Article 6.13 shall be reduced as agreed between the parties.
- 6.15 Failure to reach agreement(s) at the review meeting(s) referred to in Articles 6.5 and 6.8 shall not in any way modify, alter, change or affect the contractual obligations of the CONTRACTOR and the PURCHASER.

- 6.16 The PURCHASER, if he so desires, shall have the right to assign up to a maximum of 4 Engineers to the design offices of the CONTRACTOR at (town) to be present during the detailed design of the Plant, and the procurement of the Equipment. The CONTRACTOR shall make available Technical Documentation, as defined in annexure XV, on the detailed design of the Plant and the procurement to the Engineers of the PURCHASER. All costs in connection with the travel and stay of the Engineers shall be borne by the PURCHASER.
- 6.17 The CONTRACTOR shall open an office at the Site, for which an agreed amount of space shall be provided by the PURCHASER. This office shall be managed within the jurisdiction of the Site manager of the CONTRACTOR, who shall be responsible for all liaison with the PURCHASER and for the supervision of erection. This office shall be opened in good time for checking the progress of Civil Works and before any of the Equipment and Materials arrive at the Site. For the purpose of co-ordination, the CONTRACTOR's Site manager shall liaise with the senior site representative of the PURCHASER. The PURCHASER and the CONTRACTOR shall agree at the time of the meeting contemplated under Article 6.8, the quantum of services and office personnel which shall be provided by the PURCHASER, at his cost, for the office of the CONTRACTOR at the Site.

ARTICLE 7

Proprietary rights and licences, secrecy and patents

- 7.1 The CONTRACTOR hereby affirms that he has obtained the unqualified right(s) to grant, and hereby does grant to the PURCHASER irrevocable, non-exclusive, non-transferable, fully paid-up licence(s) for use in the operation of all the processes during the lifetime of the Plant.
- 7.2 The CONTRACTOR shall ensure (through specific arrangements, with proof provided to the PURCHASER) that the process licensor(s) shall make available to the PURCHASER through the CONTRACTOR all basic process data (received by the CONTRACTOR from the process licensor(s)) relating to the Contract, and that all basic process documentation and all drawings prepared by the CONTRACTOR shall also be made available to the PURCHASER together with copies of all documents mentioned in Article 3.1.2. The CONTRACTOR also undertakes to make available to the PURCHASER the latest know-how and techniques available to the process licensor(s) at the time of the signing of the Contract and to the CONTRACTOR at the time of design.
- 7.2.1 In circumstances where the CONTRACTOR is unable or unwilling to make available to the PURCHASER the necessary process know-how and related information, the PURCHASER shall be free to approach the process licensor(s) directly, after giving notice in writing to the CONTRACTOR.
- 7.2.2 The PURCHASER shall also have the right to establish direct contractual arrangements with the said process licensor(s) in the event that the circumstances envisaged in Article 33 apply.

Text A

Text B

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|--|--|-----|---|
| 7.3 | The CONTRACTOR shall ensure that the process licensor(s) and the CONTRACTOR shall make available to the PURCHASER for a period of (8 to 10) years from the Effective Date of the Contract: | 7.3 | The CONTRACTOR shall ensure that the process licensor(s) and the CONTRACTOR shall make available to the PURCHASER for a period of (_____) <u>6</u> / years from the Effective Date of the Contract: |
| 7.3.1 Free of charge: developments and improvements in operating techniques, preventive maintenance and safety measures applicable to the Plant, and other relevant technical data and information which are made available free of cost by the process licensor(s) to other licensees within the same period. The PURCHASER shall also make available to the process licensor(s) and the CONTRACTOR, free of charge, any improvements in operating techniques which the PURCHASER shall have made in the same period. | | | |

6/ This figure is almost completely dependent on the licensing policy of the process licensor(s) (for text B only).

- 7.3.2 On payment: at a reasonable cost, and on agreed terms, including extension of secrecy agreements, rights to use proprietary processes developed or acquired by the CONTRACTOR including patented processes which could result in significant improvements in the capacity, reliability and efficiency of the Plant, and the quality of the Products.
- 7.3.3 The CONTRACTOR shall be required to undertake of his own accord the obligations set forth in Article 7.3.1 and Article 7.3.2 for the period specified in Article 7.3.
- 7.4 The CONTRACTOR shall undertake to enter into specific arrangements with the process licensor(s) to ensure the continued availability to the PURCHASER of confidential information pursuant to Article 7.3.
- 7.5 Following the Final Acceptance of the Plant, if the PURCHASER determines that modifications are required to be made to parts of the Plant which are covered by licences under this Article (which in his opinion would result in an improved or better Plant operation) or the PURCHASER requires an expansion or modernization of the Plant with incorporation of the latest developments of the licensed technology, then the PURCHASER shall first request in writing the CONTRACTOR to assist in accomplishing the necessary work. If the CONTRACTOR indicates in writing that he is unable, or is unwilling (for whatever reason) to undertake the same, then the PURCHASER shall have the right to employ or retain any other person, firm or agency, which is not a direct competitor of the CONTRACTOR (contractors holding the same licence shall not be considered as direct competitors), to undertake and complete such work referred to above and the PURCHASER shall not be held to be in breach of the secrecy provisions of this Article, provided, however, that the PURCHASER's new contractor agrees to the same secrecy provisions that the PURCHASER initially signed covering the technology of the CONTRACTOR and his licensor(s), with the secrecy termination date extended from the effective date of the new contract.
- 7.6 For the purposes of this Article, the grant to the PURCHASER of the right to use the processes referred to in Article 7.1 shall not be interpreted to mean a passing on to the PURCHASER of proprietary rights and title to the processes.
- 7.7 The PURCHASER agrees that he shall treat as confidential all process and technical information, proprietary know-how, patented processes, documents, data and drawings supplied by the CONTRACTOR (whether owned by the CONTRACTOR or otherwise) in accordance with this Contract, all of which is hereinafter referred to as "Confidential Information". The PURCHASER shall not without the prior approval of the CONTRACTOR divulge such Confidential Information available to a third party, other than when required by law, and provided that when so required by law, the PURCHASER shall advise the CONTRACTOR and provided further that the PURCHASER shall obligate the third party to treat such information as confidential whenever the third party is not already obligated by law to do so.
- 7.8 This Article shall not apply to such confidential information:
- 7.8.1 Which is or becomes a part of the public domain, through no fault of the PURCHASER;

7.8.2 Which is already known to the PURCHASER prior to disclosure by the CONTRACTOR and was not received directly or indirectly from the CONTRACTOR and/or the process licensor(s) and was obtained without any breach of confidentiality by other parties.

7.9 The PURCHASER shall not utilize the Confidential Information for any purpose other than for completing, operating, repairing, maintaining or de-bottlenecking the Plant(s). Similarly the CONTRACTOR shall not use or divulge any technical data or Confidential Information and drawings or technical documents given by the PURCHASER or his representatives to the CONTRACTOR except for the purposes strictly connected with this Contract.

7.10 The PURCHASER and the CONTRACTOR hereby agree that the obligations contained in this Article subject to Article 7.11 below, shall not be affected by a termination and/or cancellation of this Contract under Article 33 herein.

Text A

Text B

7.11 The PURCHASER's obligations pursuant to the provisions of Article 7.7 shall be valid for a period of (8 to 10) years from the Effective Date of the Contract for information received by him under Article 7.2 and for a period of (8 to 10) years from the date of disclosure to the PURCHASER of the information received by him pursuant to the provisions of Articles 7.3.1 and 7.5.

7.11 The PURCHASER's obligations pursuant to the provisions of Article 7.7 shall be valid for a period of (_____) 6/ years from the Effective Date of the Contract for information received by him under Article 7.2 and for a period of (_____) 6/ years from the date of disclosure to the PURCHASER of the information received by him pursuant to the provisions of Articles 7.3.1 and 7.5.

7.12 The PURCHASER shall give the CONTRACTOR prompt notice, in writing, of any claim or suit for patent infringement (referred to in Article 22.1) of which he has knowledge. The CONTRACTOR shall have sole charge and direction of the defence and disposal of such suit or action and the PURCHASER shall render all reasonable assistance but shall not be obligated to sustain any expenses. The PURCHASER shall have the right to be represented by legal counsel experienced in technology contracts of his own choice at his own expense.

7.13 The CONTRACTOR shall have the right to acquire immunity from suit and to make or cause to be made alterations at his own cost to the Plant to eliminate the alleged infringement provided such alteration does not prevent the Plant from meeting its Performance Guarantees mentioned in Article 26.

7.14 Neither the CONTRACTOR nor the PURCHASER 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.

Text A

7.15 The CONTRACTOR shall indemnify and hold harmless the PURCHASER in connection with any liability arising out of patent infringement or use of proprietary information referred to in Article 7.7 in accordance with the requirements of Article 22.1.

Text B

7.15 The CONTRACTOR shall indemnify and hold harmless the PURCHASER in connection with any liability arising out of patent infringement or use of proprietary information referred to in Article 7.7. In any event, the CONTRACTOR's total aggregate limit of liability under this Article 7 shall in no event exceed the following:

1. (amount) for any process for which he is the licensor and
2. The amounts recovered from third-party licensors for other processes.

Such limit of liability shall include all costs of defence both legal and engineering.

ARTICLE 8

Effective Date of the Contract

- 8.1 The Contract shall become valid upon the formal execution (signing) by the duly authorized officers of the PURCHASER and the CONTRACTOR in accordance with the applicable law. The Effective Date of the Contract shall be the date on which the PURCHASER's definitive advice to proceed is received by the CONTRACTOR, which shall occur when the last of the following requirements has been fulfilled:
- 8.1.1 Approval of the Contract by the Government of (country) where the Plant is to be located, such approval to be obtained by the PURCHASER, if required.
 - 8.1.2 Approval of the Government of (country) where the CONTRACTOR resides and has his principal place of business, such approval to be obtained by the CONTRACTOR, if required.
 - 8.1.3 The provision by the CONTRACTOR of the performance bond as provided under Article 21.1 to be effected simultaneously with the receipt of the advance payment by the CONTRACTOR, referred to in Article 21.2 and Article 8.1.4.
 - 8.1.4 The remittance of the advance payment by the PURCHASER as provided under Article 21.2, secured by the bank guarantee or surety bond as provided by the CONTRACTOR in accordance with Article 21.2.
 - 8.1.5 The PURCHASER has provided security for the remainder of the Contract payments on terms acceptable to the CONTRACTOR. 7/
- 8.2 In case the conditions of Article 8.1 above are not fulfilled within (___) Days following the date of signature of the Contract, the Contract execution time and the Contract Price shall be reconsidered and modified by mutual agreement to take into account variations of economic conditions in the CONTRACTOR's and the PURCHASER's countries during the delayed period. 7/

7/ Articles 8.1.5 and 8.2 can be used in specific cases.

ARTICLE 9

Assignment of the Contract

- 9.1 This Contract shall inure to the benefit of and be binding upon the parties hereto and each of their executors, administrators, curators, successors and assigns, however subject to the provisions of Article 9.2.
- 9.2 This Contract may not be assigned by the CONTRACTOR without the written consent of the PURCHASER.
- 9.3 The PURCHASER shall have the right to assign the Contract provided that such assignment does not increase the CONTRACTOR's liabilities over what they would have been if such assignment or transfer had not been made, and provided that the obligations of the PURCHASER are binding upon the assignee, as specified in Article 9.1, with assured guarantees for payment(s) under the Contract.
- 9.4 The CONTRACTOR shall not subcontract the whole or any part of the Work and/or services relating to the design of the Plant, procurement of the Equipment, Start-Up operations or any tests of the Plant and the Equipment (as defined in the Contract) without the written consent of the PURCHASER. Furthermore, the CONTRACTOR shall also strictly adhere to the requirements of Article 12.1.7 and as specified in annexures VIII and XII in connection with the supply of Critical Items by selected manufacturers and of machinery from specified manufacturers.
- 9.5 The CONTRACTOR may subcontract the supply of any part of the Equipment to be supplied under the Contract provided the PURCHASER is advised of all such subcontracts. Where subcontracts are to be awarded to firms or individuals in (PURCHASER's country), the PURCHASER shall have the right to pre-qualify all firms or persons bidding for such subcontracts. If the CONTRACTOR so desires, the PURCHASER shall pre-qualify such firms or persons at the time of the signing of the Contract.
- 9.6 The CONTRACTOR shall ensure that every subcontracting by the CONTRACTOR shall comply with all terms and conditions of this Contract.

ARTICLE 10

Procurement of spare parts

- 10.1 The CONTRACTOR shall supply to the PURCHASER the following services in connection with the procurement of a 2-years' requirement of spare parts, for use from the period after successful completion of the Performance Guarantee Tests, in accordance with annexure XXVI.
- 10.1.1 The CONTRACTOR shall submit a list of spare parts for the approval of the PURCHASER in any event not later than the 12th month after the Effective Date.
- 10.1.2 Where spare parts of a proprietary nature are to be procured, the CONTRACTOR shall obtain from the suppliers directly in the name of, and for, the PURCHASER a list of a 2-years' supply of spare parts as recommended by the supplier, for approval by the PURCHASER.
- 10.1.3 For all other spare parts to be purchased through the CONTRACTOR, the CONTRACTOR shall prepare bid documents on the basis of the technical specifications prepared by him and submit the same to the PURCHASER, for relevant approval, and shall issue the same to the Vendors.
- 10.1.4 The CONTRACTOR shall send the bid documents on behalf of the PURCHASER to the respective Vendors listed in the list of Vendors (which list shall be previously agreed upon between the parties).
- 10.1.5 The CONTRACTOR shall use his best endeavours to obtain from the Vendors a minimum of 3 competitive offers.
- 10.1.6 The offers received from the Vendors shall be evaluated by the CONTRACTOR who shall submit the bid evaluation with appropriate recommendations to the PURCHASER for the relevant final selection. The PURCHASER's final selection of the Vendor(s) shall be communicated to the CONTRACTOR within 20 Days from the date of the CONTRACTOR's submission of the bid tabulation.
- 10.1.7 After the selection of the Vendor(s) by the PURCHASER, the CONTRACTOR shall purchase the spare parts on behalf of the PURCHASER and on delivery dispatch them, in accordance with Article 12.

ARTICLE 11

Time schedule

- 11.1 The target date for different elements of the construction and completion of the Plant are indicated in the bar chart attached to annexure XV. It is, however, agreed that within 2 months after the Effective Date of the Contract (Article 8), the CONTRACTOR shall prepare a critical path network, which shall list significant activities connected with the completion of the Works.
- 11.2 The critical path network shall be computerized by the CONTRACTOR and at the first design meeting contemplated under Article 6.5, the methodology shall be laid down to obtain the necessary inputs required to maintain the print-outs and deviations on a monthly basis. The critical path network itself shall be changed and modified as soon as slippage exceeds 10 per cent. Computerized print-outs indicating all activities and the float on a monthly basis shall be made available to the PURCHASER by the CONTRACTOR.

ARTICLE 12

Delivery and execution of the Work(s)

12.1 Supply of Equipment and Materials

- 12.1.1 All Equipment and Materials to be supplied under this Contract shall be "brand-new" and in accordance with the provisions of this Contract, and all Equipment shall have been inspected and tested before dispatch in accordance with Article 14.
- 12.1.2 The Equipment to be supplied under this Contract is itemized in annexure VIII, and indicated on the flow sheet and general diagrams attached to the annexure. The Materials are itemized in annexures IX and XI.
- 12.1.3 The technical specifications for the Equipment and its materials of construction are contained in annexure VIII, and the CONTRACTOR shall supply such Equipment in strict conformance with the technical specifications and materials of construction specified. Any change in the materials of construction shall be subject to approval by the PURCHASER, which approval shall not be unreasonably withheld.
- 12.1.4 The CONTRACTOR acknowledges that the list contained in annexure VIII is not exhaustive and within 4 months after the Effective Date, the CONTRACTOR shall provide a revised list to the PURCHASER for his review and approval, particularly where the list or technical specifications and/or materials of construction have been altered. This list shall also indicate the auxiliary equipment, such as pipes, valves, instruments, electrical cables etc. which are to form part of the Plant.
- 12.1.5 Where materials of construction or technical specifications are not specified, the materials shall be such as are proven to be resistant to those chemicals with which they come into contact and the technical specifications shall be such as to ensure meeting the guarantees for the Plant.
- 12.1.6 Notwithstanding any approval(s) of the PURCHASER to any of the technical specifications and for materials of construction, the Equipment shall be of such quality and criteria so as to be able to meet the contractual obligations of the CONTRACTOR, particularly those relating to guarantees and warranties.
- 12.1.7 The PURCHASER and the CONTRACTOR agree that Critical Items of Equipment shall be obtained by the CONTRACTOR from selected Subcontractors only. The list of these items and the selected Subcontractors from whom they shall be procured are provided in annexures VIII and XII. The CONTRACTOR shall procure these items from such Subcontractors only, unless otherwise agreed upon in writing between the CONTRACTOR and the PURCHASER.
- 12.1.8 The CONTRACTOR shall include the cost of one charge of each catalyst required and one spare charge, within the Contract Price. The type and specifications of catalysts to be supplied are given in annexure IX.

- 12.1.9 The CONTRACTOR shall provide the type and quantities of chemicals identified as being within the scope of his supply in annexure XI.
- 12.1.10 The CONTRACTOR shall supply the first charge of refrigerant for all equipment requiring such charge.
- 12.1.11 The CONTRACTOR shall inspect the items of Equipment and Materials referred to in this Article 12.1 before dispatch and on receipt at the Site and if the PURCHASER so desires, inspection reports for such items of Equipment and Materials shall be made available to the PURCHASER.
- 12.1.12 The PURCHASER or his agent shall have the right to inspect Equipment and Materials during fabrication or before dispatch in accordance with Article 14.

12.2 Marking, packing and dispatch of Equipment and Materials

- 12.2.1 All Equipment and Materials shall be marked and the invoices prepared in accordance with the instructions of the PURCHASER, as specified in annexure XXIV and/or as provided to the CONTRACTOR not later than the review meeting contemplated under Article 6.8.
- 12.2.2 On dispatch of all Equipment and Materials, two copies of the invoices shall be sent to the PURCHASER, or his Site representative, by airmail so that the PURCHASER may promptly obtain any permits required. For Equipment and Materials requiring an extended customs clearance procedure (significant details of which shall be reasonably given by the PURCHASER prior to the review meeting contemplated under Article 6.8) the CONTRACTOR shall advise the PURCHASER sufficiently in advance, in order to obtain clearance.
- 12.2.3 The CONTRACTOR acknowledges that certain Equipment and Materials cannot be imported into the PURCHASER's country. The CONTRACTOR shall purchase such Equipment and Materials locally and shall not be entitled to any claim(s) for increased costs in making such purchases. The CONTRACTOR shall ensure that the requirement for the purchase of local materials does not adversely affect any of the criteria expressed in the specifications or warranties or guarantees under this Contract, and the CONTRACTOR shall be obliged to advise the PURCHASER in advance (of any such purchase being made) in any such eventuality. Permits required for local purchase(s) shall be obtained by the PURCHASER. In the event that import restrictions and/or exchange regulations are introduced after the Effective Date of the Contract, which affect the source of supply or substantially raise the price of imported materials, the PURCHASER and the CONTRACTOR shall meet to decide on the net result and effect of such restrictions, including the impact on the time schedule(s) or cost(s), if any.
- 12.2.4 The CONTRACTOR shall supply particulars of the manufacturer from whom the CONTRACTOR has purchased any Equipment and Materials, and shall supply a "certificate of origin" if required by the PURCHASER.

12.2.5 All Equipment and Materials shall be adequately and properly packed before dispatch to cope satisfactorily with the mode of transportation utilized (particularly to ensure the avoidance of damage and deterioration) and for subsequent storage at the Site. All packing cases shall be properly marked in accordance with annexure XXV. All Equipment dispatched, by sea or over land, shall be adequately protected by protective coatings. Cargo shall not be dispatched on deck except where size limitations so require, and in such event further precautions for packing and latching shall be taken. The deck cargo shall be completely protected, and fully painted with adequate types of protective paint. All closed packings shall contain a packing list(s).

12.2.6 The CONTRACTOR shall supply Equipment in the appropriate sizes and weights to enable the Equipment to be unloaded at (port) and transported between the harbour and the Site. The CONTRACTOR shall be responsible for the packing and delivery of the Equipment (packed in proper packing) in such a manner that the Equipment can arrive at the Site for erection, within the contractual time schedules.

12.2.7 For purposes of storage at the Site, all packages shall be marked in an appropriate manner for storage outdoors, under a roof, in locked warehouses or in rented premises etc. as agreed upon at the meeting contemplated under Article 6.8.

12.3 Supply of documents

12.3.1 The documents and manuals to be supplied by the CONTRACTOR within the deadline dates are indicated in annexures V, XV and XXI.

12.3.2 All documents shall be forwarded to the PURCHASER by air freight with a minimum of five copies, including one reproducible copy. Immediately upon dispatch, a telegram/telex shall be sent to the PURCHASER confirming the dispatch, indicating the air freight bill number, the flight number or other express means of transportation. The documents shall as far as practically possible be sent by a direct flight to (name of airport in PURCHASER's country).

12.4 Storage of Equipment and Materials at the Site

12.4.1 The CONTRACTOR shall advise the PURCHASER of the requirements for adequate warehouse facilities at the Site to receive packages. In the event that permanent facilities are not ready or available, the CONTRACTOR shall advise on temporary facilities which could be provided in time at the Site. The CONTRACTOR shall advise the PURCHASER on the storage of packages at the Site.

12.4.2 The CONTRACTOR shall expeditiously check all Equipment and Materials for shortage or damage and shall obtain immediate replacements, where there is a shortage or damage. The CONTRACTOR shall advise the PURCHASER on claims to be made against damages covered by marine insurance.

12.4.3 In the case of Equipment or Materials damaged in transit, such shall be replaced at the cost of the PURCHASER unless such damage can be attributed to the CONTRACTOR. Where the damage is determined to be minor, repairs shall be undertaken at the Site and the costs incurred shall be as mutually agreed. In the event of any dispute as to the party bearing the costs, this shall be decided in accordance with Article 37.1.1 provided that if such costs are paid by marine insurance, they shall be borne by the party which receives the insurance.

12.5 Training services

12.5.1 The CONTRACTOR shall draw up a programme for on-Site training of the PURCHASER's personnel in accordance with Article 16 and shall submit it to the PURCHASER by the (____) month after Effective Date of the Contract for discussions and approval by the PURCHASER.

12.5.2 The CONTRACTOR and the PURCHASER shall commence on-Site training by the (____) month from the Effective Date of the Contract.

12.5.3 The CONTRACTOR shall commence the training overseas of the PURCHASER's personnel as laid down in Article 16 and annexure XVIII on the (____) month after Effective Date of the Contract, and shall complete the training by the (____) month.

12.6 Deputation of personnel

12.6.1 The CONTRACTOR shall make available to the PURCHASER the supervisory personnel to be deputed to the Site in accordance with annexure XXVII, clause 4.1 (or as may be otherwise agreed under clause 5.2 of that annexure) and shall thereafter depute personnel to the Site to conform with the requirements of annexure XXVII, within (30) Days of the PURCHASER requesting the deputation of any particular person to the Site.

12.6.2 The CONTRACTOR and the PURCHASER acknowledge that the number and category of personnel to be deputed to the Site referred to in annexure XXVII is tentative. Whenever additional personnel are required at the Site, the CONTRACTOR shall depute such additional personnel, as may be mutually agreed upon.

12.7 Start-Up and Commissioning

12.7.1 The CONTRACTOR shall inform the PURCHASER of the dates that the Plant(s) is (are) proposed to be Started-Up, at least 3 months prior to the estimated time for Mechanical Completion of the Plant(s).

12.7.2 The PURCHASER shall accordingly arrange to supply the necessary feedstock, materials etc. as obligated by the Contract, and shall also supply all labour and personnel for the operation of the Plant.

12.7.3 The Plant shall thereafter be Started-Up and operated under the direction and supervision of the CONTRACTOR until the Performance Guarantee Tests have been satisfactorily completed.

ARTICLE 13

Supervision and direction

- 13.1 The CONTRACTOR shall provide all of the required services for supervision and direction pursuant to the Contract. An adequate number of suitably qualified and experienced personnel shall be available for the supervision and direction of all work at the Site until Provisional Acceptance of the Works. Such services shall cover, but shall not be limited to the following:
- 13.1.1 Supervision of the load tests (in accordance with Article 4).
 - 13.1.2 Supervision of erection and installation of all Equipment.
 - 13.1.3 Supervision of storage and warehousing.
 - 13.1.4 Supervision and direction of Pre-commissioning tests and over the operations of the Plant from the date of Initial Operation until Provisional Acceptance.
- 13.2 The CONTRACTOR (as represented by his supervisory personnel) shall be constantly on Site from commencement of erection, until all of the acceptance certificates for the Plant have been issued and they shall devote their entire time to the superintendance of this work. Such supervisory personnel shall have full authority to act for the CONTRACTOR and shall instruct the staff of the PURCHASER. The CONTRACTOR's supervisory personnel shall be sufficiently fluent in the language governing the Contract and/or in languages as agreed upon with the PURCHASER, so as to be able to receive and to give directions and instructions and to correspond with the PURCHASER in that language.
- 13.3 The CONTRACTOR shall, upon a justified request of the PURCHASER, remove any of his supervisory personnel, if such personnel have been conducting themselves improperly, and the CONTRACTOR shall promptly replace such person(s) in equal number.
- 13.4 For the purpose of this Article:
- 13.4.1 "Supervision" shall mean the review of, and/or the issue of instructions in regard to matters or activities being the subject of supervision, and would imply that the CONTRACTOR assumes responsibility for such review and instructions.
 - 13.4.2 "Direction" shall mean the assumption of managerial authority and control over the operations of the Plant until completion of the Performance Guarantee Tests together with the responsibility for the operation of the Plant. This responsibility shall not release the PURCHASER from his obligations under Article 5.
- 13.5 The CONTRACTOR shall be responsible for giving technical instructions and supervising the erection of all the Plant and Equipment within the Battery Limits (inclusive of those specified in annexure III). Without limiting the generality of the foregoing, these supervisory services shall relate to (but shall not be limited to):

- 13.5.1 Erection of all Equipment in place.
- 13.5.2 Erection of all steel structures, walkways, gangways, stairs, platforms etc.
- 13.5.3 Assembly and welding of all piping, fittings etc. both above and below the ground.
- 13.5.4 Assembly and erection of instrumentation, panel control boards and all interconnecting wiring, piping and equipment.
- 13.5.5 Installation of all electrical equipment, and connection of all cables, starters and all other equipment.
- 13.5.6 Installation of all utility equipment, and connecting such equipment.
- 13.5.7 Insulation of all equipment where required (including supply of insulation).
- 13.5.8 Painting of all Equipment (including supply of paint). 8/
- 13.5.9 Installation of all workshop, laboratory and office equipment, including air-conditioning equipment and telephone facilities.
- 13.5.10 Installation and erection of all waste treatment and sewerage facilities.
- 13.5.11 Installation of all safety and warning devices.
- 13.5.12 All or any other erection work that may be required to complete the Plant, other than the exclusions contained in annexure XIII.
- 13.6 In the course of the erection work, the CONTRACTOR and the PURCHASER shall jointly maintain a journal or journals to be kept for each unit of the Plant separately.
- 13.7 The CONTRACTOR and the PURCHASER and any person(s) authorized by either of them shall at all times have access to the Works, to all workshops and places where work is being done, undertaken or prepared or where materials, manufactured articles or machinery are being fabricated for the Works. The CONTRACTOR shall afford to the PURCHASER every facility for access to any place where work is being undertaken under this Contract and shall give every assistance in obtaining the right for such access in connection with the execution of the work under this Contract.
- 13.8 The PURCHASER shall afford to the CONTRACTOR every facility and assistance in or for obtaining reasonable right of access to any information, Site, workshops or persons within (PURCHASER's country) as is required in connection with this Contract.

8/ The words in brackets are optional.

- 13.9 The CONTRACTOR and his personnel shall have free access to the Site, storage yards, fabrication sheds, facilities for the supply of utilities and laboratories set up or intended for use in setting up the Works under the Contract. The PURCHASER shall provide the necessary assistance in obtaining permission from his Government for visit(s), stay and travel of the CONTRACTOR's personnel.
- 13.10 The CONTRACTOR shall be entitled to visit the Works in operation for a period of (____) years after Provisional Acceptance to examine it as to its operating results, to take measurements required for establishing exact operating data and to demonstrate the Plant to his potential customers. The CONTRACTOR shall give (4) weeks notice to the PURCHASER for such visits, permission for which shall not be unreasonably withheld by PURCHASER. However, the PURCHASER may exclude certain persons from visiting the Plant and/or the Site.
- 13.11 Where, in the opinion of the PURCHASER, it is necessary that technical consultants, provided that such technical consultants are not direct competitors of the CONTRACTOR, be sent to check the work of the CONTRACTOR, the CONTRACTOR shall allow them access to any place where work is being performed and shall co-operate with them in the carrying out of their duties and obligations. The foregoing shall not prejudice the rights of the CONTRACTOR relative to the terms of Article 7, and the technical consultants shall not disrupt the activities or obligations of the CONTRACTOR.
- 13.11.1 If the sending of such technical consultants under Article 13.8 above involves delays and/or entails expenses being incurred by the CONTRACTOR, the PURCHASER shall pay to the CONTRACTOR these expenses and the contractual time schedule shall be adjusted accordingly.
- 13.11.2 The technical consultants shall sign a secrecy agreement when required by the CONTRACTOR and/or the licensor(s).

ARTICLE 14

Inspection, testing and certification

- 14.1 The CONTRACTOR shall assume full responsibility for the inspection, testing and certification of all Equipment and Materials during manufacture and dispatch, prior to and during inspection and upon arrival at the Site. Notwithstanding the appointment of a duly authorized representative (if any) by the PURCHASER to witness the activities referred to, the CONTRACTOR shall be liable for the proper, adequate and sufficient conduct of the functions envisaged in this Article, pursuant to Articles 25 and 28.
- 14.2 The CONTRACTOR shall inspect the Equipment and Materials and obtain certification at all stages of work by the Subcontractors and on completion of the orders.
- 14.2.1 The CONTRACTOR shall undertake, at the shops of the Subcontractors during manufacture and before dispatch (in accordance with agreed-upon procedures), the necessary inspection and certification testing to assure conformance with the relevant codes and standards provided in the specifications.
- 14.2.2 During progressive inspection of Equipment fabrication the CONTRACTOR shall take every necessary measure to ensure that the Subcontractors and/or their employees strictly follow fabrication instructions and codes specified by the CONTRACTOR, and that the quality of workmanship meets acceptable levels to enable the Equipment and other items to be produced in accordance with the qualitative and quantitative standards expressed in the Contract.
- 14.2.3 The CONTRACTOR shall require his Subcontractors to provide the necessary test certificates in the proper form together with all other documents required by the inspecting authorities in the country of manufacture or as may be required by the PURCHASER in consideration of the regulations in force in (country) and/or as provided for in the specifications.
- 14.3 The CONTRACTOR shall issue certificates of inspection for all Equipment and Materials.
- 14.3.1 The CONTRACTOR shall issue such confirmation to the PURCHASER's inspectors prior to their inspection, when the Equipment and Materials are ready for final inspection.
- 14.3.2 The CONTRACTOR shall issue proper certificates of inspection in respect of all items of Equipment and Materials before dispatch, and shall send copies of such certificates to the PURCHASER, and certificates of tests carried out in connection with the issue of such certificates of inspection.
- 14.4 The PURCHASER may appoint representatives or a third party to act as his representative for inspection of the Equipment and Materials during manufacture or prior to dispatch. When such Equipment is ready for inspection, the CONTRACTOR shall give at least 45 Days' notice to the PURCHASER's representative of the time, place and Equipment to be

inspected. Should the PURCHASER's representative desire to be present, the CONTRACTOR shall be advised within 30 Days thereafter. Wherever required by the PURCHASER, the CONTRACTOR shall associate the PURCHASER or his representative with such inspections. The presence of the PURCHASER's representatives shall not in any manner qualify the CONTRACTOR's obligation under this Contract. The presence of the PURCHASER's representatives also shall not in any way imply contractual acceptance of the Equipment or Materials or transfer of ownership.

- 14.4.1 Inspection and tests at factory. All Equipment shall be subject to inspection and testing at the Subcontractors' shops and shall conform to the requirements of the Contract.
- 14.4.2 Inspection and tests at Site. All Equipment and Materials shall be subject to inspection and testing on the Site and shall conform to the requirements of the Contract. After installation at the Site, the CONTRACTOR shall carry out such required tests to prove compliance with the Contract, notwithstanding any tests which may have been carried out earlier at the Subcontractors' shops.
- 14.4.3 Inspection and tests on mechanical completion. Pursuant to the provision of Article 18, the CONTRACTOR shall, upon due notice by the PURCHASER of his readiness to undertake the tests to demonstrate and prove completion of the Works, proceed forthwith to commence the procedures in accordance with the requirements of Article 18, but subject to the provisions referred to therein.
- 14.5 All Equipment and Materials shall be available for inspection by the PURCHASER (through his duly authorized representatives). The CONTRACTOR and his Subcontractors shall provide safe and necessary access for the inspection envisaged by this Article. The PURCHASER shall be afforded full and free access to the shops, factories, site or offices of the CONTRACTOR, the Subcontractors and/or suppliers for such inspection to determine the conditions and progress of work under the Contract. Neither the failure to make such inspection nor the failure to discover defective workmanship, Materials or Equipment, nor approval of, or payment to the CONTRACTOR for such Equipment or Materials, shall prejudice the rights of the PURCHASER thereafter to require correction, replacement or reject the same as herein provided. If any services or workmanship supplied by the CONTRACTOR, and his Subcontractors are established, either during the performance of the work, on inspection, or during any applicable warranty period(s), to be defective and not complying with requirements of this Contract and arising out of the fault or negligence of the CONTRACTOR and his Subcontractors, the PURCHASER shall notify the CONTRACTOR in writing that such work is being rejected. Thereupon the CONTRACTOR shall, at his own expense, promptly remove and replace or correct such defective work by making the same comply strictly with all contractual requirements.
- 14.6 If the PURCHASER waives his right of inspecting or testing as herein provided, it shall in no way relieve the CONTRACTOR of full liability for the quality, proper operation and performance of the completed work, and/or sections or parts thereof, nor shall it prejudice or affect the rights of the PURCHASER set forth under the Contract.

- 14.7 Should the PURCHASER's representatives establish during inspection any deficiencies in the inspected items, the CONTRACTOR shall take immediate steps to eliminate them. The CONTRACTOR shall maintain records of deficiencies noted and corrected. In case of a difference of opinion, the CONTRACTOR may proceed to act on his own responsibility as regards the dispatch of such Equipment and Materials, but subject, however, to the relevant provisions of Article 25 and Articles 27 to 30 inclusive.
- 14.8 Where the CONTRACTOR or any of his Subcontractors are undertaking any performance tests of any equipment to be supplied under this Contract, or any tests required under statutory law, the CONTRACTOR shall give at least 45 Days' notice of such tests to the PURCHASER, or his representatives if such have been designated, and, if desired, they shall be present at such tests.
- 14.9 During all inspection, the PURCHASER or his representatives may have recourse to such tests as they may consider necessary in order to establish whether the materials, objects, supplies or methods of construction and erection are of the requisite quantity and quality. The PURCHASER or his representatives may require the replacement or repair, as the case may be, of items which do not conform with the Contract, even after they have been incorporated into the Works.
- 14.10 The CONTRACTOR shall place at the disposal of the PURCHASER, free of charge, such instruments as are available at the point of manufacture, including equipment for the radioactive checking of welds, along with specialized operating staff, if requested by the PURCHASER, to enable the PURCHASER to carry out his inspection of the CONTRACTOR's supplies, efficiently. The PURCHASER shall pay for such services.
- 14.11 The CONTRACTOR shall ensure that the dispatch and delivery of Equipment are expeditiously implemented and efficiently co-ordinated in complete accordance with the terms, conditions and procedures for delivery in this Contract and/or also as may be contained regarding spare parts in any purchase orders issued to Vendor(s).
- 14.12 The CONTRACTOR shall take all necessary measures to ensure that all export licences (if necessary) and shipping documentation are arranged and issued in a timely manner.
- 14.13 The inspection by the PURCHASER and/or repair or replacement of Equipment at the request of the PURCHASER shall not excuse the CONTRACTOR from the liabilities, warranties or guarantees as expressed in this Contract.

ARTICLE 15

Variations, changes and additions to
the scope of the Contract

- 15.1 The PURCHASER shall have full powers, subject to this Article and other provisions of the Contract, from time to time during the execution of the Contract by notice in writing to direct the CONTRACTOR to alter, amend, omit, change, modify, add to or otherwise vary any of the work under the Contract and the CONTRACTOR shall carry out such work and be bound by the same conditions, so far as applicable, as though the said variation(s) were stated in the Contract.
- 15.2 When the CONTRACTOR has received any direction from the PURCHASER which may, in the opinion of the CONTRACTOR, involve a change in the Contract Price, the CONTRACTOR shall, as soon as reasonably possible and before proceeding with the variation(s), advise the PURCHASER in writing to that effect. Subject to the provisions of Article 15.3 the difference in price, if any, occasioned by any such variation(s), shall be added to or deducted from the Contract Price as the case may be. The amount of such difference shall be agreed to after discussions between the PURCHASER and the CONTRACTOR. In the event of any difference in opinion, the cost of the variation(s) may be assessed in accordance with Article 37.
- 15.3 The CONTRACTOR acknowledges that there shall be no entitlement for any claims for any increases in the amount of work undertaken or to be undertaken for rectification work whether or not related to design and/or other errors, mistakes, omissions and lack of accuracy, in undertaking his obligations herein, including that mentioned in Article 15.5.
- 15.4 The CONTRACTOR may at any time during his performance of the Contract submit to the PURCHASER for his approval written proposal(s) for a modification of the work to be performed under the Contract. The CONTRACTOR, in connection with any proposal he makes pursuant to this Article and Article 4.4.2 and/or for a Contract modification pursuant to Article 29 and/or to any other Article, shall furnish the reasons for his proposal and a breakdown in sufficient detail to permit an analysis of all material, labour, equipment, subcontracts and the estimated project time schedule overruns and design changes, and shall include in such proposal or report all work involved in the modification, whether such work is to be deleted, added or changed. Any request for an extension of time shall be supported by such justifications as may be required.
- 15.5 Changes or variations pursuant to this Article shall not justify extra costs if such changes or variations are due to the fault of the CONTRACTOR.
- 15.6 If the PURCHASER approves the CONTRACTOR's proposal, then subject to Articles 15.3, 15.5 and 15.9, the CONTRACTOR shall make the variation(s) so approved. The PURCHASER shall not refuse to approve any variation(s) which is (are) necessary to correct any defect in the Works which has occurred or which would otherwise occur if the CONTRACTOR's proposal was not accepted, or if any modifications or rectifications are required pursuant to Article 18.11. In all other cases, the PURCHASER may give or refuse his approval as he thinks fit and his decision shall be final.

- 15.7 The CONTRACTOR shall not be entitled to any extra cost or extension of time on account of a variation proposed or initiated by him, unless approved by the PURCHASER through a change order.
- 15.8 Upon receiving a notice of a change order from the PURCHASER and if in the opinion of the CONTRACTOR such variation is likely to prevent or prejudice the CONTRACTOR from fulfilling any of his obligations under the Contract, he shall notify the PURCHASER thereto in writing and the PURCHASER shall decide forthwith whether or not the same shall be carried out. If the PURCHASER reconfirms in writing his intention to carry out the variation(s), then the said obligations of the CONTRACTOR shall be modified to such an extent as may be justified.
- 15.9 Except for the provision of Article 15.8, any variations or alterations ordered by the PURCHASER shall not in any way vitiate or invalidate the obligations of the CONTRACTOR under the Contract.
- 15.10 In the event that the PURCHASER and the CONTRACTOR are unable to agree on whether such required services are within the contractual obligations of the CONTRACTOR, or if the PURCHASER considers that the payment demanded for such required services by the CONTRACTOR is excessive, a neutral person (mutually appointed by the CONTRACTOR and the PURCHASER) shall have the right to decide on the quantum of payment, if any, which may be payable by the PURCHASER to the CONTRACTOR. In such an eventuality the CONTRACTOR shall proceed without delay, after appointment of the neutral person, to carry out the design changes, and/or provide the services which are the subject of the dispute, pending the decision of the neutral person. The decision of the neutral person shall be immediately implemented, without prejudice to the rights of the CONTRACTOR and the PURCHASER to submit the dispute to arbitration.
- 15.11 All additional payments for the required work or services due from the PURCHASER to the CONTRACTOR under the provisions of this Article shall be embodied in a change order upon conditions specified therein which shall be signed by the PURCHASER and the CONTRACTOR through their representatives authorized for this purpose, and such change order(s) shall be deemed to form part of the Contract and subject to all of the terms and conditions therein, unless otherwise excepted.
- 15.12 Any and all modifications to the technical specifications contained in annexures III, IV, V, VIII, IX, XI, XII, XIII, XV, XVI, XVII, XX, XXI, XXX and XXXI agreed to by the PURCHASER shall be embodied in a change order which shall be signed by the PURCHASER and the CONTRACTOR through their representatives authorized for this purpose, and such change order(s) shall be deemed to form part of the Contract and subject to all of the terms and conditions therein, unless otherwise excepted.

ARTICLE 16

Training

- 16.1 The PURCHASER and the CONTRACTOR agree that the adequate training of the PURCHASER's personnel is a necessary condition for the fulfilment of the objectives of the Contract.
- 16.2 The CONTRACTOR shall provide training for the PURCHASER's personnel both at the Site and at other plants, in accordance with the requirements of annexure XVIII and Article 4.
- 16.3 Training facilities to be provided by the CONTRACTOR shall be as detailed in annexure XVIII.
- 16.4 The PURCHASER and the CONTRACTOR shall agree at the co-ordination meeting contemplated under Article 6.8 the time, place and details to be established for the training of the PURCHASER's personnel and final details for training shall be forwarded to the PURCHASER within (_____) months following the Effective Date of the Contract. The CONTRACTOR shall competently train the PURCHASER's personnel for the purposes and on the basis referred to herein for the periods contemplated in annexure XVIII at a plant or plants, using the processes of the licensors identified in Article 4.5 which have commenced production in the 5 years immediately preceding the Effective Date of the Contract. The training provided to the PURCHASER's personnel should be of a standard which is adequate for operating and maintaining the Plant.
- 16.5 The PURCHASER shall undertake to supply personnel for training with qualifications and experience recommended by the CONTRACTOR, and agreed to by the PURCHASER.
- 16.6 Travel and living expenses for the PURCHASER's personnel shall be borne by the PURCHASER.

ARTICLE 17

Management and technical advisory services 9/

17.1 At the option of the PURCHASER, the CONTRACTOR shall enter into a separate management assistance agreement with the PURCHASER to manage the Plant, or to assist the PURCHASER to manage the Plant as the PURCHASER may desire, for a period of (12) months after Provisional Acceptance of the Plant, to provide management assistance as below:

- (a) To ensure maintenance of production levels at optimum capacity, and with maximum efficiency;
- (b) To assure maintenance of the Plant and Equipment to enable operations to be kept at design levels of production, and efficiency ratios;
- (c) To provide in-Plant training of the PURCHASER's personnel;
- (d) To provide expertise and assistance to set up systems and procedures for operation, maintenance, safety standards etc.

17.1.1 The PURCHASER and CONTRACTOR shall agree, within 30 Days of Commercial Production of both the Ammonia and Urea Plants, on the number and type of personnel to be supplied by the CONTRACTOR for management assistance during this period of (12) months, and the quantum of fees and mode of payment to be made to the CONTRACTOR and his staff at the Site.

17.2 If at the expiry of the period of (12) months contemplated under Article 17.1 above the PURCHASER wishes to retain an agreed number of the management personnel already at the Site for a further period not exceeding (_____) months, the CONTRACTOR shall make such personnel available to the PURCHASER on terms and conditions to be mutually agreed.

17.3 Following Final Acceptance 10/ of the Plant, the CONTRACTOR shall agree to grant an option to the PURCHASER for the execution of a separate agreement for the provision of technical advisory services to be provided by the CONTRACTOR to the PURCHASER upon mutually agreed terms to cover those services mentioned below. Such an agreement shall become effective immediately following Final Acceptance of the Plant and shall have a duration of (____) years. The PURCHASER may exercise the said options (at his sole discretion) no later than the expiry of one month before Final Acceptance.

17.3.1 The terms of such agreement shall include (but shall not be restricted to) any one/or other of the following matters:

17.3.2 Provision of senior advisory personnel to conduct a half-yearly review of the Plant and the efficiency of its operations.

9/ This Article is optional.

10/ If the option provided in Article 17.1 is not exercised, the PURCHASER might exercise the option as provided in Article 17.3 after Provisional Acceptance.

- 17.3.3 Recommendations as to improvement of Plant operations and maintenance.
- 17.3.4 Provision of answers to technical queries related to Plant operations.
- 17.4 The rights and obligations envisaged in such an agreement for Technical Advisory Services as per Article 17.3 or Management Assistance Agreement as per Article 17.1 or assistance as per Article 17.2 shall be wholly separate and distinct from the liabilities and the responsibilities contained in this Contract.
- 17.5 The CONTRACTOR's staff required to accomplish management assistance services in accordance with Article 17.2 above shall consist of:
_____ . 11/

11/ To be discussed on a case-by-case basis. It is suggested that normal requirements might be: one production engineer, one maintenance engineer (mechanical) and one maintenance engineer (instrumentation).

ARTICLE 18

Completion of the Plant and conditions of Provisional
and Final Acceptance

- 18.1 As soon as any Plant or any part thereof is substantially complete, it shall be inspected by the PURCHASER and the CONTRACTOR before any tests are carried out.
- 18.2 When all the items of Equipment in the Plant or part thereof or any of the sections of the Off-Sites are ready and have been completed pursuant to this Contract (viz. erected, installed and initially tested), the CONTRACTOR and the PURCHASER shall review the procedures for the pre-agreed tests for the demonstration of the Mechanical Completion of the Plant to be undertaken in accordance with annexure XX and the detailed procedures therewith.
- 18.3 The Pre-commissioning of the Plant or part thereof and of each section of the Off-Sites and the carrying out of the Mechanical Completion tests, shall consist of the carrying out of such operations and the making of such tests as are detailed in annexure XX to establish the correct mechanical functioning of the Plant or part thereof or section of the Off-Sites. When all such operations and tests have been fully and satisfactorily completed individually and/or together on the Ammonia Plant, the Urea Plant, the power plant, and all sections of Off-Sites and the Mechanical Completion of the Plant has been achieved, the CONTRACTOR and the PURCHASER shall thereupon prepare a Mechanical Completion Certificate which shall be signed by both parties following a joint examination of the Plant and the Off-Sites.
- 18.4 The operations and tests referred to in Articles 18.2 and 18.3 above shall be carried out by the PURCHASER's personnel under the direction and supervision of the CONTRACTOR's personnel.
- 18.5 If any defects are found during the tests mentioned above in Article 18.3, these shall be promptly rectified by the PURCHASER's personnel under the direction of the CONTRACTOR's supervisory personnel, and the mechanical tests necessary shall then be repeated.
- 18.6 Upon Mechanical Completion of the Plant or any part thereof, it shall be prepared for and brought into Initial Operation.
- 18.7 When all sections of the Plant are in a satisfactory operating state, and specification-grade ammonia and urea are in continuous and uninterrupted production for (_____) Days at (_____) per cent capacity in accordance with the terms of the Contract, the Plant shall be deemed to be in Commercial Production.
- 18.8 The CONTRACTOR shall thereafter demonstrate that the Plant is capable of achieving all the Performance Guarantees and requirements specified in Article 26 and in annexures XVI and XXX.
- 18.9 The Plant shall be deemed to have been Provisionally Accepted when the CONTRACTOR shall have satisfactorily demonstrated that the Plant is capable of meeting its Performance Guarantees as specified in Article 26 and annexures XVI, XXX and XXXI and the PURCHASER has given a Provisional Acceptance Certificate
- 18.10 The issue of the Provisional Acceptance Certificate shall be made when all of the following have been satisfactorily discharged:

- 18.10.1 When the CONTRACTOR has provided to the PURCHASER all certificates of inspection and/or certificates of Materials of fabrication applying to each of the major items of Equipment and Materials.
 - 18.10.2 When the CONTRACTOR has provided to the PURCHASER all documents listed in annexure XV.
 - 18.10.3 When the CONTRACTOR has completed the supply of all Materials and Equipment.
 - 18.10.4 When the CONTRACTOR and PURCHASER have signed the Mechanical Completion Certificate after joint examination of the Plant.
 - 18.10.5 When the CONTRACTOR has prepared a statement indicating the start and end of the warranty period for each item of the Equipment and provided it to the PURCHASER.
 - 18.10.6 When the Performance Guarantee Tests have been successfully completed in accordance with the Contract, or where applicable, the liquidated damages have been paid and the CONTRACTOR has prepared Performance Guarantee Test certificate(s) and these have been signed signifying acceptance by the PURCHASER, or where the provisions of Article 20.19 apply.
- 18.11 The CONTRACTOR shall be responsible for undertaking repairs and Rectifications of the Plant(s) and/or any of the sections and/or parts thereof, in relation to any part of the Work(s) in any one and/or other of the following circumstances, namely:
- 18.11.1 If the Performance Guarantees and/or Performance Guarantee Tests and/or any of the tests or Pre-commissioning tests required are not capable of being commenced, undertaken, met or completed for reasons attributable to the CONTRACTOR's work and/or services, referred to in the Contract.
 - 18.11.2 If the Plant(s) and/or parts or sections thereof, and/or Process(es) is (are) found to be incapable or insufficient.
 - 18.11.3 If the quality of workmanship and materials fails to comply with the requirements of the Contract as specified in Article 25.
 - 18.11.4 If the requirements as to warranties are found to have been breached or are not in accordance with the Contract pursuant to Article 28.
 - 18.11.5 If any work pursuant to the requirements of the Contract is incomplete, insufficient or inadequate.

Any and all Rectifications required to be undertaken under the terms of the Contract shall be governed by the provisions of Article 29 and such Rectifications shall be accomplished in a diligent and bona fide manner to the reasonable satisfaction of the PURCHASER. The conditions governing extension(s) of time required to complete such work and the terms of such extension(s) shall be determined in accordance with the provisions of Article 29. The Rectifications undertaken shall not be

deemed to be complete until all the contractual stipulations governing such work are satisfied, and the cause(s) giving rise to the necessity for such Rectifications is (are) eliminated. The CONTRACTOR shall not require the PURCHASER to provide a formal waiver of rights and/or remedies prior to agreeing upon Rectifications required pursuant to the relevant provisions of the Contract.

- 18.12 In the event that the CONTRACTOR is unable or unwilling to start the Plant within (____) Days of the Mechanical Completion or to commence Commercial Production within (____) months of Mechanical Completion or to complete the Performance Guarantee Tests in accordance with Article 26 and annexure XXXI, for reasons attributable to the CONTRACTOR, the PURCHASER may withhold the Provisional Acceptance Certificate and take over the direction and operation of the Plant without prejudice to his other rights under the Contract.
- 18.13 The PURCHASER shall issue a Final Acceptance Certificate when all conditions specified in this Article have been fulfilled and the CONTRACTOR has completed his work in accordance with the provisions of this Contract. Subject to the completion of any and all work more particularly referred to in this Article and Article 29 and as elsewhere required under the terms of the Contract, the PURCHASER shall issue the Final Acceptance Certificate within 12 months after Provisional Acceptance, unless during the intervening period the Plant has shown defects attributable to the CONTRACTOR requiring Rectifications in accordance with Article 29. In such case the PURCHASER shall issue a Final Acceptance Certificate when all such defects have been removed, unless otherwise agreed to by the PURCHASER and the CONTRACTOR.

ARTICLE 19

Text A

Text B

Extension of time

Extension of time and compensation of cost

19.1 If by reason of the happening of any one and/or other of the following occurrences which are beyond the CONTRACTOR's or the PURCHASER's control, namely:

19.1 If by reason of the happening of any one and/or other of the following occurrences which are beyond the CONTRACTOR's control, namely:

- 19.1.1 Vandalism;
- 19.1.2 Failure on the part of the Vendor or other agent of the PURCHASER affecting the contractual time schedule;
- 19.1.3 Work arising out of the application of Article 15 for which a time extension has been granted;
- 19.1.4 Temporary suspension of Work pursuant to Article 32;

- 19.1.1 Vandalism, malicious damage;
- 19.1.2 Non-fulfilment by the PURCHASER of his obligations in a timely fashion;
- 19.1.3 Temporary suspension of Work pursuant to Article 32;
- 19.1.4 Force majeure occurrence pursuant to Article 34 which affects the Works in the PURCHASER's country;

as well as non-fulfilment by the PURCHASER of his obligations in a timely fashion (but not including any of the occurrences or events covered by Article 18, 29 and 34) which affect or delay specific work required to be undertaken pursuant to this Contract, the CONTRACTOR shall within 10 Days of such occurrence specified above make written request to the PURCHASER for a reasonable extension of time for completion of the work or any portion of it to the extent that the factors affecting delay prevailed in the circumstances. The PURCHASER shall grant such extension in time which shall reasonably make up for the delay(s)

which damage or delay the work required to be undertaken pursuant to this Contract, the CONTRACTOR shall as soon as the effect of such occurrence is known to the CONTRACTOR, make written request to the PURCHASER for a reasonable extension of time for completion of the work or any portion of it and reasonable compensation of cost additionally required because of such occurrence. The PURCHASER shall grant such extension in time and compensation of cost which shall reasonably make up for the delay and damage suffered by the CONTRACTOR. In case of disagreement over time and amount, the matter shall be settled in a similar manner

suffered by the CONTRACTOR. The CONTRACTOR shall be responsible for the completion of all the work and activities affected by the above-mentioned delay(s) or occurrences. The CONTRACTOR shall be free of liabilities on account of the said occurrences referred to in this Article 19.1 in connection with his contractual activities affected by the delay(s) caused. The CONTRACTOR shall extend the period of validity of the bank guarantee(s) and performance bond(s) commensurate with the period of extension granted by the PURCHASER, and the PURCHASER shall be obliged to bear the cost of such extension of guarantee(s) and bond(s) provided that the circumstances envisaged in Articles 19.1.2, 19.1.3 and 19.1.4 prevailed or that the PURCHASER did not fulfil his obligations. Such costs arising in the circumstances specified in Articles 19.1.1, 19.1.2 and 19.1.4 and those arising out of the non-fulfilment of the PURCHASER'S obligations in a timely fashion, shall be to the account of the party at fault, or as may be covered by appropriate insurances taken out.

as stated in Article 15.10. The CONTRACTOR shall be responsible for the completion of all of the work and activities affected by the above-mentioned delay or occurrences. The CONTRACTOR shall be free of liabilities on account of the said occurrences referred to in this Article 19.1 in connection with his contractual activities affected by the delays caused.

- 19.2 Payments and/or entitlement to any costs pursuant to this Article, or pursuant to the provisions of Article 32 or Article 34.6 shall be established on a quantum meruit basis, provided, however, that in the circumstances envisaged by Article 32 the suspension of work was not made necessary due to default by the CONTRACTOR, and provided also that the CONTRACTOR has otherwise adhered to the terms of the Contract.
- 19.3 In the event of the occurrences referred to in Article 19.1 or Articles 32.4 and 32.5 the conditions of any extension granted shall (if applicable) be included as an amendment to the existing documents governing the activities or work affected or delayed by the occurrences referred to above, as provided by the terms of Article 3.4.
- 19.4 For the purpose of Article 19.1 only, "delay(s)" shall be construed to refer to any Day or period being utilized legitimately for completion of the work under the Contract, if on any such Day or period the causes referred to in Article 19.1 above as being beyond the control of the CONTRACTOR delayed completion of the Work.

ARTICLE 20

Contract Price, terms of payment, bonuses and incentives

20.1 The PURCHASER shall pay to the CONTRACTOR, as consideration for the execution of this Contract the amounts mentioned in this Article. The overall price for the Contract covers the payments for the CONTRACTOR's total obligations under the Contract and is divided into:

A firm price, being the sum of:
(amount)

for the items detailed in Articles 20.2 to 20.6.

A price of a reimbursable nature estimated at
(amount)

for the items detailed in Article 20.8.

20.1.1 The firm price shall not be subject to escalation and shall be varied only in accordance with the specific provisions of the Contract.

20.1.2 The price mentioned in Article 20.1 is divided into the categorized amounts stated in each of Articles 20.2 to 20.8 below, only to facilitate the identification of payments required to be made when due at progressive stages.

20.2 For the granting of the licences and know-how for the Plants referred to in Articles 4.5 and 7 of the Contract:

for the Ammonia Plant	(<u>amount</u>)	(<u>currency</u>)
for the Urea Plant	(<u>amount</u>)	(<u>currency</u>)
for Off-Sites	(<u>amount</u>)	(<u>currency</u>)

20.3 For the supply of Equipment and Materials FOB (inclusive of the complete engineering and related services) referred to in Articles 4.4, 4.6 to 4.17, 4.19 and 4.21 of the Contract:

(amount) (currency)

20.4 (Optional.) For the detailed civil engineering design:

(amount) (currency)

to be paid in accordance with a schedule to be mutually agreed.

20.5 For providing training and training facilities referred to in Articles 4.24, 4.27 and Article 16 and annexure XVIII of the Contract:

(amount) (currency)

20.6 For the procurement of spare parts in accordance with Article 10 of the Contract:

(amount) (currency)

- 20.7 The CONTRACTOR shall be paid in accordance with Articles 20.8 and 20.9 below and annexure XXVII, for the cost incurred for the provision of expatriate personnel for management assistance and supervisory services in (PURCHASER's country) for erection, Commissioning and Start-Up of the Plant, for supervisory services at the Site during the period between Mechanical Completion and Provisional Acceptance, and for conducting Performance Guarantee Tests.
- 20.8. The PURCHASER shall pay to the CONTRACTOR daily rates in accordance with the schedule of charges as contained in annexure XXVII, for each Day of absence from the (respective) normal place of work in (country) of the specified expatriate personnel supplied by the CONTRACTOR.
- 20.8.1 The daily rates contained in annexure XXVII shall be related to a normal working week of (48) hours, with, at least, 1 Day included as a holiday. In the event of any overtime for expatriate staff (excluding engineers, and any other staff who would not normally be paid overtime in their home country), or for work on weekly holidays or public holidays in (PURCHASER's country) the expatriate personnel shall be paid overtime charges at the rates contained in annexure XXVII.
- 20.9 The total estimated cost of the CONTRACTOR's Services contained in Articles 20.7 to 20.8 and annexure XXVII is (amount) in foreign exchange and (amount) in local currency. In addition to the payments due under Article 20.8 above, the CONTRACTOR's personnel shall be provided with travel facilities and facilities at the Site in accordance with annexure XXVII.
- 20.10 The payment due to the CONTRACTOR under Article 20.2 above shall be made as follows:
- 20.10.1 (25 per cent) as an advance payment.
- 20.10.2 (50 per cent) on receipt by the PURCHASER of a copy of all the documents listed in Article 3.1.2, excluding operation and maintenance manuals.
- 20.10.3 (25 per cent) on completion of the Performance Guarantee Tests of the Plant and issuance of the Provisional Acceptance Certificate by the PURCHASER.
- 20.11 Payments due under Article 20.3 shall be made as follows:
- 20.11.1 (10 per cent) as an advance payment.
- 20.11.2 (10 per cent) at the end of the (6th) month from the Effective Date of the Contract, provided that the meetings contemplated under Articles 6.5 and 6.8 have been held, unless otherwise agreed.
- 20.11.3 (65 per cent) shall be paid pro rata on shipment of the Equipment and Materials.
- 20.11.4 (10 per cent) shall be paid on completion of the Performance Guarantee Tests of the Plant and issuance of the Provisional Acceptance Certificate by the PURCHASER.
- 20.11.5 (5 per cent) shall be paid on the issuance of the Final Acceptance Certificate by the PURCHASER.

- 20.12 All the payments due onwards in time pursuant to Articles 20.11.2 to 20.11.5 above shall be payable only if the "penalizable" documents (so identified in annexure XV) due on or before the last date of payment (in each case) have been supplied by the CONTRACTOR to the PURCHASER, and (where appropriate) the CONTRACTOR's expatriate supervisory staff are ready and available on the Site for erection and Commissioning duties.
- 20.13 The amount(s) due under Article 20.5 shall be payable as follows:
- 20.13.1 (15 per cent) upon agreement of the programme of training.
 - 20.13.2 (60 per cent) pro rata during training as specified in annexure XVIII.
 - 20.13.3 (25 per cent) on completion of the overseas training of the PURCHASER's personnel, in accordance with Article 16 and annexure XVIII.
- 20.14 The amounts under Article 20.6 shall be payable as follows:
- 20.14.1 (20 per cent) on receipt of a list of spare parts
 - 20.14.2 (70 per cent) pro rata on shipment of the spare parts
 - 20.14.3 (5 per cent) on the completion of the Performance Guarantee Tests and issuance of a Provisional Acceptance Certificate.
 - 20.14.4 (5 per cent) on issuance of a Final Acceptance Certificate by the PURCHASER.
- 20.15 The advance payments due from the PURCHASER to the CONTRACTOR pursuant to Articles 20.10.1 and 20.11.1 shall be made by direct remittance by the PURCHASER to a bank designated by the CONTRACTOR upon the satisfactory fulfilment by the CONTRACTOR of his obligations as stated in the provisions of Articles 21.1 and 21.2.
- 20.16 For the purpose of making the other payments under Articles 20.10, 20.11, 20.13 and 20.14, the PURCHASER shall establish in favour of the CONTRACTOR at a specified bank in (CONTRACTOR's country or as agreed otherwise) irrevocable and divisible letters of credit providing for payments in accordance with the schedule laid down in Articles 20.10 to 20.14 inclusive in conjunction with the certificates in accordance with Article 20.17.
- 20.17 The payments referred to in Article 20.16 shall be made only upon the fulfilment of the following:
- 20.17.1 For payments under Article 20.10.2 a certificate from the PURCHASER shall be presented stating that the documents required to be provided under Article 20.10.2 have been received.
 - 20.17.2 For payments under Article 20.11.2 an invoice from the CONTRACTOR dated at the end of the (6th) month of the Effective Date of the Contract shall be presented accompanied by a certificate from the PURCHASER that the meetings contemplated under Articles 6.5 and 6.8 of the Contract have been held, or any other document agreed.

- 20.17.3 For payments under Article 20.11.3 (65 per cent) of the value of each shipment, against invoices, to the PURCHASER supported by the following documents:
- 20.17.3.1 Clean on-board bills of lading (except for Equipment forwarded as deck cargo in which event a bill of lading shall be sufficient).
 - 20.17.3.2 Packing list.
 - 20.17.3.3 Certificate of origin (where required).
 - 20.17.3.4 Certificate of the CONTRACTOR that all tests and inspections required under the Contract have been successfully performed.
 - 20.17.3.5 Where the PURCHASER or his agents have not arranged for shipment of the Equipment or Materials within (60) Days of the availability of such goods for dispatch FOB, the CONTRACTOR shall have the right to store such goods at the PURCHASER's expense and the warehouse receipt shall be sufficient for the CONTRACTOR for obtaining payments under Article 20.11.3 provided however that:
 - (a) The CONTRACTOR has given notice of at least () Days to the PURCHASER or his agents of the likelihood of availability of a substantial part of the Equipment and Materials for dispatch.
 - (b) The Equipment or Materials for dispatch are part of a consignment of at least () tonnes, unless they are part of the last (20 per cent) of the Equipment or Materials to be shipped.
- 20.17.4 For payments under Article 20.13.1 a certificate from the PURCHASER shall be presented stating that the overseas training programme (envisaged in annexure XVIII) has been agreed upon.
- 20.17.5 For payments under Article 20.13.2 certificates from the PURCHASER shall be presented stating that the percentage of the training programme for which pro rata payment is claimed has been completed.
- 20.17.6 For payments under Article 20.13.3 a certificate from the PURCHASER shall be presented stating that the training programme has been completed.
- 20.17.7 Payments under Article 20.14.1 and 20.14.2 shall be made against certificates issued by the PURCHASER stating that the relevant documents have been received or the spare parts shipped.
- 20.17.8 The payments under Articles 20.10.3 and 20.11.4 and 20.14.3 as reduced by such deductions (if any) due under Article 27 shall be made upon presentation of the Certificate of Provisional Acceptance duly signed by the PURCHASER.

- 20.17.9 The payments under Article 20.11.5 and 20.14.4 shall be made on the presentation of the Certificate of Final Acceptance by the PURCHASER but subject to any deductions due to the PURCHASER for rectification in accordance with Article 29.
- 20.17.10 The certificates referred to in this Article 20.17 respectively shall not be unreasonably withheld by the PURCHASER.
- 20.17.11 In the event of any dispute as to the eligibility of payments, the PURCHASER shall pay the uncontested part of the payment, but without prejudice to his rights of recovery.
- 20.18 Upon Mechanical Completion of the Plant, the CONTRACTOR shall have the option to draw upon the letters of credit opened in accordance with Article 20.16 above to the extent that the payment is due under Article 20.10.3, Articles 20.11.4 and 20.11.5 and Articles 20.14.3 and 20.14.4 amounting to (amount). In such an eventuality the CONTRACTOR shall provide a bank guarantee in accordance with Article 21.3.
- 20.19 In the event that, for reasons not attributable to the CONTRACTOR, the Plant has not been erected or that the Plant has been erected, but not Started-Up within (30) months after the final shipment FOB of Equipment, the CONTRACTOR shall be entitled to the payments due under Articles 20.10.3, 20.11.4, 20.11.5, 20.14.3 and 20.14.4 and within 60 Days (but subject to the provisions of Article 20.20) after presenting:
- 20.19.1 An invoice in triplicate signed by the CONTRACTOR.
- 20.19.2 An affidavit executed by the CONTRACTOR stating that for reasons not attributable to the CONTRACTOR the Mechanical Completion of the Plant has not been accomplished, or the Plant has not been Initially Operated as the case may be.
- 20.19.3 Proof as to the issue of a bank guarantee in the form specified in annexure XXIII for the proper amount (as specified in Article 20.20 below).
- 20.19.4 Proof that he has advised the PURCHASER of his claim in accordance with Article 20.20 below.
- 20.20 Should the CONTRACTOR wish to invoke his rights for payment of the amount under Article 20.19, he shall promptly inform the PURCHASER by telegram and by letter of his claim. Should the PURCHASER dispute such claim, the CONTRACTOR shall nevertheless be entitled to draw upon the payments due under Article 20.19 against presentation of the documents stated in Articles 20.19.1, 20.19.2 and 20.19.4 together with a bank guarantee (for amount(s) equivalent to payments under the relevant Articles) in the form given in annexure XXIII. The bank guarantee shall be valid for (12) months, but if the PURCHASER or the CONTRACTOR should refer any dispute arising therefrom to arbitration, then, in such eventuality such bank guarantee shall continue to remain valid until a period of at least 3 months after the award of the arbitration.
- 20.21 The payments of the amounts due or reimbursable to the CONTRACTOR for services and/or expenses specified in Articles 20.7 to 20.9 shall be effected as follows:

- 20.21.1 The PURCHASER shall establish with the specified bank irrevocable letters of credit in favour of the CONTRACTOR for an amount to be mutually negotiated between the parties hereto. This letter of credit shall be established 1 month before the commencement of services by the CONTRACTOR pursuant to Article 4.18 and provisions for payment shall be made in the manner detailed hereunder.
- 20.21.2 Payments for daily rates and/or overtime of the CONTRACTOR's expatriate personnel as provided in Article 20.8 and annexure XXVII shall be effected out of the said relevant letter of credit upon presentation to the PURCHASER of:
- 20.21.2.1 Monthly invoices supported by time-logs of each of the CONTRACTOR's expatriate personnel working in (country) for the Plant, duly countersigned by the PURCHASER's representative at the Site.
- 20.21.2.2 The PURCHASER shall promptly sign the time-logs after verification.
- 20.22 Payments for reimbursement of expenses due to work undertaken pursuant to the terms of Article 15 shall be effected upon presentation of the authorized change order together with the PURCHASER's certification that payment under the said change order is due, accompanied with invoices certified by the CONTRACTOR that the expenses specified therein relate to such work undertaken pursuant to the terms of Article 15.
- 20.23 The living allowances detailed in annexure XXVII, clause 5, shall be payable in local currency directly to the CONTRACTOR's expatriate personnel at the Site and shall be paid by the PURCHASER every fortnight in advance, if and when due.
- 20.24 The payment in local currency to the CONTRACTOR's expatriate personnel for the justifiable expenses defined in the Contract and annexure XXVII incurred within (country) shall be made directly by the PURCHASER to the CONTRACTOR's expatriate personnel at the Site within (30) Days of the claim duly supported by the relevant receipts.
- 20.25 Any and all bank guarantees to be provided by the CONTRACTOR pursuant to the Contract shall be encashable by the PURCHASER in (currency). Such guarantees shall be valid for the period required under the Contract and the CONTRACTOR shall take any and all action including renewals at the appropriate times to keep the said guarantees current and valid for the said periods.
- 20.26 Should the CONTRACTOR so desire, the letters of credit to be established under Article 20.16 shall be confirmed by the bank specified by the CONTRACTOR. All charges in connection with such confirmation shall be borne by the CONTRACTOR. 12/

12/ The question whether the confirmation charges should be borne by the CONTRACTOR or the PURCHASER should be negotiated on a case-to-case basis.

20.27 In the event that the CONTRACTOR demonstrates the Performance Guarantees given in Article 26 during a period of less than (36) months after the Effective Date of the Contract, the CONTRACTOR shall be entitled to receive a bonus as hereunder specified for each complete month of saved time:

20.27.1 (0.5 per cent) of the amount payable under Article 20.3;

20.27.2 (0.5 per cent) of the payment under Article 20.7 actually paid during the duration of Contract;

together subject to a maximum of 3 per cent of the total fees payable to the CONTRACTOR.

Payments under this Article 20.27 shall be made within 12 months of Provisional Acceptance of the Plant provided no defects which have not been remedied appear in the Plant and/or Equipment during this period affecting its capacity, performance and/or operation.

ARTICLE 21

Performance bonds and bank guarantees

- 21.1 Upon the execution of the Contract, the CONTRACTOR shall provide to the PURCHASER a performance bond guaranteed by a first-class bank in the form contained in annexure XXII, A, or an approved bonding institution in the form given in annexure XXII, B, for the amount of (amount) in favour of the PURCHASER. The performance bond shall be valid for the period required under the Contract and such extensions thereof, and the CONTRACTOR shall take any and all actions including renewals at the appropriate time to keep the said bond current and valid for the said period. Fifty per cent of this performance bond shall be released upon Mechanical Completion of the Plant, and the balance on Provisional Acceptance of the Plant.
- 21.2 In consideration of the advance payment remitted by the PURCHASER (as provided for herein), the CONTRACTOR shall provide a bank guarantee from a first-class bank in the form contained in annexure XXIII for an amount equivalent to the sum total of the advance payments required to be made by the PURCHASER pursuant to Articles 20.10 and 20.11. The amount of the bank guarantee or advance payment bond shall be progressively reduced in accordance with actual payments until Mechanical Completion of the Plant.
- 21.3 Upon Provisional Acceptance of the Plant, and provided the CONTRACTOR elects to exercise his option under Article 20.18, the CONTRACTOR shall deliver a bank guarantee from a first-class bank in the form contained in annexure XXIII for an amount equal to (amount), but at least equivalent to the amount of the final payments to be released by the PURCHASER under Article 20.18 from the (name of the Bank) and confirmed by a bank in (PURCHASER's country). This bank guarantee shall remain valid and in force up to the date of the Final Acceptance of the Plant, or any extension(s) thereof.
- 21.4 The bank guarantee envisaged in Article 20.20 shall be in like form as that specified in Article 21.2 above and such bank guarantee shall remain valid for the period(s) mentioned in Article 20.20.

ARTICLE 22

Indemnification

22.1 The CONTRACTOR shall indemnify and hold harmless the PURCHASER and anyone employed by him from and against all claims, demands, losses, costs, damages, actions, suits, expenses (including legal fees) or proceedings by whomsoever made for personal injuries, death or third-party property damage, brought or prosecuted in any manner based upon, arising out of, related to, or occasioned by the negligent act or omission of the CONTRACTOR or his Subcontractors and their employees in connection with this Contract.

22.1.1 For the purpose of Article 22.1 above, "activities" includes an act improperly carried out, an omission to carry out an act and a delay in carrying out an act.

22.2 The PURCHASER shall indemnify and hold harmless the CONTRACTOR, his employees and agents from and against all claims, demands, losses, costs, damages, actions, suits or proceedings arising out of the CONTRACTOR's activities under this Contract for personal injuries, death (other than of the CONTRACTOR's personnel) and property damage (other than to the Plant) arising out of the PURCHASER's and his Subcontractor's and their employees' negligence.

ARTICLE 23

Project accounting and audit 13/

- 23.1 The CONTRACTOR shall maintain suitable accounting and other relevant records pertaining to the payments received by him from the PURCHASER and the quantum of work done or Equipment supplied against which such payments were made, and shall preserve these records for a period of at least 2 years after Final Acceptance of the Works or the termination of the Contract.
- 23.2 The CONTRACTOR shall provide facilities to the PURCHASER to have access to and inspect the CONTRACTOR's accounting and other records for evaluating (if necessary) the cost of any work undertaken pursuant to Article 15 or in assessing the cost of any work done at the request of the PURCHASER.
- 23.3 The CONTRACTOR shall be subject to audit by the PURCHASER of the time-logs of the CONTRACTOR, if any prices or part of the prices under the provisions of Article 15 are based on time-charges as well as increased costs incidental to Article 36.2.2.
- 23.4 The PURCHASER or any auditors nominated by the PURCHASER, or his Government, shall have the right to audit all payments made on behalf of the PURCHASER by the CONTRACTOR under the Contract, and the CONTRACTOR shall be obliged to provide any other financial data and information required at the option of the PURCHASER in regard to the transactions between the PURCHASER and the CONTRACTOR pursuant to this Contract.
- 23.5 The CONTRACTOR and the PURCHASER (as the case may be) shall keep accurate records of the costs referred to in Article 29.

13/ This Article is optional, and may be eliminated where not required, except for Article 23.2 (in accordance with Article 36.2.2).

ARTICLE 24

Insurance

- 24.1 Without restricting in any manner the generality of any other provision of the Contract, and in particular any such provision pertaining to the liability or responsibility of the CONTRACTOR, it is expressly agreed that throughout the period beginning from the date of commencement of the related work, and continuing until Provisional Acceptance of the Plant in the case of the policies mentioned under Article 24.1.1 below and Final Acceptance for the policies mentioned under Article 24.1.2 (and/or for such extended periods that the PURCHASER and the CONTRACTOR may agree upon and/or required by law):
- 24.1.1 The CONTRACTOR shall take out and keep in force the various insurance policies enumerated in Article 24.7.
- 24.1.2 The CONTRACTOR shall, at the CONTRACTOR's expense, maintain insurance policies including professional indemnity insurance, if applicable, normal to his activities through his corporate coverage. If the CONTRACTOR does not have corporate coverage, he shall so inform the PURCHASER at the time of the signing of the Contract.
- 24.2 Whenever required from time to time, the CONTRACTOR and the PURCHASER shall submit to the other party adequate proof that the insurance(s) as contemplated by Article 24.5 to be his responsibility has (have) been taken out and remains (remain) in force. The parties hereto shall also provide each other with certified documentation with regard to the coverage and value of the policies.
- 24.3 Should the CONTRACTOR fail to take out and/or keep in force the insurances contemplated by this Article as being within the scope of his responsibility, together with any other insurances to be taken out by the CONTRACTOR and agreed between the PURCHASER and the CONTRACTOR, then the PURCHASER may at the PURCHASER's option take out insurance(s) considered appropriate and necessary in the circumstances, in which event any premiums paid or payable by the PURCHASER shall immediately constitute a debt due from the CONTRACTOR to the PURCHASER, the amount of which debt may be retained as the PURCHASER's monies out of any amount(s) otherwise payable by the PURCHASER to the CONTRACTOR.
- 24.4 Should the PURCHASER fail to take out and/or keep in force the insurance(s) contemplated by Articles 24.5.1 and 24.5.5, then the CONTRACTOR may at the CONTRACTOR's option take out insurance(s) considered appropriate and necessary in the circumstances in which event any premium paid or payable by the CONTRACTOR shall immediately constitute a debt due from the PURCHASER to the CONTRACTOR.
- 24.5 The insurance policies referred to in Article 24.1 required to be taken out by either one or the other of the parties shall be as follows:
- 24.5.1 "Construction all risks" (CAR) or "erection all risks" (EAR) policy (inclusive of third-party cover) in the name of the PURCHASER and the CONTRACTOR to insure the Plant from the start of work until Provisional Acceptance. Endorsements to the policy shall include coverage for EAR, "faults in design", requiring the replacement and repair of damaged

equipment due to faults in design, faulty workmanship and faulty materials, up to the Performance Guarantee Tests. Specific insurance for bodily injury and personal liability insurance (excluding that to third parties) and endorsements for such items as elevator and hoist liability, shoring, blasting, excavating may also be included.

- 24.5.2 "Loss of advanced profits insurance" (otherwise called "machinery consequential loss (interruption) insurance") to cover consequential losses to the PURCHASER, which may arise following any damage to the Plant during testing and maintenance periods providing extended cover to that already provided by the CAR/EAR policy.
 - 24.5.3 "Marine insurance" or "Cargo insurance policies" to cover the transit of Equipment and Materials ex works from the Subcontractors or Vendor's shops to the Site. (This may or may not include war risks insurance, as agreed by the PURCHASER and the CONTRACTOR.)
 - 24.5.4 Insurance liability cover for the use of automobiles, trucks, aircraft, launches, tugs, barges etc.
 - 24.5.5 Liability insurance for payments under workmen's compensation acts, as required under applicable legislation in the PURCHASER's country.
- 24.6 To the extent not covered by the above policies and provided such policy is available, the PURCHASER and the CONTRACTOR shall by mutual agreement obtain a special insurance policy (where the PURCHASER shall be the beneficiary) providing coverage for consequential loss caused by defective design, material or workmanship (including defective construction or erection) within the control of the CONTRACTOR or his Subcontractors. It is expressly agreed, however, that no liability shall attach to the PURCHASER or the CONTRACTOR purely by reason of payment of the premium for such a policy.
- 24.7 The PURCHASER shall be responsible for taking out all the policies enumerated in Article 24.5, except the following which the CONTRACTOR shall carry (unless otherwise agreed between the parties):
- 24.7.1 Corporate coverage as referred to in Article 24.1.2.
 - 24.7.2 Accident insurance for the CONTRACTOR's personnel at the Site.
 - 24.7.3 Insurance for CONTRACTOR's transport (e.g. automobiles) of which the CONTRACTOR is the owner.
 - 24.7.4 Third-party liability insurance for an amount agreed with the PURCHASER.
 - 24.7.5 Endorsement to the EAR policy for "faults in design". If this endorsement is taken out by the PURCHASER, the CONTRACTOR shall reimburse the PURCHASER for all costs incurred in connection with this endorsement.
- 24.8 The policies listed in Articles 24.5.1 and 24.5.5 shall be jointly in the name of the CONTRACTOR and the PURCHASER; in all other cases, the policies enumerated in Article 24.7 shall be in the name of the CONTRACTOR and the other policies shall be in the name of the PURCHASER.

ARTICLE 25

Guarantee for workmanship during engineering and
construction of the Works

- 25.1 The CONTRACTOR guarantees the quality of all materials and workmanship of all Equipment and Materials supplied by him. All Equipment and Materials shall be brand-new and shall comply with the Contract specifications detailed in Article 12 and in the respective annexures.
- 25.2 The standards and codes to be used are provided in annexures II and XXIX. The CONTRACTOR shall utilize these standards (or where applicable mandatory national standards) and/or superior standards if known to the CONTRACTOR (as laid down in Article 4.7) for the performance of the Works. Wherever standards or codes are not explicitly stated in the Contract, internationally recognized standards or codes, or those which have been previously used by the CONTRACTOR in a successfully working Ammonia/Urea Plant may be used, subject to the approval of the PURCHASER.
- 25.2.1 In case of dispute arising on any matter concerning the acceptability or the qualitative level of standard(s) or code(s) the onus shall be upon the CONTRACTOR to prove to the PURCHASER the superiority or better competence of those standard(s) or code(s) recommended (or adopted) by the CONTRACTOR pursuant to this Article, if such codes are not specified in annexures II and XXIX or elsewhere in the Contract.
- 25.3 The CONTRACTOR shall comply with the inspection procedures, detailed in Article 14, so that the materials of fabrication and workmanship of the Equipment satisfy the CONTRACTOR's obligations under the Contract.
- 25.4 If the quality or workmanship of the Equipment and Materials fail to comply with the requirements of the Contract, the CONTRACTOR shall forthwith (at his own cost) replace or make good the defective materials and/or faulty workmanship to ensure compliance with the Contract, in accordance with the provisions of Article 29.
- 25.5 The CONTRACTOR also warrants as to the correctness and completeness of the drawings, all technical data and Technical Documentation supplied by him as well as to the technical criteria of the Equipment fabricated in accordance with his drawings and instructions under the present Contract.
- 25.6 Supervision and direction given by the CONTRACTOR in accordance with Article 13, shall be of the best professional standards and practices and should be given by competent and responsible personnel.
- 25.7 The above guarantees and warranties are valid until the warranties under Article 28 come into being.

ARTICLE 26

Guarantees and Performance Guarantee Tests

- 26.1 The Plant shall be capable of sustained, steady and continuous operation and of meeting the full requirements stated below in Articles 26.1.1 to 26.1.6, all of which are hereby guaranteed by the CONTRACTOR, which shall be proven and demonstrated by Performance Guarantee Tests as specified in this Article and in the annexures and such tests are to be conducted in accordance with the conditions set forth herein. The PURCHASER shall comply with the provisions of Articles 5.14 and 5.15.
- 26.1.1 The production capacity of ammonia and urea from the Plants shall be (1,000) Tonnes per Day of ammonia and (1,725) Tonnes per Day of urea.
- 26.1.2 The quality of the ammonia from the Ammonia Plant and of the urea from the Urea Plant shall be in accordance with annexure XVI.
- 26.1.3 The quality and quantity of carbon dioxide shall be adequate and suitable for the guaranteed capacity of the Urea Plant and the quality of the urea Product.
- 26.1.4 The Off-Sites shall be adequate for the sustained and continuous operation of the Plant.
- 26.1.5 The consumption of utilities and raw materials in each of the Ammonia and Urea Plants shall be in accordance with the guarantees given below.
- 26.1.6 The effluents from the Plant shall be in accordance with annexure XVII.
- 26.2 The guarantees outlined in Article 26.1 shall be divided into Absolute Guarantees and Penaltiable Guarantees.
- 26.2.1 Absolute Guarantees shall be defined as those guarantees which the CONTRACTOR shall establish without any limitation to his cost, and which cannot be satisfied by the payment of liquidated damages.
- 26.2.2 Penaltiable Guarantees shall be defined as those guarantees which can be satisfied by the CONTRACTOR on payment of liquidated damages in accordance with Article 27.
- 26.3 Absolute Guarantees and Penaltiable Guarantees shall be:
- 26.3.1 Absolute Guarantees:
- 26.3.1.1 95 per cent of the capacity of the Ammonia Plant corresponding to 95 per cent of (1,000) Tonnes per Day of specification-grade ammonia.
- 26.3.1.2 The quality of ammonia as per annexure XVI.
- 26.3.1.3 95 per cent of the capacity of the Urea Plant corresponding to 95 per cent of (1,725) Tonnes per Day of specification-grade urea.

26.3.1.4 The quality of urea as per annexure XVI.

26.3.2 Penalties Guarantees:

26.3.2.1 The capacity of the Ammonia Plant if below 100 per cent of the capacity, but not less than 95 per cent of the capacity.

26.3.2.2 The capacity of the Urea Plant if below 100 per cent of the capacity, but not less than 95 per cent of the capacity.

26.3.2.3 The quality and quantity of carbon dioxide adequate and suitable to produce 100 per cent of the guaranteed capacity of urea (1,725) Tonnes per Day of the stipulated quality.

26.3.2.4 The adequacy of Off-Sites to sustain the continuous production of ammonia and urea at 100 per cent of the capacity.

26.3.2.5 The capacity of the steam and power plant shall be () kW when operating at a power factor of (). The steam and power plant shall also produce the quantities of steam given below for use outside the plant (steam quantities and pressures to be stated):

26.3.3 The following guarantees shall be negotiable 14/ and shall become Penalties or Absolute, according to negotiation:

26.3.3.1 The effluents and emissions from the Plant shall be in accordance with annexure XVII.

26.3.3.2 The consumption of raw materials shall be in accordance with annexure XXX (up to a maximum of () per cent above that guaranteed) 15/ subject to the provisions of Article 27.2.4.

26.3.3.3 The consumption of utilities shall be in accordance with annexure XXX (up to a maximum of () per cent above that guaranteed) 15/ subject to the provisions of Article 27.2.4.

26.3.3.4 (The consumption of raw materials if in excess of () per cent of that guaranteed in annexure XXX).

14/ Following negotiation and the renumbering of the guarantees contained in this sub-Article, under sub-Article 26.3.1 (Absolute Guarantees) or sub-Article 26.3.2. (Penalties Guarantees), this sub-Article 26.3.3 will become redundant, and should be deleted.

15/ The words in brackets and underlined are to be used when consumption guarantees for raw materials and utilities above an agreed percentage are Absolute; otherwise, if only Penalties, these words can be deleted.

26.3.3.5 (The consumption of utilities if in excess of () per cent of that guaranteed in annexure XXX).

26.4 Performance Guarantee Test procedures

26.4.1 Ammonia Plant

Performance Guarantees of the Ammonia Plant shall be demonstrated by means of the following Performance Guarantee Tests:

26.4.1.1 A minimum (20)-Day sustained continuous test under normal operating conditions in order to demonstrate the capability for continuous steady operation and capacity at an average of (90) per cent of the capacity of the Ammonia Plant, together with the capability to produce specification-grade ammonia and carbon dioxide, followed immediately by:

26.4.1.2 A (10)-Day uninterrupted continuous test under normal operating conditions, in which the operation of the Ammonia Plant at 100 per cent of capacity and the *consumption of raw materials and utilities shall be demonstrated*, while producing specification-grade ammonia. The tests for capacity and quality shall be applicable for all (10) Days of the test. One hundred (100) per cent capacity of the Ammonia Plant shall be (10,000) Tonnes of 99.8 per cent of the Product and shall be corrected for any increase in strength. For consumption of the raw materials and utilities the test period shall be any consecutive (7) Days within the (10)-Day period.

26.4.2 Urea Plant

Performance Guarantees on the Urea Plant shall be proven by means of the following Performance Guarantee Tests:

26.4.2.1 A minimum (20)-Day sustained continuous test under normal operating conditions in order to demonstrate the capability for continuous steady operation and capacity at an average rate of (90) per cent of the Urea Plant together with the capability to produce urea of specification grade, to be followed immediately by:

26.4.2.2 A (10)-Day uninterrupted continuous test under normal operating conditions in which the operation of the Urea Plant at 100 per cent of capacity, and the consumption of raw materials and utilities shall be demonstrated while producing specification-grade urea. The tests for capacity and quality shall be applicable for all (10) Days, and the test for consumption shall be for any consecutive (7) Days within the (10)-Day test period. One hundred (100) per cent capacity of the Urea Plant shall be (17,250) Tonnes of specification-grade Product and shall be corrected for any increase in strength.

26.4.3 Power plant

The power plant shall be operated at capacity (as soon as the load permits) for the said period of (7) consecutive Days to prove its guarantee of capacity for both power and steam, and its guarantee for consumption of fuel.

26.4.4 During the specified (10)-Day period under Articles 26.4.1.2 and 26.4.2.2 (unless as otherwise agreed) the Ammonia and Urea Plants shall be run simultaneously at capacity for any consecutive (7) Days (within the (10)-Day period) to prove that the power plant and Off-Sites are adequate for the continuous and uninterrupted operation of the Ammonia and Urea Plants and Off-Sites together.

26.4.5 The Performance Guarantee Tests shall be run in accordance with annexure XXXI.

26.4.5.1 The CONTRACTOR shall have the right to have the Plant(s) operated in accordance with his requirements to perform the test(s), and the PURCHASER's personnel shall work under the technical instructions of the CONTRACTOR.

26.4.5.2 The detailed procedures to be followed for the execution of the Performance Guarantee Tests shall be agreed upon between the parties within (3) months before the commencement of the above tests. Instrument tolerances shall be warranted by the CONTRACTOR. ^{16/} The PURCHASER and the CONTRACTOR shall agree on the instruments and shall jointly calibrate them for measurement of the Plant capacity and consumption.

26.4.6 If the (10)-Days' Performance Guarantee Test(s) is (are) interrupted due to reasons for which the CONTRACTOR is not responsible, the Plant(s) shall be started again as soon as possible and when the Plant(s) has (have) reached normal operating conditions, the test(s) shall continue immediately thereafter. The duration of the test(s) shall be extended by the duration of such interruptions and the test(s) shall then be deemed to have been performed continuously provided, however, that the plant has been operated for a minimum (7)-Day period without interruption.

26.5 The CONTRACTOR shall be obligated to complete successfully the Performance Guarantee Tests of the Plant within the periods stipulated in annexure XXXI or to pay liquidated damages in accordance with Article 27, unless his failure to complete the tests within the period stipulated in Article 27.4 was for reasons not attributable to the CONTRACTOR.

26.6 After the successful completion of any Performance Guarantee Test, in accordance with the Contract, the CONTRACTOR shall prepare a Performance Test Report, which shall be signed by the CONTRACTOR and submitted to the PURCHASER for approval.

^{16/} These may be warranted at the time of the signing of the Contract and the tolerances stated in annexure XXXI.

26.6.1 If the said report is satisfactory, the PURCHASER shall issue within (30) Days from the receipt of the CONTRACTOR's report a Provisional Acceptance Certificate and, if not, shall inform the CONTRACTOR's Site representative within the same period of the reasons for non-acceptance.

26.6.2 Provided Article 26.6 has been complied with, in the event of the PURCHASER failing to issue the Provisional Acceptance Certificate or to inform the CONTRACTOR as provided in Article 26.6.1, the CONTRACTOR shall request the PURCHASER for an explanation for the delay and if the PURCHASER fails to respond within another (30) Days, the Provisional Acceptance of the Plant for which the Performance Guarantee Test was conducted shall be deemed to have taken place, on the date that the test was successfully completed.

Text A

Text B

26.7 The obligations of the CONTRACTOR shall be deemed to have been fulfilled, if for reasons not attributable to the CONTRACTOR the Performance Guarantee Tests under Article 26.4 cannot be carried out or completed within (30) months from delivery of 99 per cent by value of the Equipment and Materials provided that the Equipment and Materials delivered are adequate for carrying out the Performance Guarantee Tests, and provided further that in the event of force majeure, the period shall be extended by the period of force majeure but not exceeding (____) months. In the event of a dispute as to the fulfilment of the CONTRACTOR's obligations and as to the entitlement for payment, the parties hereto shall resort to arbitration.

26.7 The obligations of the CONTRACTOR shall be deemed to have been fulfilled, if for reasons not attributable to the CONTRACTOR the Performance Guarantee Tests under Article 26.4 cannot be carried out or completed within (____) months from delivery of 99 per cent by value of the Equipment and Materials provided that the Equipment and Materials delivered are adequate for carrying out the Performance Guarantee Tests and provided further that in the event of force majeure, the period shall be extended by the period of force majeure but not exceeding (____) months. In the event of a dispute as to the fulfilment of the CONTRACTOR's obligations and as to the entitlement for payment, the parties hereto shall resort to arbitration.

26.8 In the event that the Performance Guarantee Tests cannot be made within the period stipulated in Article 26.7 above, the CONTRACTOR shall be obligated to send personnel to the Site to assist in starting up and testing the Plant, provided, however, that the PURCHASER shall pay additional fees and travel expenses for this service as may be agreed between the PURCHASER and the CONTRACTOR.

ARTICLE 27

Liquidated damages

27.1 The CONTRACTOR shall be liable to the payment of liquidated damages for default of the several responsibilities under the Contract, as follows:

27.1.1 For the delay in the delivery of the Technical Documentation stipulated in annexure XV, the agreed liquidated damages shall be as follows: for each week of delay in the submission of a required document an amount of (17/) subject to an overall maximum liability of (____) under this Article.

27.1.2 For delay in supply of 95 per cent of the Equipment and Materials (by value) beyond the period of (____) months after the Effective Date of the Contract: for each week of delay an amount of (17/) of the firm part of the Contract Price as defined in Article 20.1.

Text A

Text B

27.1.3 For delay in obtaining Commercial Production as defined in Article 18.7 beyond a period of (75) Days after Mechanical Completion of the Plant(s), an amount of (17/) for each week of delay, subject to a maximum of (____) weeks.

27.1.3 Not used.

27.2 In the event that the Absolute Guarantees have been successfully demonstrated in accordance with the Contract but the Penaltiable Guarantees have not been met, the CONTRACTOR shall immediately thereafter proceed to execute the required Rectifications to the Plant(s) or at the CONTRACTOR's option, the CONTRACTOR shall pay by way of liquidated damages, in consideration of any and all claims in connection with the fulfilment of Penaltiable Guarantees as follows:

27.2.1 For the Ammonia Plant: for each full 0.5 per cent exceeding the daily guaranteed cost of manufacture as given in Article 27.2.4 below, an amount of (18/) up to a maximum of (____).

27.2.2 For the Urea Plant: for each full 0.5 per cent exceeding the daily guaranteed cost of manufacture as given in Article 27.2.4 below, an amount of (18/) up to a maximum of (____).

27.2.3 For the power plant: for each additional (____) kcal of fuel (alternatively (____) m³ of gas or (____) Tonnes of fuel oil) per kWh of power generated and the guaranteed auxiliary quantities of steam over and above the guaranteed consumption, an amount of (18/) up to a maximum of (____).

17/ Fixed sum or percentage to be negotiated.

18/ Fixed sum to be negotiated.

27.2.4 The guaranteed daily cost of manufacture referred to in annexure XXXI shall be computed by calculating the guaranteed daily cost of inputs of raw materials and utilities minus the guaranteed output of utilities, according to the costs given below for each item, and multiplying by the guaranteed daily capacity of each Plant, to obtain the guaranteed daily net cost of raw materials and utilities.

Natural gas	(<u>value</u>) per million kcal
High pressure steam	(<u>value</u>) per Tonne
Medium pressure steam	(<u>value</u>) per Tonne
Low pressure steam	(<u>value</u>) per Tonne
Cooling water	(<u>value</u>) per m ³
Boiler feed water	(<u>value</u>) per m ³
Purge gas of Ammonia Plant	(<u>value</u>) per million kcal
Condensate	(<u>value</u>) per Tonne
Ammonia	(<u>value</u>) per Tonne

27.2.5 By virtue of the application of Article 27.2.4 and annexure XXXI the obligations of the CONTRACTOR in connection with the performance of the Penaltiible Guarantees for raw materials and utilities shall be considered as fulfilled.

27.2.6 For non-fulfilment of Guarantees at 100 per cent capacity but subject to fulfilment of the Absolute Guarantee at 95 per cent capacity of the Ammonia Plant, a sum of 0.6 per cent of the total Contract Price (amount) as stated in Article 20.1 for each 1 per cent of lower production than of the 100 per cent capacity of ammonia.

27.2.7 For non-fulfilment of Guarantees at 100 per cent capacity but subject to fulfilment of the Absolute Guarantees at 95 per cent capacity of the Urea Plant, a sum of 0.4 per cent of the total Contract Price (amount) as stated in Article 20.1 for each 1 per cent of lower production than of the 100 per cent capacity of urea.

27.2.8 For not meeting the guarantees for emission and effluents, liquidated damages of (18/). 19/

27.2.9 For insufficiency in carbon dioxide, resulting in a lowering of urea production, liquidated damages shall be the same as under Article 27.2.7 above. 20/

27.2.10 For inadequacy of Off-Sites an amount of (18/) up to a maximum of (). 20/

27.2.11 For each (1) kW shortfall in the power plant capacity (at a power factor of ()) an amount of (18/) up to a maximum of ().

19/ Provided this guarantee is a Penaltiible Guarantee.

20/ This Article is meant for cases when the Ammonia and Urea Plants are built by different contractors. Liquidated damages should be imposed only once for insufficient urea capacity if there is a single contractor for both Plants.

27.2.12 In the event that the CONTRACTOR does not elect to pay the liquidated damages for the non-fulfilment of the Penaltiable Guarantees the CONTRACTOR shall be liable to complete the necessary work and services pertaining to the required modifications, referred to in Article 29, within (9) months from the date of Start-up of the Plant(s).

Text A

Text B

27.3 In the event that the CONTRACTOR does not or is unable to complete the Performance Guarantee Tests within 9 months after Initial Operation of the Plant, extended by such time as is required for repair and/or replacement of Equipment in accordance with Article 29.1 except where an extension has been granted due to circumstances outside the control of the CONTRACTOR or fault of the PURCHASER as provided therein, the CONTRACTOR shall pay liquidated damages to the PURCHASER in the amount of (1) per cent of the Contract Price for each month of delay subject to a maximum of (9) per cent.

27.3 Not used.

27.4 Should the CONTRACTOR be unable for reasons within his control, or is unwilling, to fulfil the Absolute Guarantees within (18) months after Initial Operation of the Plant, extended by such time as is required for repair and/or replacement of the Equipment in accordance with Article 29.1, the PURCHASER shall (at his option) have the right to recover the full costs necessary to correct the Plant or shall have the right to proceed to rectify the Work(s) through engagement of such parties as the PURCHASER may deem fit, and the provisions of Article 30 shall apply. The determination of costs incurred by the PURCHASER shall be made by mutual agreement or through arbitration procedures or court action.

27.5 The payment of such liquidated damages shall not relieve the CONTRACTOR from any of his obligations and liabilities under the Contract other than the obligations and liabilities covered by such liquidated damages.

ARTICLE 28

Warranties

- 28.1 The CONTRACTOR warrants that the Equipment and Materials properly conform with the specifications of the Contract. The CONTRACTOR warrants the mechanical capabilities of the Plant and Equipment in accordance with Article 28.2.
- 28.2 The CONTRACTOR's warranty under Article 28.1 shall be for 12 months, commencing from the date of Provisional Acceptance as defined in Article 18. This period shall not exceed () months from delivery of 99 per cent by value of the Equipment and Materials provided that the Equipment and Materials delivered are adequate for carrying out the Performance Guarantee Tests but this ()-month period shall be extended for such period that Provisional Acceptance of the Plant cannot take place due to the fault of the CONTRACTOR provided, however, in case of a force majeure occurrence as to both parties this ()-month period shall be extended by the time caused by force majeure but not to exceed an additional () months.
- 28.2.1 Warranty for consumable articles shall be as agreed between the CONTRACTOR and the PURCHASER.
- 28.3 If within the period specified in Article 28.2 the Equipment and Materials or any part thereof becomes defective or broken or fails due to faulty or improper design, workmanship, material, manufacture, fabrication, or delivery FOB, or fails to meet the requirements of the Contract, then the CONTRACTOR, upon notification in writing from the PURCHASER, shall forthwith make good every such defect, breakage or failure without cost (including without limitation, transportation cost) to the PURCHASER. If after such notification, the CONTRACTOR shall make default or delay in diligently commencing, continuing and completing the making good of such defect, breakage or failure in a manner satisfactory to the PURCHASER, the PURCHASER may proceed to do so independently and to place the Equipment and Materials in good operating condition in accordance with the Contract, and the CONTRACTOR shall be liable for all costs, charges and expenses incurred by the PURCHASER in connection therewith and shall pay the PURCHASER an amount equal to such costs, charges and expenses upon receipt of invoices.
- 28.4 Pursuant to Article 28.3 above, should the removal of the defect require replacement of the Equipment, the replacement shall be accomplished in the shortest possible time. Subject to prior approval by the CONTRACTOR (which shall not be unreasonably withheld), the PURCHASER shall have the right to repair minor defects at the CONTRACTOR's cost.

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| 28.5 If any part(s) of the Work(s) are repaired or replaced pursuant to this Article and/or Article 29, the warranty period for the repairs or the replaced items shall begin anew for another 12 months after bringing into | 28.5 If any part(s) of the Work(s) are repaired or replaced pursuant to this Article and/or Article 29, the warranty period for the repairs or the replaced items shall begin anew for another 12 months after bringing into |
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satisfactory operation the repaired and/or replaced part(s) of the Work(s), irrespective of any portion of the original warranty period relating to the same having expired. In relation to such other Equipment which could not be operated due to the necessity for repair or replacement of the defective part(s) of the Work(s) referred to herein, the warranty period shall be extended by a time equivalent to their periods of non-operation.

satisfactory operation the repaired and/or replaced part(s) of the Work(s), irrespective of any portion of the original warranty period relating to the same having expired. In relation to such other Equipment which could not be operated due to the necessity for repair or replacement of the defective part(s) of the Work(s) referred to herein, the warranty period shall be extended by a time equivalent to their periods of non-operation. But in no event shall the warranty period be extended beyond 12 months after the expiration of the original guarantee period defined in Article 28.2.

28.6 The CONTRACTOR's warranty shall not be deemed to cover:

28.6.1 Damage arising through disregard of the CONTRACTOR's written instructions after Provisional Acceptance by the PURCHASER.

28.6.2 Normal wear and tear.

28.7 In the event that any defects are found in the Equipment or Materials within their warranty period, the PURCHASER shall immediately inform the CONTRACTOR by telegram/telex and the CONTRACTOR shall promptly respond to the communication. In emergency circumstances and where the damage is not more than (\$US 3,000) in value, and if the CONTRACTOR's personnel is not on the Site, the PURCHASER shall have the right to institute remedial measures immediately at the CONTRACTOR's cost in accordance with the Contract.

ARTICLE 29

Rectifications of defects and Modifications to the Works

- 29.1 In the event that for whatever reason due the fault of the CONTRACTOR any Rectifications or Modifications are to be undertaken to the Equipment supplied by him, the Rectifications and Modifications shall be performed in accordance with this Article.
- 29.2 Whenever any of the defects (other than minor defects) requiring Rectifications or Modifications referred to in Article 29.1 appear, the CONTRACTOR shall immediately thereafter advise the PURCHASER.
- 29.3 The CONTRACTOR shall keep the PURCHASER informed of the method he plans to use to remedy the defects. The CONTRACTOR shall employ the most efficient means to be recommended in a report indicating the method to be used and the detailed reasons for the course of action intended to be taken. Subject to the provisions of Article 13.11.2 the PURCHASER has the right to ask a consultant to help him review the method which is to be used by the CONTRACTOR. The PURCHASER shall communicate the results of this review to the CONTRACTOR. However, the right of final decision on what has to be done to remedy the defects and the responsibility for carrying out the Rectifications and Modifications shall remain with the CONTRACTOR. The provision as to warranties, guarantee requirements as elsewhere expressed in this Contract shall continue to apply with equal force.
- 29.4 The PURCHASER and the CONTRACTOR shall by mutual agreement define if additional tests are necessary to establish the efficacy of such repair, rectification or replacement, and in that case the CONTRACTOR shall perform tests such as agreed upon. In case the CONTRACTOR is unsuccessful in performing such tests, the CONTRACTOR shall, at his cost and option either repair or replace again or decide in agreement with the PURCHASER on the further action needed. The CONTRACTOR shall undertake, at his cost, all agreed and necessary actions within the time limits. The CONTRACTOR shall extend the periods of validity of the bank guarantee(s) and performance bond(s) commensurate with the period of extension(s) granted by the PURCHASER. The extension and time allowed to the CONTRACTOR hereby shall not in any way absolve him of any liabilities for the period of delay.
- 29.5 In the event that replacement of Equipment is necessary for the rectification, the CONTRACTOR shall bear all the costs of replacement, delivery to the Site and erection of the replaced Equipment, and repair all parts of the Works damaged by such replacement. In the event that modifications to the Civil Works are required the costs of these shall also be borne by the CONTRACTOR. The total costs to the CONTRACTOR over and above FOB delivery on account of the rectification shall be subject to a maximum of (____) per cent of the Contract Price. The replaced Equipment shall be returned ex Site to the CONTRACTOR and if required the CONTRACTOR shall export it.
- 29.5.1 The payment of duties for such replaced Equipment shall be borne by the PURCHASER if he gets a rebate on the re-export of the replaced Equipment, otherwise they shall be borne by the CONTRACTOR.
- 29.6 If the CONTRACTOR neglects or refuses to take the necessary measures to undertake the necessary Modifications or Rectifications to meet his

Absolute Guarantees in the agreed time, and has been given written notice by the PURCHASER and still fails to take the necessary measures within a reasonable time, the PURCHASER may take all measures he considers necessary to eliminate the defect(s) and the cost of such remedial steps taken by the PURCHASER shall be recoverable from the CONTRACTOR, in accordance with the provisions of the Contract.

- 29.7 The PURCHASER shall in every case keep accurate records of the costs of making good any defect(s) in pursuance of this Contract and the CONTRACTOR shall be entitled to receive copies of all documents he considers appropriate.

ARTICLE 30

Liabilities, set-off and waiver

- 30.1 The CONTRACTOR shall be subject to liabilities and damages for default of his contractual responsibilities, and shall be duty-bound to fulfil all the obligations as expressed more particularly in each of the Articles of the Contract.
- 30.2 The CONTRACTOR shall be liable subject to the PURCHASER having fulfilled his relevant obligations under the Contract for the satisfactory fulfilment of the guarantee requirements and Performance Guarantee Tests; for adequacy and sufficiency of inspections, and shall be responsible for necessary Modifications and Rectifications to the Plant, and/or sections thereof, pursuant to Article 29 and shall be accountable for the completion of the Works.
- 30.3 The CONTRACTOR shall not be liable for any Equipment of the PURCHASER damaged or lost during transportation, erection, Start-Up and Performance Guarantee Tests, except where such loss or damage has occurred due to a negligent act or omission of the CONTRACTOR and such loss or damage is not covered by the insurance specified in Articles 24.5.1 and 24.5.3. Notwithstanding the above, the CONTRACTOR's liability for loss or damage under this Article shall in any event be limited to amounts recovered by the CONTRACTOR from his third-party liability insurance, the coverage and value of which must be reasonable and agreed to by the PURCHASER before the Effective Date of the Contract.
- 30.4 The total liability of the CONTRACTOR, whether due to his negligence or otherwise arising out of, or under the Contract, shall not exceed (____) per cent of the Contract Price, or (amount) whichever is the greater, with the exception of the CONTRACTOR's unlimited liability for the fulfilment of the Absolute Guarantees and the CONTRACTOR's liabilities for warranties and for making Modifications, Rectifications and completions of the Works in accordance with the Contract, as well as the reimbursement to the PURCHASER of any amount(s) received by the CONTRACTOR under insurance policies pursuant to Article 24.
- 30.5 The CONTRACTOR shall not be liable under the Contract for loss of anticipated profits or for any consequential loss or consequential damage.

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| 30.6 If the CONTRACTOR has failed within a reasonable time after being required by the PURCHASER to undertake any rectification or replacement for which the CONTRACTOR is liable under this Contract, the PURCHASER may take such remedial steps as are necessary to carry out the rectification or the replacement and the CONTRACTOR shall thereupon be liable to the PURCHASER for | 30.6 If the CONTRACTOR has failed within a reasonable time after being required by the PURCHASER to make good any loss or damage for which the CONTRACTOR is liable under this Contract, the PURCHASER may cause the loss or damage to be made good as the CONTRACTOR should have done under the Contract, and the CONTRACTOR shall thereupon be liable to the PURCHASER for such costs, expenses and |
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the cost of the remedial steps taken by the PURCHASER and shall on demand pay the amount due.

charges, but only to the extent of his liability under Article 29.1, as are reasonably and inevitably incurred. The CONTRACTOR's obligation is conditional upon written notice being given by the PURCHASER to the CONTRACTOR specifying the particulars of the CONTRACTOR's failure and the PURCHASER's intention to make good the loss or damage itself.

Text A

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30.7 No bond, undertaking or payment given, supplied or offered by the CONTRACTOR to the PURCHASER (whether required by the terms of this Contract or by any other agreement between the parties hereto) shall in any way or to any degree affect, alter or limit the liability of the CONTRACTOR under this Contract and the acceptance by the PURCHASER of any such bond, undertaking or payment shall neither be interpreted or construed as effecting or implying any waiver by the PURCHASER of any PURCHASER-rights or remedies nor as the acceptance of coverage or protection in lieu of any PURCHASER-right or remedies under this Contract.

30.7 Not used.

Text A

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30.8 In the event that the PURCHASER considers that he possesses a claim against the CONTRACTOR under, arising out of, or in any way connected with, this Contract, the PURCHASER may at any time (whether before or after the completion of the work under this Contract and whether such completion is affected by the CONTRACTOR, the PURCHASER or another person) calculate the amount of the damage or loss upon which such claim is based and (without restricting any right of

30.8 The PURCHASER shall have no right to set off or deduct any claims from payments due to the CONTRACTOR. The PURCHASER hereby waives any such right of set-off or counter-claim given or implied by law.

set-off or counter-claim given or implied by law) may set off against any amount then or to be subsequently payable to the CONTRACTOR under this Contract, any sum deemed by the PURCHASER to be payable to the PURCHASER by the CONTRACTOR pursuant to any such above-mentioned claim, and, without restricting the generality of the foregoing, the PURCHASER may deduct from any sum otherwise then or to be subsequently payable or repayable to the CONTRACTOR under any provision of this Contract (including inter alia Articles 11, 12, 28, 29 and 40) any sum so deemed payable or retainable to or by the PURCHASER by virtue of any other provisions of this Contract or by virtue of the right of set-off or counter-claim, whether as conferred by this Article or otherwise.

Should the PURCHASER exercise any such right of set-off as envisaged herein, the PURCHASER shall specifically notify the CONTRACTOR in writing that the said right is being exercised, it being expressly agreed that no letter or other communication by the PURCHASER shall constitute such notification to the CONTRACTOR unless the said letter or other communication so stipulates. At any time up to 60 Days after the receipt of the notification contemplated above, the CONTRACTOR may institute proceedings in a court of competent jurisdiction to establish that the damage or loss as calculated by the PURCHASER did not in whole or in part constitute a valid legal claim against the CONTRACTOR but after the expiry of the said 60 Days the CONTRACTOR shall be deemed to have acknowledged the validity, both as regards

quantum and otherwise of the aforesaid claim of the PURCHASER. Should the amount of the above-mentioned claim of the PURCHASER exceed the amount or value of the set-off nothing herein shall be construed as a bar to the right of the PURCHASER to adopt any other legal measures available against the CONTRACTOR for the amount of such excess.

- 30.9 No previous waiver of a particular right or remedy by either party shall operate as a waiver of a future right or remedy (which would normally be invocable) unless otherwise stated.

ARTICLE 31

Taxes and levies

31.1 Except as otherwise specified in this Contract, each and every price cited in or contemplated by this Contract as described in Articles 20.1 to 20.8 includes and covers 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 PURCHASER's country pertinent to the Equipment and Materials and the CONTRACTOR's Services provided pursuant to this Contract, and/or to the performance of the work, and all other costs and charges whatsoever relevant to such Equipment and Materials, CONTRACTOR's Services and/or to such performance of the work by the CONTRACTOR.

31.2 21/

21/ This sub-Article should cover income tax, other taxes, customs duties, imposts and levies imposed on the CONTRACTOR, his Subcontractors or on their employees in the PURCHASER's country to be agreed upon from case to case:

(a) Considering the corresponding laws in the PURCHASER's country including the existence or non-existence of an agreement for the avoidance of double taxation between the countries of the PURCHASER and the CONTRACTOR;

(b) Enabling the CONTRACTOR either to receive the payments from the PURCHASER free of the above taxes etc. or to have considered them when fixing the amounts to be received by the CONTRACTOR;

(c) The CONTRACTOR, in case of any of his taxes having been assumed by the PURCHASER, being obligated to co-operate with the PURCHASER to minimize such tax burden and to reimburse the PURCHASER with any tax savings which the CONTRACTOR may have in his country resulting from tax payments effected by the PURCHASER.

ARTICLE 32

Suspension of Work

- 32.1 The PURCHASER may, when in the PURCHASER's opinion it is deemed necessary, require the CONTRACTOR to suspend execution of the Work, or part of the Work, either for a specified or unspecified period by communicating notice to that effect to the CONTRACTOR. If the period is unspecified, the PURCHASER shall specify the period of suspension within (45) Days thereafter.
- 32.2 The CONTRACTOR, upon receiving notice of the PURCHASER's requirement pursuant to Article 32.1 above, shall suspend all operations except those which, in the PURCHASER's and the CONTRACTOR's opinion, are necessary for the care or preservation of the Plant.
- 32.3 During the period of suspension, the CONTRACTOR shall not remove from the Site any Materials, any part of the Plant, or any Equipment without the consent of the PURCHASER.
- 32.4 If the period of suspension is (90) Days or less, the CONTRACTOR, upon the expiration of the period of suspension, shall resume the execution of the Contract in accordance with an extension of time granted by the PURCHASER reasonably commensurate with the period during which the execution of the Plant or part of the Plant was suspended and the CONTRACTOR shall be reimbursed for his reasonably justified additional costs which should be evidenced by necessary documentation.
- 32.5 If the period of suspension is more than (90) Days, upon the expiration of the period of suspension, the CONTRACTOR shall resume operations and fulfil the Contract in accordance with the terms and conditions of this Contract, provided, however, that the time schedule will be extended accordingly and his reasonably justified costs as evidenced by documentation will be reimbursed to him for the period of suspension subject to any further amendments to the Contract in accordance with Article 19.3.

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| 32.6 If the period of suspension exceeds 365 Days and if either the PURCHASER requests the CONTRACTOR to recommence the Work upon amended terms (to be agreed mutually) and the PURCHASER and the CONTRACTOR are unable to reach agreement on the method for the completion of the Contract, or the CONTRACTOR states in writing that he is unwilling in any event to undertake further Work, the Contract shall be terminated according to Article 33. | 32.6 If the period of suspension exceeds 180 Days, either party can ask for a complete review of the Contract, and for a re-negotiation of the terms including the time of re-commencement of Work. If within a further period of (18) months the parties are unable to reach an agreement, or have not resorted to arbitration, then the CONTRACTOR can seek termination of the Contract without, however, compensation for consequential losses. |
| 32.7 Both the PURCHASER and the CONTRACTOR shall make bona fide endeavours to resume the Work as expeditiously as possible. | |
| 32.8 Payments if any made under this Article shall be governed by the provisions of Article 19.2. | |

ARTICLE 33

Termination or cancellation of the Contract

33.1 Termination

In the event that the PURCHASER is subject to any circumstances which are wholly unavoidable and/or beyond his control (but not including occurrences which are covered by Article 34), then the PURCHASER may at any time by giving notice in writing to that effect terminate this Contract.

33.2 The CONTRACTOR shall upon receipt of a notice pursuant to Article 33.1 above cease all operations forthwith.

33.3 If the Contract is terminated pursuant to Article 33.1, 22/ the PURCHASER shall pay to the CONTRACTOR an amount equal to the greater of:

33.3.1 The cost of the Equipment and Materials properly supplied or Work done by the CONTRACTOR as at the date of the termination, including the cost of terminating commitments made in good faith to suppliers or Subcontractors, as substantiated by appropriate evidence, less all amounts already paid to the CONTRACTOR by the PURCHASER, and less all amounts which the CONTRACTOR is liable under the Contract to pay to the PURCHASER or owing to the PURCHASER, and

33.3.2 The amount calculated in accordance with the terms of payment which would have been legitimately payable to the CONTRACTOR up to the date of termination provided the CONTRACTOR had in fact fulfilled his contractual obligations to such date.

33.3.3 The PURCHASER may at his own option take over any or all of the commitments made by the CONTRACTOR to suppliers or Subcontractors and in such case the cost of termination of such commitments shall not be included in Article 33.3.1 above.

33.4 In the event that the CONTRACTOR and the PURCHASER are unable to agree upon the amount of payments then the aggrieved party may resort to arbitration as provided for in Article 37.

33.5 In the event of a termination of this Contract pursuant to this Article the following rights shall accrue to the PURCHASER:

Text A

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33.5.1 To the extent that the PURCHASER has made payments pursuant to Article 20.2 (subject to recovery or deduction of other monies by the PURCHASER under the

33.5.1 Not used. 24/

22/ In connection with the termination of the Contract under this Article 33.3, a provision may be included for compensating the CONTRACTOR for loss of profits.

terms of the Contract) the PURCHASER shall have the right to obtain from the CONTRACTOR when he is also the process licensor the documentation for know-how and basic engineering, unless already supplied by the CONTRACTOR. To the extent that the PURCHASER has made payments to the CONTRACTOR pursuant to Article 20.2, the PURCHASER shall have the right to obtain directly from the process licensor (when the CONTRACTOR is not the process licensor) the documentation referred to above, unless already supplied through the CONTRACTOR. 23/

33.5.2 The PURCHASER shall be entitled to receive:

Text A

Text B

33.5.2.1 All the Technical Documentation completed or done at the date of termination, in accordance with annexures VI and XV.

33.5.2.1 All the Technical Documentation completed or done at the date of termination, in accordance with annexures VI and XV. 25/

23/ The validity of the process licence and the submission of the basic and detailed process engineering documents should be dependent upon a mutual agreement from case to case, taking into consideration the stage of implementation upon the termination of the Contract, and consequential adjustments in the price paid (for text A only).

24/ Article 35.5.1 shall cover the right of the PURCHASER to use the process licence and to receive the basic engineering documents prepared, depending on a mutual agreement from case to case, taking into consideration the stage of implementation upon the termination of the Contract and on consequent financial adjustment (for text B only).

25/ The right of the PURCHASER to receive the detailed process engineering documents is dependent on whether the PURCHASER will remain entitled to the licence or not (Article 33.5.1) (for text B only).

Text A

Text B

33.5.2.2	All calculations, computer print-outs or other materials pertaining to the detailed engineering, completed at the date of termination.	33.5.2.2	Not used.
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Text A

Text B

33.5.2.3	All detailed civil engineering drawings, all detailed electrical mechanical, instrumentation and other erection drawings available at the Site, or of termination.	33.5.2.3	All detailed civil engineering drawings, all detailed electrical, mechanical instrumentation and other erection drawings available at the Site, or completed at the date of termination. <u>25/</u>
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33.5.3 The PURCHASER shall be entitled to receive lists of all Equipment for which orders have been placed, together with all copies of purchase orders for Plant supplied and not supplied.

33.5.4 The PURCHASER shall be entitled to take delivery and receive the shipping papers for all Equipment for which whole or partial payment(s) has (have) been made by the CONTRACTOR.

33.5.5 The PURCHASER shall be provided with all procurement documentation for purchases under Article 10, including copies of all tenders issued or prepared, bids received, bid tabulations completed or under preparation and CONTRACTOR's recommendations completed and purchase orders prepared and issued up to the date of termination.

33.5.6 The PURCHASER shall be provided with all inspection reports, reports on visits to Subcontractors' factories and copies of test certificates received from Subcontractors up to the date of termination.

33.5.7 The PURCHASER shall have the right to establish direct contractual arrangements with the process licensor(s) as provided under Article 7.2.2.

33.6 Nothing herein shall invalidate the rights of the PURCHASER or the CONTRACTOR as to contractual grounds of action (in relation to damages or costs due to either party) whether through litigation or arbitral procedures, and, notwithstanding the termination of the Contract herein, the parties to this Contract may proceed to arbitration or may institute actions in the courts of competent jurisdiction.

33.7 Cancellation

In any of the following cases, the PURCHASER may, without any other authorization, cancel the Contract and take all or any part of the Works out of the CONTRACTOR's hands and may employ such means as the PURCHASER sees fit to complete this Contract and/or the Works:

- 33.7.1 Where the CONTRACTOR has delayed commencement of the work for 6 months or the supply of Equipment and Materials has not taken place within 8 months beyond the scheduled date, for reasons attributable to the CONTRACTOR and the PURCHASER has given notice to the CONTRACTOR and the CONTRACTOR has not replied or not taken action to commence work or complete the supply for (____) months after such notice was given.
- 33.7.2 Where the CONTRACTOR has become insolvent and/or made an assignment of the Contract without the approval of the PURCHASER.
- 33.7.3 Where the CONTRACTOR has committed an act of bankruptcy.
- 33.7.4 Where the CONTRACTOR has abandoned the Work.

Text A

Text B

- 33.7.5 Where the CONTRACTOR has failed to make proper disclosures as referred to in Article 40.
- 33.7.5 Not used.

33.8 Where this Contract or any portion or portions thereof has or have been taken out of the CONTRACTOR's hands under Article 33.7, the CONTRACTOR shall not, except as provided in Article 33.9 hereunder, be entitled to any further payment including payments then due and payable but not paid and the obligation of the PURCHASER to make payments as provided for in the terms of payment shall be at an end, and either party at their option may proceed to arbitration for recovery of damages.

33.9 Where this Contract, or any portion or portions thereof has or have been taken out of the CONTRACTOR's hands under Article 33.7 and is subsequently completed by the PURCHASER, the PURCHASER shall determine the amount, if any, of retention monies and progress claims of the CONTRACTOR unpaid at the time of taking the work out of the CONTRACTOR's hands that, in the PURCHASER's opinion, are not required by the PURCHASER for the purposes of the Contract and subject to any actions already instituted or proposed to be commenced in courts or under arbitration, the PURCHASER shall, if he is of the opinion that no financial prejudice to the PURCHASER will result, authorize payment of that amount to the CONTRACTOR.

33.10 The taking of this Contract, or of any portion thereof, out of the CONTRACTOR's hands pursuant to this Article does not operate so as to relieve or discharge the CONTRACTOR from the obligations imposed upon the CONTRACTOR by law except the obligation to complete physically the execution of such portion of the Contract as has been taken out of the CONTRACTOR's hands.

ARTICLE 34

Force majeure

34.1 In this Contract, force majeure shall be deemed to be any cause beyond the reasonable control of the CONTRACTOR or the PURCHASER (as the case may be) which prevents, impedes or delays the due performance of the Contract 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 any one 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 railway, port, airport, shipping service or other means of transportation or communication (occurring concurrently);

Any accident, fire or explosion;

Any strike, lock-out or concerted acts of workmen (except where it is within the power of the party invoking the force majeure to prevent such occurrence;

Shortages or unavailability of materials (compounded by the same shortage or unavailability from alternative sources).

34.2 If either party is prevented from or delayed in the performance of any of his obligations under this Contract 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.

34.3 The PURCHASER or the CONTRACTOR (as the case may be) shall be diligent in endeavouring to prevent or remove the cause of force majeure. Either party upon receipt of the notice of force majeure under Article 34.2 shall confer promptly with the other and agree upon a course of action to remove or alleviate such cause(s), and shall seek reasonable alternative methods of achieving the same performance objectives under the Contract.

34.4 If by virtue of Article 34.2 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 Contract.

Text A

34.5 If by virtue of Article 34.2 either of the parties is excused from the performance or punctual performance of any obligation for a continuous period of 9 months for one or more causes and if the consultations referred to in the preceding Article 34.4 have not resulted in mutual agreement (or have not taken place because the parties have been unable to communicate with one another), the parties shall thereupon agree to amend the terms of this Contract by virtue of the prevailing force majeure and shall determine the course of further action. If the parties are unable to reach an agreement to amend the terms of this Contract by virtue of the prevailing and continuous force majeure circumstances, or to terminate the Contract, then the parties may resort to arbitration pursuant to Article 37.

34.6 The PURCHASER acknowledges that any eventual inability on his part to make bona fide payments to the CONTRACTOR under this Contract shall not be claimed or deemed to constitute force majeure. In the event of a dispute as to the bona fide payments due, payments shall be determined by the provisions of Article 19.2 in like manner as suspension of the work, failing which the parties shall have recourse to the provisions of Article 37.

34.7 Both the PURCHASER and the CONTRACTOR shall be prompt and diligent to remove all causes of interruption or delay in the work, insofar as each is liable to do so.

Text B

34.5 If by virtue of Article 34.2 either of the parties is excused from the performance or punctual performance of any obligation for a continuous period of 9 months for one or more causes and if the consultations referred to in the preceding Article 34.4 have not resulted in mutual agreement (or have not taken place because the parties have been unable to communicate with one another), the parties shall thereupon agree to amend the terms of this Contract 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 Contract by virtue of the prevailing and continuous force majeure circumstances, then either party shall have the right to terminate the Contract under the provisions of Article 33.1 by giving written notice to the other party.

ARTICLE 35

Language governing the Contract

- 35.1 The governing language of the Contract shall be _____, and the definitions in such language shall be final in the use and interpretation of the terms of the Contract.
- 35.2 All correspondence, information, literature, data, manuals etc. required under the Contract shall be in the _____ language.
- 35.3 All expatriates sent by the CONTRACTOR to the Site, and all personnel sent by the PURCHASER for training shall be conversant in the _____ language.

ARTICLE 36

Applicable laws and conformity with local statutes

- 36.1 The laws applicable to the Contract shall be the laws of (country to be agreed), in conformity with the laws of the country where the Plant is located.
- 36.2 The CONTRACTOR, his staff, and representatives shall observe all codes, laws and regulations in force in the country of the PURCHASER and in the region where the Plant is located. In the event that any code, law or regulations are enacted after the Effective Date of the Contract (which are proven to the satisfaction of the PURCHASER to have an adverse effect on the CONTRACTOR's obligations, scope of work, prices and/or time schedule under this Contract), the PURCHASER shall either:
- 36.2.1 Obtain appropriate exemption(s) from the relevant authorities on the CONTRACTOR's behalf; or
- 36.2.2 Negotiate with the CONTRACTOR for commensurate change(s) in the scope of the work to be performed under the Contract, together with 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 PURCHASER in accordance with Article 23.2.
- 36.3 Nothing herein shall in any manner affect the validity of the Contract or derogate from the specified obligations of the CONTRACTOR, and his liabilities under the Contract and law.

ARTICLE 37

Settlement of disputes and arbitration

- 37.1 In the event of any dispute, difference or contention over the interpretation or meaning of any of the Articles to this Contract or reasonable inference therefrom, both parties shall promptly make endeavour to resolve the dispute or differences by mutual discussions and agreement.
- 37.1.1 Should the dispute or differences continue to remain unresolved, both parties may each nominate a person to negotiate and reconcile the dispute or differences to resolve thereby the matter of contention between the parties arising out of the Contract. In the event that these two persons referred to cannot agree, they shall nominate a third Neutral Person to reconcile the dispute or difference. In case the two persons cannot agree on a third Neutral Person or in case the efforts of the Neutral Person nominated by the two parties fail to resolve the differences within (6) months, both parties to the Contract shall proceed to arbitration as provided for herein.
- 37.1.2 Pending resolution of any such claim or dispute pursuant to Article 37.1.1, the CONTRACTOR shall perform in accordance with the Contract without prejudice to any claim by the CONTRACTOR for additional compensation and/or time to complete the work if such instructions (are in his opinion) above and beyond the requirements of the Contract.
- 37.2 Notwithstanding the existence of a dispute, the CONTRACTOR and the PURCHASER shall continue to carry out their obligations under the Contract, and payment(s) to the CONTRACTOR shall continue to be made in accordance with the Contract that in the appropriate cases qualify for such payment(s).
- 37.3 Subject to the provisions of this Article, either the PURCHASER or the CONTRACTOR may demand arbitration with respect to any claim, dispute or other matter that has arisen between the parties.
- 37.3.1 However, no demand for arbitration of any such claim, dispute or other matter shall be made until the later of (a) the date on which the PURCHASER or the CONTRACTOR, as the case may be, has indicated his final position on such claim, dispute or matter, or (b) the (20th) Day after the CONTRACTOR or the PURCHASER, as the case may be, has presented his grievance in written form to the other, and no written reply has been received within (20) Days after such presentation of the grievance.
- 37.3.2 No demand for arbitration shall be made after the (___) Day following the date on which the PURCHASER or the CONTRACTOR, as the case may be, has rendered his written final decision in respect of the claim, dispute or other matter as to which arbitration is sought. The PURCHASER or the CONTRACTOR, 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 the said (___) Day-period shall result in the decision being final and binding upon the other party.

- 37.4 All claims, disputes and other matters in question arising out of, or relating to, this Contract or the breach thereof which cannot be resolved by the parties shall be decided by arbitration in accordance with the terms contained in annexure XXXII. 26/ 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.
- 37.5 Notice of the demand for arbitration shall be filed in writing with the other party to the Contract in accordance with the conditions contained in the annexure referred to in Article 37.4 above. The demand for arbitration shall be made within the period specified in Article 37.3, 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 if such demand would be barred by the applicable statute of limitations.
- 37.6 The CONTRACTOR and the PURCHASER shall continue the work and undertake their obligations under the Contract in accordance with Article 37.2 and the CONTRACTOR shall maintain the progress schedule during any arbitration proceedings, unless otherwise agreed by the PURCHASER in writing.
- 37.6.1 Before commencement or continuation of the work which is the subject of the dispute under arbitration, the CONTRACTOR may request, at his discretion, a bank guarantee from the PURCHASER to cover the CONTRACTOR's estimate of the additional costs involved. The bank guarantee shall be payable in part or full only as a result of arbitration proceedings in favour of the CONTRACTOR, and shall be valid until 30 Days after the arbitration award.
- 37.7 In the event of arbitration, the CONTRACTOR and the PURCHASER agree that the arbitrator(s) shall have unrestricted access to the Plant (notwithstanding the secrecy provisions of Articles 7.8 to 7.13) for the purpose of the said arbitration.
- 37.8 Arbitration shall be at (town) and all proceedings will be in the _____ language. The governing law shall be in accordance with Article 36.

26/ This annexure will contain details of the specific arrangements relating to arbitration agreed to by the two parties.

ARTICLE 38

General provisions

- 38.1 This Contract supersedes all communications, negotiations, and agreements, either written or oral, relating to the work and made prior to the date of this Contract.
- 38.2 The express covenants and agreements herein contained and made by the PURCHASER and the CONTRACTOR are and shall be the only covenants and agreements upon which any rights against the PURCHASER or the CONTRACTOR are to be founded.
- 38.3 The provisions of the Articles of this Contract and the contents of the annexure shall be complementary to each other, but in the event of any conflict, the provisions of the Articles shall prevail.
- 38.4 The invalidity of a portion of this Contract shall not affect the validity of the remainder of the Contract unless such remaining portion should be thereby rendered meaningless or impracticable.
- 38.5 Article headings appearing herein are included for convenience only and shall not be deemed to be a part of this Contract.
- 38.6 If any document or information given or disclosed to the CONTRACTOR is given a security rating the CONTRACTOR shall take all reasonable measures directed by the PURCHASER to ensure the maintenance of the security rating.
- 38.7 The PURCHASER shall have the right to sell the Products and intermediates in the international market without any restriction imposed by the CONTRACTOR.

ARTICLE 39

Notices and approvals

- 39.1 Any notice to be given to or served upon either party under this Contract shall be deemed to have been properly served in the following circumstances:
- 39.1.1 Provided that:
- 39.1.1.1 Any notice to be given to the CONTRACTOR is to be conveyed by registered airmail post, or left at the address stated below, followed thereafter by the transmission of the same notice by cable or telex with a copy to be delivered to the CONTRACTOR's office at (town). (CONTRACTOR's address, cable address and telex number, marked for the attention of (designation))
- 39.1.1.2 In the case of a notice to be served on the PURCHASER it is to be sent by registered airmail post to or left at the address stated below, followed thereafter by the transmission of the same notice by cable or telex. (PURCHASER's address, cable address and telex number, marked for the attention of (designation))
- 39.1.1.3 In the case of a notice or information to be sent to the Engineer by the CONTRACTOR, or to be sent by the Engineer to the CONTRACTOR, such notice is to be delivered to the respective Site offices at (town).
- 39.1.2 When any such notice is sent by registered mail post it shall be deemed to have been duly served following the expiration of () Days following the date of posting and in proving such services 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.
- 39.2 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.
- 39.3 For the purposes of this Contract "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. Any and all approval(s) which amend, modify or vary the Contract and/or involve an increase in payment(s) shall be forwarded in like manner as the procedure specified for the notices under this Article.

ARTICLE 40

Disclosures

40.1 The CONTRACTOR shall not solicit, request or tolerate any commission, fee, discount or other payments from any Vendor. Should the CONTRACTOR receive any such payment (whether directly or indirectly) the CONTRACTOR shall forthwith disclose and reimburse the same without any deduction whatsoever to the PURCHASER.

Text A

40.2 The CONTRACTOR shall not pay fees, discounts or other commissions in relation to the award to him of this Contract. If any agent's fees are payable to agents in (PURCHASER's country) by virtue of legal agency agreement(s) made before the award of this Contract, then the CONTRACTOR shall (before the award of this Contract) make full disclosure to the PURCHASER of the name of the agent and quantum of fees that were or are to be paid.

Text B

40.2 The CONTRACTOR shall not pay fees, discounts or other commissions in relation to the award to him of this Contract either directly or indirectly to any employee of the PURCHASER.

ANNEXURE I

Brief description of the Plant

The object of this Contract is to establish an Ammonia Plant with a daily capacity of (1,000) Tonnes per Day integrated with a Urea Plant with a capacity of (1,725) Tonnes per Day, to be located at (details of location) in (country). The Site is shown on the attached map along with the existing rail and road network in (country).

The Plant shall use natural gas from (source) as raw material, and shall be designed to the process technology of (licensor) for the Ammonia Plant, and of (licensor) for the Urea Plant.

The basic steps in the manufacture of ammonia shall start from the specified natural gas as a feed and shall consist of natural gas compression, hydro treating and desulphurization, primary and secondary steam reforming, waste heat recovery to generate steam, high and low temperature shift conversion, CO₂ removal and recovery, methanation of carbon oxides, compression of synthesis gas using a turbine-driven centrifugal compressor and ammonia synthesis.

The basic steps in the manufacture of urea shall be as follows:

(insert here a brief description of the urea process used).

The facilities to be provided shall include the generation of power and steam, for which an optimum balance between electric and steam drives shall be made by the CONTRACTOR, and the Plant shall use a closed cooling water circuit, with cooling towers and make-up water from (source).

All utilities and Off-Sites, including workshop and laboratory facilities, shall also be provided as laid down in the Contract.

The effluents from the Plant shall be disposed of at (disposal point), as shown in the attached map, and effluent treatment facilities shall be provided to make the effluents fit for such disposal.

The Plant Site is located at a distance of (_____) kilometres from the nearest large habitations as shown in the attached map and Plant discharges to the air shall be controlled, keeping in mind the wind directions, temperature inversion and other relevant factors.

ANNEXURE II

Basis of design

1. Raw material specifications

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

- (a) Source;
- (b) Pressure and temperature at the Battery Limits of the Plant Site; a/
- (c) Analysis of the gas including, to the extent possible, the following:

<u>Components</u>	<u>Percentage by volume</u>
Methane	%
Ethane	%
Propane	%
Butane	%
Pentane	%
Hexane	%
	} If available, the proportions of iso and normal forms should be given as percentages
Nitrogen	%
Carbon dioxide	%
Inerts (specify)	%
Oxygen	%
Water content	%
Total sulphur	ppm v/v
Sulphur as H ₂ S	ppm v/v
Sulphur as organics	ppm v/v (including COS) <u>b/</u>
Lower calorific value	kcal/Nm ³ at STP

2. Meteorological data

Meteorological data should be given for at least 10 years and should include:

(a) Available average data

The available meteorological data for the Site (or the nearest station to the Site) should contain the following information for each month of the year:

- (a) Daily average maximum temperature, °C;

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

b/ If data on organic sulphur, such as COS, mercaptans, thiophenes etc. are available, this should be indicated.

- (b) Daily average minimum temperature, °C;
- (c) Monthly rainfall, mm;
- (d) Dry and wet bulb temperatures (°C), preferably both for morning (indicate time) and afternoon;
- (e) Prevailing wind direction (if available, a complete thumb-card indicating the yearly average occurrences of winds in the prevailing direction should be attached).

(b) Extremes recorded

This should contain data on the extremes recorded for:

- (a) Maximum temperature, °C;
- (b) Minimum temperature, °C;
- (c) Maximum rainfall recorded in 24 hours (indicate one- and two-hourly intensity);
- (d) Maximum recorded wind velocity (indicate occurrence of typhoons etc. or make reference to relevant standards concerning wind-load design data at various levels up to the levels of the highest structure to be designed).

3. Soil and seismic conditions

These should include:

- (a) The types of soil conditions;
- (b) The subsoil water-table level at the Site (indicate whether water is sweet, saline or sea water);
- (c) The load-bearing capacity in the area. If the soil-bearing capacity differs considerably in various places of the plot, a plot plan indicating drilling points and findings should be attached;
- (d) Available data on earthquakes in or near the Site and seismic design data commonly used in the area.

4. Standards and codes c/

British and American standards applicable to Ammonia and Urea Plants and Off-Sites are as follows:

Reinforced and pre-stressed structures	
for storage of liquids	BS CP 2007
Steel structures	BS 449
Steel chimneys	BS 4076

c/ The British and American Standards agreed upon for one particular Plant are given as examples. Other standards, such as the Deutsche-Industrie Norm (DIN), the Japanese Industrial Standard (JIS) etc., should be specified accordingly if required or envisaged as alternatives. Where national standards or codes exist, these should be clearly stated.

Steam boilers, superheaters and coils	ASME boiler and pressure code, section I
Convection coils	ASME
Tubular exchangers	ASME code, section VIII, divisions I and II, TEMA standards (class R)
Surface condensers etc.	American Heat Exchanger Institute
Refractory and insulation	ASTM
Centrifugal pump	API 610
Reciprocating compressor	API 618 and manufacturer's standard
Steam turbine	API 611 or 612/615
Centrifugal compressors	API 617 and 614
Pressure vessels (including condenser shells)	ASME code, section VIII, divisions I and II
Refrigerated tanks	API standard 620 (with appendices)
Atmospheric storage tanks	API standard 650
Piping systems	ANSI B 31.3
Pressure-relieving system	ANSI B 16.5
Electrical code of practice	ASME and API codes
Electrical systems and electrical equipment	API RP-520
Instruments	BS CP 321, 326, 1003 (for tropical usage) with class E insulation
Hazard area classification	National codes
Effluent standards	ISA standards. (These depend on supplier practices and types of instruments.)
Erection	Applicable standards should be agreed upon between the CONTRACTOR and the PURCHASER
	API safety codes
	See annexure XVII
	See annexure XXIX

Note: ANSI: American National Standards Institute; API: American Petroleum Institute; ASME: American Society of Mechanical Engineers; ASTM: American Society for Testing and Materials; BS: British Standard; CP: Code of Practice; ISA: Instrument Society of America; TEMA: Tubular Exchanger Manufacturers Association.

5. Statutory regulations

The statutory regulations relating to standards or other codes, or factory acts applicable in the PURCHASER's country, should be specified herein. This particularly refers to boiler codes and acceptance procedures applicable to the endorsement of foreign standards prior to manufacture of the Equipment. If necessary, translations of local standards and regulations should be prepared and annotated to point out differences and permissible exceptions for imported Equipment.

6. Limitation on transportation of Equipment to Site

The data supplied here should include:

- (a) Maximum lift available at the port (if the ship's derricks can be used this should be stated);
- (b) Maximum dimensions and weights that can be carried by road from the port to the Site;
- (c) Maximum dimensions and weights that can be carried by rail from the port to the Site.

If possible, drawings of wagon profiles and section profiles of smallest tunnel/bridge above road/rail etc. should be given.

7. Characteristics of utilities and services and limits of supply

7.1 Electric power

(a) All purchased stand-by electric power shall have the following characteristics:

(indicate voltage, including voltage and frequency fluctuations, phases, cycles, 3- or 4-wire systems);

(b) All generated power shall have the following characteristics:

(these should be discussed by the PURCHASER and the CONTRACTOR and should conform to national standards as far as possible);

(c) Power supplied outside the Battery Limits shall have the following characteristics:

(indicate voltage, phases, cycles, 3- or 4-wire systems).

7.2 Water

(Specify separately for water from different sources such as river, sea, pre-treated well water, recycled steam condensate etc.)

(a) The source of water is (source);

(b) The water has the analysis given below:

	<u>Unit</u>	<u>Normal</u>	<u>Variations d/</u>
Total hardness, CaCO ₃	mg/l		
P value, CaCO ₃	mg/l		
M value, CaCO ₃	mg/l		
Calcium, CaCO ₃	mg/l		
Magnesium, MgCO ₃	mg/l		
Sodium, Na	mg/l		
Iron, Fe	mg/l		
Chloride, Cl	mg/l		
Sulphate, SO ₄	mg/l		

d/ If there are large variations, they should be explained.

	<u>Unit</u>	<u>Normal</u>	<u>Variations d/</u>
Silica (dissolved), SiO ₂	mg/l		
Total dissolved solids	mg/l		
Total suspended solids	mg/l		
pH			
Colour and turbidity (silica scale)			

ANNEXURE III

Battery Limits of the Plant

1. Definition of Battery Limits

The Battery Limits of the area of Plant design should be clearly stated and indicated on the preliminary plot plan (attached) with approximate data on the elevation of the connecting points above and below ground. An example is given below:

Inputs Natural gas shall be supplied by the gas distribution agency at a single point on the boundary of the Plant (unit inlet or Battery Limit).

Water shall be pumped to the Plant Site and shall 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 a ground level of (_____)m³ shall be provided, and water shall 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 prospective points as indicated on the plot plan (separately for different parameters).

Stand-by and construction electric power shall (or shall not) be available. (Give details if available. Otherwise indicate the type of emergency power source desired. This can also be used for construction.)

All chemicals and catalysts shall be supplied at storages/warehouses at ground level. (Indicate location at the construction site or within the plot.)

Outputs Additional power to the extent of (_____) kW shall be generated for use by the PURCHASER.

Surplus steam and condensate (specify parameters and quantities) shall be piped to point (_____) indicated on the plot plan.

Facilities shall be designed for filling liquid ammonia cylinders/ammonia tank wagons at a maximum rate of (_____) Tonnes per (8) hours.

Urea (50 kg net weight) shall be packed in bags. The bags shall be (give details).

Transport of urea shall be:

(_____) per cent by road in (_____)-Tonne trucks from (number) outlets.

(_____) per cent by rail in (_____)-Tonne wagons from (number) outlets

Rail/truck locations shall be indicated by the CONTRACTOR but shall be finalized after discussions with the PURCHASER and the national rail authorities.

Effluents shall be disposed of to (_____).

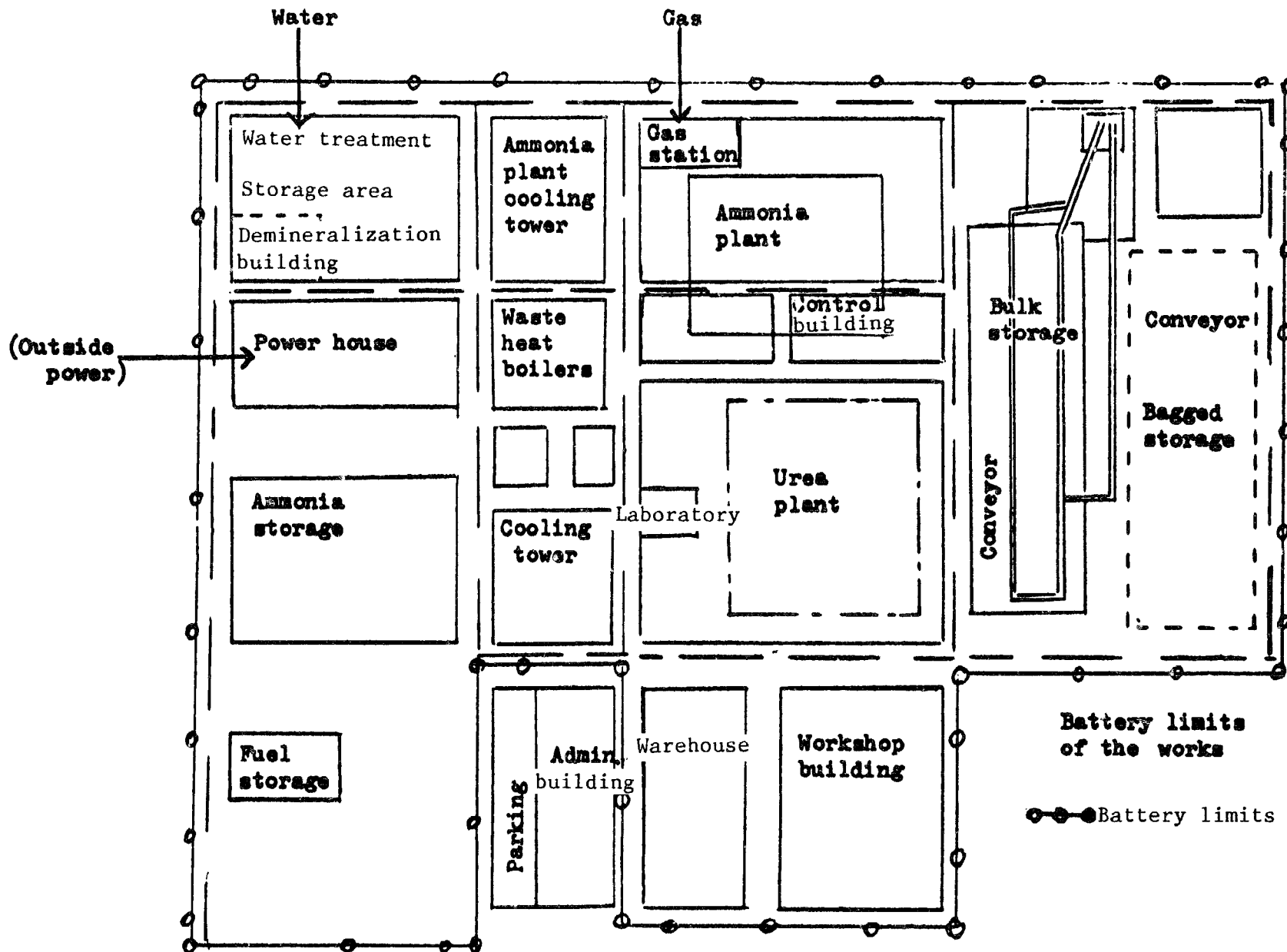
2. Scope of supply

Within the above Battery Limits, the entire Plant and Equipment (including the utilities and Off-Sites) specified in annexure VIII and in the Contract, other than the exclusions in annexures XIII and XIV to be provided by the PURCHASER, shall be designed, supplied and constructed by the CONTRACTOR. It is generally understood that if not specifically mentioned, the connecting points of inlet and outlet pipes shall be one metre outside the Battery Limits or 250 millimetres above ground-floor level, flanged, with the cut-off valves included in the scope of deliveries under this Contract.

3. Extension of Battery Limits

In some cases, turnkey supply may include Off-Sites outside the plot plan attached (e.g. a transmission line from a power station 12 kilometres away from the Site). In such cases, the definition of the Battery Limits should be extended to include such supplies, by specifically mentioning them in this annexure.

Figure. Preliminary plot plan



ANNEXURE IV

Design criteria agreed

1. Meteorological

(a) The Plant and Equipment, particularly the 100 per cent capacity of the air compressor and the prilling tower shall be designed for a maximum ambient temperature of (_____) °C and relative humidity of (_____) (suggested equivalent to extremes recorded);

(b) The Plant and Equipment, particularly piping, shall be designed for a minimum temperature of (_____ °C). Water piping (shall/shall not) be designed for freezing conditions (suggested temperature is the minimum recorded);

(c) Design shall be for a maximum rainfall of (_____) mm in 24 hours (if flash storms of a few hours are possible, this should be indicated);

(d) The cooling tower shall be designed for an extreme wet bulb temperature of (_____) °C and dry bulb temperature of (_____) °C and shall be designed to give an approach of 3 °C to the wet bulb temperature (suggested maximum temperature of 32 °C for cooling water in tropical countries);

(e) The barometric pressure, when corrected to sea level, can reach a minimum of (975) millibars (it can be lower for some areas). This must be corrected for the height above sea level of the Site, which is (_____) metres;

(f) Design wind velocity shall be (_____) kph (or indicate local standards if applicable and specified for different levels/above ground) at (_____) height.

2. Seismic factor

For design purposes, the seismic factor at the Site can be taken as (_____). As regards the structure, seismic conditions and maximum wind velocity may not be considered as occurring simultaneously.

3. Natural gas

(a) The Plant shall be designed for natural gas conditions as given in annexure II, with the following extreme design analysis:

(give extreme ranges for each component of natural gas);

(b) The sulphur guard shall be for (_____) ppm of sulphur. For design purposes the ratio of non-reactive to reactive sulphur shall be (_____) per cent to (_____) per cent;

(c) The design intake pressure of gas shall be (_____) kgf/cm² at the Battery Limits of the entire Works (refer to maximum pressure or standard design pressure of supply);

(d) The design temperature of natural gas at the Battery Limits shall vary between (_____) °C and (_____) °C;

(e) There should be provision for a knock-out drum with automatic draining and a high-level alarm to separate water and condensables carried with the natural gas, if required.

4. Water

(a) The analysis of make-up water used for design shall be the extreme conditions specified in annexure II;

(b) Make-up water shall not exceed (_____) per cent of the circulating water (for desert conditions, 5-7 per cent);

(c) Where sea water is used for cooling, the sea water condition at the Site shall be carefully examined by the CONTRACTOR to guard against fouling or corrosion. Sea water design intake temperature shall be (the maximum recorded) and the outlet temperature of sea water from the Plant shall not exceed (_____) °C (for the use of certain alloys, it should not exceed 38 °C);

(d) The cooling water circuit shall be designed for a maximum ΔT of (_____) °C (suggested maximum temperature of 10 °C for tropical countries);

(e) The analysis of the demineralized water produced in the Plant, in particular the silica, iron and copper content, shall show that it is suitable for use in (105) kgf/cm² steam boilers and in the Ammonia Plant circuit;

(f) No parts of the cooling water circuit (pipes, valves and instrumentation) shall contain copper and copper alloys.

5. Soil conditions

Design load-bearing capacity shall be as specified in annexure II, but is subject to further tests as laid down in the Contract.

6. Electrical generation

(a) The Works shall be self-sufficient in electrical power. Power exported from the Battery Limits shall be (_____) kW;

(b) An emergency power supply of (_____) kW generated by a (_____) is to be provided;

(c) Line voltages and characteristics shall be as follows:

High tension: () V, 3-phase 3 wire, 50 or 60 Hz AC

3-phase: () V, 3-phase (3 or 4) wire, 50 or 60 Hz AC

1-phase: () V, 1-phase (3 or 4) wire, 50 or 60 Hz AC

(d) Voltages for electrical motors shall be high tension voltage for motors of 200 kW or more, and low tension 3-phase voltage for smaller motors;

(e) Instrument voltages shall be: (details).

7. Instrument air

The Works shall be self-sufficient in instrument air supply under the following conditions:

Outlet pressure conditions from (7) kgf/cm² instrument air unit.

Quality Dew-point below -20 °C (for tropical countries, otherwise -40 °C). Free of dust and oil.

8. Inert gas

Inert gas for the Works shall be produced by the combustion of natural gas in the following conditions:

Pressure	(6) kgf/cm ² minimum
Temperature	Ambient
Quality	Suitable for plant purging and catalyst reduction.

(Alternatively: specify pure nitrogen, if available from existing external source, air fractionation unit etc.)

9. Steam

(Three) steam systems shall be provided in the Works. These are: a/

<u>System</u>	<u>Pressure</u> kgf/cm ²	<u>Temperature</u> °C
High pressure (HP) steam	(105)	(500)
Medium pressure (MP) steam ranges	(37/25)	(370/225)
Low pressure (LP) steam ranges	(4.5/2.5)	(155/138)

The non-contaminated condensate recycled from the various turbine condensers should be recycled to the boiler feed system through a polishing unit.

Surplus or contaminated condensate shall be:

Cooled locally to the temperature of (_____) °C and discarded into the (sewage or cooling water system).

Flushed and piped to (_____) (indicate place of utilization of waste heat or purification or hot process water tank etc.).

10. Primary reformer furnace

The design of the reformer furnace shall be based on (specify whether a single-row arrangement of reformer tubes or as otherwise agreed). The reformer furnace shall be based on a proven design, which has been in commercial operation for at least 5 years.

11. Other design criteria

(a) All dimensions and weights and measures including instrumentation shall be indicated in the (metric) system. The dimensions of piping and parts

a/ The figures shown in brackets refer to one system. The pressure of the high pressure steam, however, should not be too high.

of the heat exchangers may be indicated in the (British) system (indicate applicable standards);

(b) Copper and copper-bearing alloys shall not be used in the Works except for the electrical system other than the grounding system and where otherwise agreed;

(c) The synthesis gas compressor system shall operate at a pressure of (_____) kgf/cm^2 at the intake of the synthesis gas loop (indicate standard design pressure, if higher). The speed of the synthesis compressor shall be preferably limited to (11,000) rev/min and the choice of the discharge pressure of the synthesis gas compressor, i.e. for the synthesis gas loop, should be based on proven design and the operation of the compressor;

(d) Design criteria for steel structures (anti-corrosion protection, prilling tower, storage, flooring etc.) are as follows:

(give details);

(e) The CONTRACTOR shall give details of all anti-corrosion protection required for the Civil Works, and these shall be subject to the approval of the PURCHASER and the Engineer.

ANNEXURE V

Documents requiring approval of the PURCHASER

1. Technical Documentation containing the following data shall require the approval of the PURCHASER:

1.1 Process

- (a) Process flow-sheets with material balances (Plants and utilities);
- (b) Piping and instrumentation diagrams (Plants and utilities).

1.2 Equipment and machinery

- (a) Specifications for all Equipment and machinery;
- (b) List of recommended Vendors;
- (c) List of recommended spare parts.

1.3 Layout and piping

- (a) General layout of the Works;
- (b) Plot plan for the Plants;
- (c) Layout of machinery in each Plant and in the Works;
- (d) Terminal point drawings for the interconnection of pipes going in and coming out of the Works.

1.4 Instrumentation

- (a) General description of the process with regard to the instrumentation;
- (b) General description of the control system and proposed types of instrumentation;
- (c) Description of the alarm and interlocking system;
- (d) Specifications of control panels and control desks.

1.5 Electrical

- (a) Electrical power balance and motor list;
- (b) Single-line electrical diagram.

1.6 Civil engineering

- (a) General plot plan;
- (b) Foundation layout with locations and above ground dimensions;

- (c) Layout for underground installations. Plans showing trenches for pipes, cables and sewage disposal;
- (d) Preliminary profile drawings of the buildings with location of Equipment and details of loads including anticipated loads and stresses from heavy piping supports (for information only, not for approval);
- (e) Drawings showing areas where anti-corrosion protection of structures and floors is necessary, suggested maintenance access areas and apertures.

1.7 Others

Any other document identified in annexure XV or in the Contract as requiring the approval of the PURCHASER.

2. As-built documentation (this does not require the PURCHASER's approval but the PURCHASER shall have the right to check it if desired):

- (a) Civil engineering drawings for all buildings;
- (b) Complete as-built Equipment layout;
- (c) Complete as-built piping and instrumentation drawings and piping isometrics;
- (d) Complete as-built instrument details and connections;
- (e) Complete as-built electrical layout and cable details;
- (f) Complete list of Plant and Equipment, with sizes of all technical parts, materials of construction, and for moving Equipment; names of suppliers.

ANNEXURE VI

List of technical services to be performed
by the CONTRACTOR

In addition to or amplification of the services to be performed by the CONTRACTOR, as detailed in Articles 3, 4 and 6 or elsewhere specified in the Contract, the technical services to be performed by the CONTRACTOR shall include but not be limited to:

(here a complete list should follow of the technical services to be performed by the CONTRACTOR. This list should, however, not include the supply of documents covered by annexure XV).

ANNEXURE VII

List of technical services to be provided
by the PURCHASER

In addition to or amplification of the services to be performed by the PURCHASER, as detailed in Articles 3, 5 and 6 or elsewhere specified in the Contract, the technical services to be performed by the PURCHASER shall include but not be limited to:

(here a complete list should follow of the technical services and information to be provided by the PURCHASER. This list is primarily meant as a check-list for the technical personnel undertaking the project).

ANNEXURE VIII

Process description, supply of Equipment
and design of service facilities

1. Process description a/

(The process description, as finally agreed between the CONTRACTOR and the PURCHASER should be inserted here. In the process description, the Equipment referred to should be given the same distinguishing numbers as those contained in a flow-sheet, which should be attached to this annexure.)

2. Preliminary layout

- 2.1 The preliminary layout of the Plant(s), utility buildings and Off-Sites in relation to the Site are shown in the drawing (attached) no. (_____).
- 2.2 This layout is preliminary and shall be discussed further at the first co-ordination meeting contemplated under Article 6.5 of the Contract.

3. Plant and Equipment layout and interconnections

- 3.1 The preliminary Plant and Equipment layout in the Ammonia and Urea Plants and for all utilities and Off-Sites as indicated in drawings no. (_____) and no. (_____).
- 3.2 The generalized layout of Equipment in each Plant, in the power station and sub-stations and all Off-Sites and utilities and auxiliary buildings shall be discussed and finalized at the meeting contemplated under Article 6.8.
- 3.3 The preliminary plot plan and layout of all buildings, roads and service facilities are shown in drawings no. (_____) and shall be finalized at the meeting contemplated under Article 6.8.
- 3.4 The piping and instrumentation proposed are indicated on the piping and instrumentation drawings (attached), nos. (_____). This is tentative only and shall be discussed further along with the Equipment layout. However, the number and type of instruments shall not be reduced in any way.
- 3.5 A one-line diagram showing the electrical design is (attached) drawing no. (_____). This shall be amplified at the meeting contemplated under Article 6.8.
- 3.6 Location and details of panel control boards for each Plant, including the relevant control diagram(s).

a/ Process descriptions and block flow diagrams and/or preliminary piping and instrumentation flow-sheets may be taken from the tender documentation, or should comply with those agreed upon at the offer stage of pre-contract discussions.

4. Equipment List b/

4.1 The list of Equipment to be supplied under the Contract is given below. c/ This list is not exhaustive. The Equipment to be supplied shall include all the Plant and Equipment within the Battery Limits (annexure III) to produce the required quantities of ammonia and urea and to meet the Performance Guarantees contained in the Contract, as laid down in the relevant articles of the Contract.

(Each piece of Equipment should now be detailed under the sections of the Plant suggested in 4.2 below. The details for each piece of Equipment should contain:

- (a) Name of Equipment and Plant;
- (b) Number on flow-sheet;
- (c) Size and other technical data (e.g. heat transfer area for heat exchangers);
- (d) Approximate weight (this could be the total for a section as a whole);
- (e) Materials of construction (complete details should be given, e.g. "stainless steel" is not enough; the type of stainless steel should be specified). An example is given below:

- (i) Urea Plant - carbamate stripper
- (ii) Number H-306 in flow-sheet for Urea Plant
- (iii) Area - 1,650 square metres
- (iv) (Not applicable in this case)
- (v) Stainless steel 25 - 22 -2.)

4.1.1 At the meeting contemplated under Article 6.8, the CONTRACTOR shall give an exhaustive list of Equipment for approval by the PURCHASER.

4.2 The sections of the Plant suggested are:

(The following list may be expanded as appropriate.)

4.2.1 Ammonia Plant

- (a) Desulphurization, reforming and conversion
- (b) Carbon dioxide removal and methanation

b/ The necessity of an exhaustive list, if possible at the time of Contract, giving all details of each piece of Equipment being supplied must be emphasized. The detailed check of this list by the PURCHASER is extremely important in a semi-turnkey contract.

c/ Since this is voluminous, it is often contained in a separate volume of the annexures.

- (c) Compressors and drivers
- (d) Ammonia synthesis
- (e) Purge gas absorption
- (f) Ammonia storage

Note. Equipment within the sections may be categorized as for the Urea Plant, using equivalent code numbers.

4.2.2 Urea plant

- (a) Reactors
- (b) Towers and vessels
- (c) Heat exchangers
- (d) Separators
- (e) Tanks
- (f) Ejectors
- (g) Compressors
- (h) Turbines
- (i) Pumps
- (j) Miscellaneous equipment
- (k) Instrumentation and control

4.2.3 Product handling, bagging and storage

- (a) Urea handling equipment to the storage;
- (b) Urea storage (suggested capacity 60,000 Tonnes);
- (c) Urea-reclaiming equipment with a capacity of 160 Tonnes per hour;
- (d) Screening and de-dusting of the reclaimed urea from the storage;
- (e) Bagging station provided with a suitable number of bagging lines for a total bagging capacity of (160) Tonnes per hour of urea. Each line shall be complete with the hopper weighing machine, bagging machine, stitching machines or bag sealing or valve bag-filling machines and a conveyor system for bulk and bagged urea;
- (f) Storage for empty bags (suggested capacity: two months' requirement) with conveyor system for moving bags to the bagging plant;

- (g) Storage for bagged urea (suggested capacity: 7,000 Tonnes) with conveyor system for moving to loading terminal;
- (h) Road and railcar loading system for shipment of bags, to be dispatched as follows:

(_____) per cent by road

(_____) per cent by rail

Bags shall be with (open mouth or valve) and for (50 kg) net contents.

5. Utilities

5.1 The services that shall be designed and supplied for the Works are (supplement as appropriate):

- 5.1.1 Cooling water system
- 5.1.2 Raw water treatment
- 5.1.3 Demineralized water system
- 5.1.4 Fire-fighting and fire alarm system
- 5.1.5 Plant and instrument air system
- 5.1.6 Natural gas distribution system
- 5.1.7 Inert gas system
- 5.1.8 Effluents collection and disposal system
- 5.1.9 Steam generation, distribution and condensate recovery system
- 5.1.10 Interconnection (piping) system within the complex
- 5.1.11 Electric power generation and distribution system, lighting system, earthing system, emergency power generation and distribution system. (Motors should be detailed under each Plant section, utility or Off-Site.)

(Equipment for such services should also be detailed under each item in the same manner as under 4.2 above.)

6. Off-Sites

6.1 The Off-Sites facilities that shall be designed and Equipment that shall be supplied are:

- 6.1.1 Workshops for mechanical, electrical and instrumentation, maintenance and motor garage
- 6.1.2 Control laboratory
- 6.1.3 Warehouses for spare parts, stores, chemicals and lubricants

- 6.1.4 Administrative and community buildings (sizes only)
- 6.1.5 Telephone and Plant intercommunication system
- 6.1.6 Erection equipment (design only)
- 6.1.7 Fire-fighting equipment and health security appliances

(Details of Equipment should be provided under each item, as recommended under 4.2 above.)

Note relating to items 4 to 6: Lists of Equipment given for the Plant, Off-Sites and utilities represent only the itemized Equipment and machinery, it being understood that bulk materials such as piping, electricals, instrumentation, insulation and painting necessary for the Works are included in the scope of design and supply of the Equipment. (It is recommended, however, that the instrumentation should be detailed in each section.) No civil engineering work is included in the CONTRACTOR'S design.

7. Critical items

7.1 The items specified under clause 7.2 represent Critical Items for the process and shall be purchased from the suppliers stated under annexure XII.

7.2 Suggested Critical Items in accordance with the Contract are: d/

7.2.1 Ammonia

- (a) Primary reforming furnace, including reformer tubes
- (b) Waste heat boiler
- (c) Ammonia synthesis converter
- (d) Ammonia chillers
- (e) Air compressor with turbine
- (f) Refrigerating ammonia compressor with turbine
- (g) Synthesis gas compressor
- (h) Other steam turbines

7.2.2 Urea

- (a) Synthesis reactor
- (b) Urea stripper
- (c) First carbamate condensor

d/ An indicative list.

- (d) Second carbamate condensor
- (e) Carbon dioxide compressor with turbine
- (f) Pumps

7.2.3 Power plant

- (a) Boilers
- (b) Turbo-generators

7.2.4 Instruments and laboratory equipment

(Note: Certain instruments are critical and need to be supplied from a limited number of Vendors. In some cases continuously-analysing laboratory equipment may also have to be obtained from specified suppliers. Some equipment should also be specified here.)

ANNEXURE IX

List of catalysts

The following catalysts are required for the Ammonia Plant: a/

<u>Tasks</u>	<u>Particle size (mm)</u>	<u>Bulk density (kg/l)</u>	<u>Expected life (year)</u>	<u>Quantity b/</u>
<u>Desulphurization</u>				
1. Hydrogenation of natural gas	2-5	0.85	4	
2. H ₂ S absorption	4 x 6	1.38	1/2/5	
3. Activated carbon				
<u>Reforming</u>				
4. Primary reforming	-	1.66	3	
5. Secondary reforming	-	1.0	5	
<u>Conversion</u>				
6. High tension shift	6 x 6	1.06	3	
7. Low tension shift	4 1/2 x 4 1/2	1.06	2	
<u>CO removal</u>				
8. Methanation	5-10	0.90	5	
<u>Synthesis</u>				
9. NH ₃ synthesis	3-	1.17	5	
	1 1/2-	1.17	5	

a/ All figures are only indicative and have been taken from one contract.

b/ The quantity depends on the process to be used. The quantity should be for one charge plus one replacement charge.

ANNEXURE X

List of spare parts

1. Within 12 months of the Effective Date of the Contract, the CONTRACTOR shall submit to the PURCHASER a list of spare parts required for operation of the Plant for 2 years, along with an estimate of costs.
2. This list shall also include and identify spare parts of a proprietary nature that are to be purchased from Subcontractors along with the main Equipment. If such spare parts are to be purchased earlier than the general spare parts, the PURCHASER shall be advised accordingly.
3. For the spare parts of Critical Items, orders shall be placed along with the order for Critical Items, and such spares need not be included in the list under item 1 above.
4. Following the supply of lists for spares, the CONTRACTOR and the PURCHASER shall scrutinize such lists and shall decide on the spare parts to be procured, within the estimated costs contained in Article 20.6 of the Contract. a/
5. The spare parts shall thereafter be purchased in accordance with Article 10 of the Contract and annexure XXVI.
6. The CONTRACTOR is required to ensure that the quantity of spare parts used by him until he completes his Performance Guarantee Tests are replaced by him at his own cost. In the event that the Performance Guarantee Tests are not completed (for whatever reason) the value of spare parts used by him until his responsibility ceases is required to be compensated to the PURCHASER by way of deductions from any payments due to him and/or his performance bonds or other securities.

a/ Recommended overall spare-part purchase for two years' operation is 8 per cent of the C and F cost of Equipment.

ANNEXURE XI

List of chemicals

1. In addition to the catalysts specified in annexure IX, the following additional chemicals shall be required to commission and operate the Plant:

(list of chemicals, particularly overall charges of chemicals for the sulphur guard, carbon dioxide removal system, water treatment, anti-corrosion, anti-scaling etc.).

2. The annual requirements of the above chemicals are estimated as follows:

(annual requirements and quantities to be kept on stock for replacement in emergency cases should be stated for each item).

3. The quantities of the chemicals to be supplied by the CONTRACTOR under the Contract are as follows:

(quantities are dependent on the process. They should normally include a first filling plus one year's requirement of the chemicals, if imported, or one month's requirement if locally available).

ANNEXURE XII

List of pre-qualified Vendors for Critical Items of Equipment

1. The Critical Items specified in annexure VIII shall be procured only from the pre-qualified Vendors stated below, unless otherwise agreed between the PURCHASER and the CONTRACTOR.

Critical Item

List of pre-qualified Vendors

Name

Country

ANNEXURE XIII

Exclusions from the scope of delivery

1. The following services shall be excluded from the scope of design, procurement and erection supervisory services of the CONTRACTOR.

- 1.1 (a) Land procurement and levelling;
 - (b) Civil engineering design and construction;
 - (c) Design and construction of all communications (road, rail, telephone);
 - (d) Design of gas pipeline or water intake beyond the Battery Limits of the Plant;
 - (e) Water tube-well outside the Battery Limits;
 - (f) Procurement of erection Equipment. However, the CONTRACTOR shall advise the PURCHASER on erection Equipment to be purchased if desired by the PURCHASER;
 - (g) The clearance of the Plant and the Equipment at (port), dispatch to the Site, and storage at the Site;
 - (h) Supply of all erection materials, erection staff and erection labour, for the erection of the Plant;
 - (i) The procurement of all Start-Up materials but excluding the first charge of catalysts (annexure IX), refrigerants and chemicals (annexure XI), which shall be supplied by the CONTRACTOR. The CONTRACTOR shall give a list of such Materials;
 - (j) The recruitment of all personnel for Start-Up and operation of the Plant (other than the CONTRACTOR's expatriate personnel). The CONTRACTOR shall advise the PURCHASER on the qualifications of such personnel, and shall test them if required;
 - (k) The supply of all raw materials or other materials required for steady operation of the Plant.
- 1.2 Equipment to be manufactured within (PURCHASER's country) or supplied by the PURCHASER within Battery Limits, in accordance with annexure XIV.

ANNEXURE XIV

Scope of delivery of Equipment and Materials by the PURCHASER

(Usually not applicable to semi-turnkey contracts if all the Equipment and Materials are supplied by the CONTRACTOR. However, if some locally-purchased Equipment or chemicals are to be supplied by the PURCHASER, they should be detailed here.)

ANNEXURE XV

Time schedule of implementing each stage of the Contract and delivery of documents

1. Time schedule

The overall time schedule for the completion of the Works is shown in the bar-chart attached hereafter as part of this annexure and is based on the following considerations:

- 1.1 All dates and/or periods referred to hereafter shall start from the Effective Date of the Contract.
- 1.2 Delivery FOB of the Equipment (with the exclusion of the Critical Items) shall start from the (_____) month and end (95 per cent of the value) by the (24th) month. Some Critical Items (these are time-critical items and should be specified) may be delivered as in 1.3 below.
- 1.3 Delivery FOB of Critical Items shall end by the (26th) month. a/
- 1.4 The average estimated duration of transport from FOB deliveries to the Site is approximately (2) months.
- 1.5 Civil Works construction shall begin in the (12th) month.
- 1.6 The Mechanical Completion of the Plant shall be reached by the (32nd) month.
- 1.7 The Plant shall be in Initial Operation in the (33rd) month (but in any case no later than 2 months after 1.6 above) and shall be in Commercial Production by the (36th) month.

2. Technical Documentation

2.1 The Technical Documentation described in this annexure shall be supplied by the CONTRACTOR to the PURCHASER and shall include all the documents necessary to enable the PURCHASER to establish the source of the Equipment and spare parts. The Technical Documentation shall be in (name of language) and shall include but not be limited to the following items, which shall be supplied normally within the time indicated against each item (the times are indicated in months and refer to the time allowed for the final issue of the documents, starting from the Effective Date of the Contract). The documents marked as penaltiable documents (p) shall be supplied on or before the date indicated.

<u>2.1.1 Process documentation</u>	<u>Delivery</u> (within months)
(a) Process flow-sheets	
(i) for the Plants	5
(ii) for the utilities	8

a/ The reason longer periods are specified for Critical Items is because of the long delivery time needed for such items as synthesis gas compressors in 1977-1978. Currently, however, deliveries are much better.

(b) Piping and instrumentation diagrams	
(i) for the Plants	12
(ii) for the utilities	15
(c) Material and heat balances for the Plants and utilities	9
(d) Description of the process and information on the Products	6
(e) Lists and process data sheets for all Equipment and machinery	18
(f) Specification of raw materials, utilities and chemicals	4
(g) Consumption of raw materials, utilities and chemicals	9
(h) Peak and average requirements of utilities for use in engineering of utilities	6
(i) Properties of effluents (gaseous, liquid and solid)	6 (p)
(j) Details concerning quantities, frequency of discharge, tempera- tures etc. of effluents and waste materials	9 (p)
(k) Preliminary list of operating personnel required and their duties	12 (p)

2.1.2 Equipment and machinery documentation

(a) Detailed specifications for all Equipment and machinery	12
(b) Manufacturers' catalogues	24
(c) Manufacturers' drawings for all Equipment and machinery	24
(d) Requirements for installation and Start-Up for all Equipment and machinery including specifications for insulation	24
(e) Assembly drawings for Equipment that requires assembling at the Site	15
(f) List of recommended spare parts	12 (p)

(g)	Manufacturers' certificates and documents concerning workshop testing and acceptance by authorized inspection or official inspection authorities in the manufacturers' countries	25
(h)	Preliminary lubrication schedules and summary list of types and grades of lubricants as recommended by Equipment manufacturers	18
2.1.3	<u>Piping documentation</u>	
(a)	Pipeline list and specifications including insulation requirements	9
(b)	General layout of the complex*	6 (p)
(c)	Plant plot plans*	6 (p)
(d)	Terminal point drawings for the inter-connection of pipes, going in and coming out of the complex*	6 (p)
(e)	Isometric drawings for 50 mm pipes and larger	16
(f)	Piping erection drawings	16
(g)	Model of the process Plants and utilities	18
(h)	Stress analysis	12
(i)	Detailed piping list, including fittings indicating quantities for each section of the Plant	14
(j)	Specification of supports	18
(k)	Specification of insulation	
(l)	Welding procedures, where speedily required, including specifications for electrodes	9
(m)	Procedures for treatment of pipes and structurals where required	12
2.1.4	<u>Instrumentation documentation</u>	
(a)	General description of the process with regard to instrumentation*	8
(b)	General description of the control system and proposed types of instrumentation*	12

*See 2.4 below.

(c)	Detailed description of the alarm and interlocking system	18
(d)	Description of the control room	18
(e)	Description of the special provisions for instrumentation in hazardous areas	15
(f)	Requirements for installation and Start-Up of the various types of instruments	24
(g)	Specifications of control panels and control desks*	18
(h)	List of instruments	8
(i)	Data sheets for all instruments	15
(j)	Orifice plate specifications and typical calculations	18
(k)	Control valve specifications and typical calculations	18
(l)	Cable list	18
(m)	Instrument air tubing list	18
(n)	List of abbreviations and symbols used	8
(o)	Manufacturers' pamphlets	24
(p)	Operation and maintenance instructions	24
(q)	List of settings of switches and relays for operation of alarms and interlocks	24
(r)	List of codes and standards used	8 (p)
2.1.5	<u>Electrical documentation</u>	
(a)	Electrical power balance and motors list*	6
(b)	Electrical diagrams*	
(i)	One-line diagram	6
(ii)	General and detailed diagrams	12 (p)
(c)	Electrical layouts and cable routing	18
(d)	Electrical equipment specifications and list	15
(e)	Electrical erection drawings	18

- (f) Installation, operation and maintenance instructions 24
- (g) Plant lighting proposals* 16

2.1.6 Civil engineering

The CONTRACTOR shall supply to the PURCHASER the basic data and drawing necessary for the PURCHASER to perform the detailed Civil Works engineering. This documentation shall include:

- (a) General plot plan* 4 (p)
- (b) Foundations layout with foundation location and above ground dimensions* 6 (p)
- (c) Layout for underground installations, plans showing trenches, pipes, cables, sewage disposal etc.* 6 (p)
- (d) Preliminary profile drawings of the buildings with location of Equipment and details of loads including anticipated loads and stresses from heavy piping supports 6 (p)
- (e) Additional information on profile and loading drawings not affecting the overall civil engineering programme (slopes, wet areas, anti-corrosion protection of structures and floors, maintenance access areas and apertures)* 9
- (f) Details of lightning protection required for the Plant 10
- (g) Recommendations on air-conditioning and ventilation 10

2.1.7 General documentation

- (a) All documentation supplied by the process licensors 12 (p)
- (b) Operating manuals including detailed instructions for Start-Up, shut-down, operation at reduced capacity and for action in the Plants in the event of a breakdown in the supply of the raw materials and utilities. Emergency instructions 24 (p)
- (c) Recommendations for the protection of the Plants and personnel against industrial hazards based on safety regulations of the country of origin of the Equipment 24

(d)	Instructions for the maintenance of the Plant(s) with drawings	24 (p)
(e)	Final recommendations for the number and qualifications of personnel necessary to operate and maintain the Plant(s)	20
(f)	Final recommendations for quality, quantity, frequency and points of lubrication, preferably on internationally available and acceptable products. These will cover initial and current requirements	24
(g)	Other documentation required, particularly for Off-Sites including recommended list and general specifications of:	
	(i) Maintenance workshop equipment	9
	(ii) Laboratory equipment	9
	(iii) Mobile fire-fighting and safety equipment	9
	(iv) Warehouse materials handling equipment	9
	(v) Erection equipment	4 (p)
	(vi) Intercommunication system of Plant	12
	(vii) Painting codes and specifications	20
(h)	All as-built documentation	42 (p)

2.1.8 Procurement documentation

(a)	Detailed list of spare parts (95 per cent)	12-18 (p)
(b)	List of pre-qualified Vendors for spare parts*	8 (p)
(c)	Itemized list of balance of Spare parts (100 per cent)	24 (p)
(d)	Procurement specifications, procurement documentation, final Contract documents with Vendors, in accordance with Article 10.	18-24

2.2 Delivery procedure of documentation

The procedure for the delivery of the documentation to be supplied by the CONTRACTOR shall be as follows:

2.2.1 The documentation shall be delivered to the PURCHASER's representative in the CONTRACTOR's offices or dispatched to the PURCHASER by air waybill on a freight pre-paid basis and the PURCHASER shall acknowledge each dispatch immediately after receiving it. The date of delivery shall be taken to be the date of delivery to the PURCHASER's representative, or the date of the air waybill, as the case may be.

2.2.2 The documentation shall be supplied in (6) copies and a reproducible copy (with the exclusion of the catalogues, pamphlets and manuals supplied by the Subcontractors).

2.3 The items of Technical Documentation marked "(p)" are the documents liable to liquidated damages pursuant to Article 27 of the Contract.

2.4 The items of technical documentation marked with an asterisk (*) are those for which the approval of the PURCHASER is required as mentioned in Articles 10 and 12 of the Contract.

Note. A separate time schedule may be worked out for delivery of the documentation, showing separately for each item of the above scope:

- (a) CONTRACTOR's documentation;
- (b) PURCHASER's documentation;
- (c) Approval by the PURCHASER as per annexure V.

AMMONIA/UREA COMPLEX OVERALL EXPECTED TIME SCHEDULE

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TIME SCHEDULE

JOB REVISION PAGE

DESCRIPTION	MONTH	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42																																									
		MECHANICAL COMPLETION																																	COMMERCIAL PRODUCTION								
1. ENGINEERING																																											
11 PROCESS ENG.		[Bar]																																									
12 DETAILED ENG.		[Bar]																																									
121 CIVIL ENG.		[Bar]																																									
122 PIPING ENG.		[Bar]																																									
123 ELECTRICAL & INSTRUM. ENG.		[Bar]																																									
124 EQUIPMENT & MACHINERY		[Bar]																																									
2. PROCUREMENT & SHIPPING																																											
21 VESSEL COLUMNS TANKS		[Bar]																																									
22 HEAT EXCH. & HEATERS		[Bar]																																									
23 MACHINERY		[Bar]																																									
23 PIPING MATERIAL		[Bar]																																									
25 ELECTRICAL MATERIAL		[Bar]																																									
25 INSTRUM. MATERIAL		[Bar]																																									
27 STEEL STRUCTURE		[Bar]																																									
3 CONSTRUCTION																																											
31 CIVIL WORKS		[Bar]																																									
31 STEEL STRUCTURES		[Bar]																																									
33 PILING INCLUDING FABRICATION		[Bar]																																									
34 MECHANICAL ERECTION		[Bar]																																									
35 ELECTRICAL ERECTION		[Bar]																																									
36 INSTRUMENTATION ERECTION		[Bar]																																									
37 INSULATION & PAINTING		[Bar]																																									
4 CRITICAL EQUIPMENT																																											
41 ENGINEERING		[Bar]																																									
42 PROCUREMENT SHIPPING		[Bar]																																									
43 ERECTION		[Bar]																																									
5. PRE-COMMISSIONING/START-UP																																											
51 TESTS		[Bar]																																									
52 START-UP		[Bar]																																									
		DELIVERY TO SITE																																									

ANNEXURE XVI

Quality of Products a/

1. Ammonia

NH ₃ content	99.8 per cent by weight minimum (G)
Water and inerts	0.2 per cent by weight maximum (G)
Oil	5 ppm maximum (G)
Pressure at the Battery Limits of the Ammonia Plant	(20 kgf/cm ²)

2. Carbon dioxide (on dry basis)

CO ₂	Minimum 98.5 per cent by volume (G)
Inerts, including water vapour	Maximum 1.5 per cent by volume (G)
Hydrogen in inerts	Maximum (___) per cent by volume (G)
Sulphur	Maximum (___) mg/m ³ (G)
Methanol	Maximum (___) ppm (G)
Pressure at the Battery Limits of the Ammonia Plant	Depending upon the pressure of regeneration (0.05% kgf/cm ²)

3. Urea

Type	Prilled (coated/uncoated)
Nitrogen	46.3 per cent by weight minimum (G)
Biuret	0.9 per cent by weight maximum (G)
Moisture	0.3 per cent by weight maximum (G)
Size	90 per cent between 1 mm and 2.4 mm (G)
Temperature	Not exceeding 65 °C at the bottom of the 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: b/

(Alternatively: the analytical procedures for the guarantees shall be agreed by the parties at the co-ordination meetings contemplated under Article 6.)

a/ The product specifications may vary from country to country; these are suggested typical figures.

b/ To avoid disputes, it is recommended that the analytical procedures be specified in the annexures, particularly if they are internationally known.

ANNEXURE XVII

Quality and quantity of effluents: effluents
and emission standards

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

(1) From the Ammonia Plant

Flow rate	3.3 Tonnes/h
Quality	Waste water saturated with CO ₂ at 42 °C with approximately 50 ppm K ₂ CO ₃ and traces of diethanolamine

(2) From the Urea Plant

Flow rate	39 Tonnes/h
Quantity	Condensate at 55 °C containing approximately 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.

(3) 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 within the Battery Limits of the Plant.

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

ANNEXURE XVIII

Training of PURCHASER's personnel

1. The training of the PURCHASER's personnel shall consist in training at the Site and abroad. Training at the Site shall be given by the CONTRACTOR's personnel and training abroad shall be arranged entirely by the CONTRACTOR, and shall include operational experience at factories using the same or similar processes.

2. The PURCHASER and the CONTRACTOR have agreed that training abroad shall be at the following operational factories. a/

(names of factories and locations)

3. The CONTRACTOR shall provide technical training for the PURCHASER's personnel, in accordance with Articles 4.25, 16 and 20.5 of the Contract, for the following personnel and for the time stated against each person: b/

<u>Designation c/</u>	<u>Number</u>	<u>Time</u> (months)	<u>Training units</u>
Chief production manager	1	7	Ammonia Plant Urea Plant Overall management
Chief mechanical engineer	1	6	Ammonia Plant and Urea Plant maintenance facilities Instruments
Production engineers	5	6 1 6 1	Ammonia Plant Urea Plant Urea Plant Ammonia Plant
Electrical engineer	1 <u>d/</u>	3	Power station
Instrument engineers	2	6	Instruments Course on Plant instrument maintenance
Maintenance engineers	5	6	Maintenance of Plants/workshop

a/ It is suggested that a list should be given in this annexure and a selection made after the meeting contemplated under Article 6.8.

b/ These are typical for a country where chemical plants already exist.

c/ Designation indicates the ultimate functions of the trainee.

d/ May be increased to four engineers if required, and six months' duration.

Chemist	1	3	Laboratory and field analysis
Chief chemist	1	3	Laboratory and field analysis Research

4. The CONTRACTOR and the PURCHASER shall agree on the contents of the training programme, the training methods, and the procedure for evaluation of progress. The training given to the PURCHASER's personnel shall involve specifically operating for short periods the sections of the Plant that concern them (under the direction and control of the CONTRACTOR), and for maintenance staff, the actual operation of maintenance Equipment.

5. The CONTRACTOR shall appoint a training officer for the PURCHASER's trainees abroad, who shall send a monthly progress report on each trainee to the PURCHASER.

6. In addition to the training given abroad, the CONTRACTOR shall organize and supervise a training programme at the Site. For this purpose, the CONTRACTOR shall provide books and manuals and the CONTRACTOR and the PURCHASER shall have agreed to purchase a simulator (or similar equipment) for this purpose on a cost-reimbursable basis (as per Article 10 and annexure XXVI). Both parties shall agree on a detailed training programme at the Site as early as possible, but not later than the 12th month after the Effective Date of the Contract.

ANNEXURE XIX

Procedure for variations, additions, changes, rectifications
and modifications

1. Either party can request a variation, change or addition in accordance with Article 15 of the Contract. The CONTRACTOR can also propose alterations under Article 7.3 involving the use of new technology developed after the cut-off date contemplated in Article 7.
2. A proposal shall be made in writing, by the party making the request, to the authorized representative of the other party, along with all the required supporting data as required in Article 15.4 if the request is made by the CONTRACTOR, and clear reasons for making the request if it is made by the PURCHASER.
 - 2.1 In addition to the information required under Article 15.4, a request from the CONTRACTOR involving changes to Plant and Equipment already procured or installed, whether under Article 15 or Article 29, shall include details of any resulting changes in the anticipated life of the Plant, or any part thereof, its technical performance and/or any alterations in the contractual guarantees or warranties of the CONTRACTOR that may arise from such changes.
3. Where the CONTRACTOR proposes a variation arising from new experience of the CONTRACTOR and/or the process licensor(s), or by technological improvements that have occurred after the cut-off dates contemplated in Article 7.2, the CONTRACTOR shall prepare a report outlining the variations and stating the benefits to the PURCHASER in detail. The CONTRACTOR shall also indicate the change in project cost (increase or decrease) and fees of the CONTRACTOR that would result from such variations and the modifications in the consumption of raw materials and utilities, if any, and the improvements in the contractual guarantees, if any, that would result from the adoption of such variations. The PURCHASER at his sole discretion may accept or reject the proposal or, with the concurrence of the CONTRACTOR, accept the proposal in a modified form.
4. Within 30 Days of a request for an addition, variation or change requiring the approval of the PURCHASER in accordance with Article 15, and if such approval has not been given, both parties shall meet at the Site, or at another agreed venue, to discuss all the implications of such a request in regard to the Plant.
5. Following an agreement to make any change, whether given in a meeting contemplated under 4 above, or otherwise, or as a Modification under Article 29, all agreed changes, additions, variations and Modifications shall be incorporated in a change order, which shall contain:
 - (a) A list of the agreed changes, variations and additions in sufficient detail to identify them;
 - (b) The agreed increase or decrease in the Contract Price;
 - (c) The agreed increase or decrease in the time schedule of the CONTRACTOR or change in the date of delivery of the documents under the Contract;
 - (d) A clear statement of the modifications in the Contract, if any, or in the technical specifications contained in the annexures that have been agreed to by both parties as a result of the change, variation and addition.

6. At the meeting contemplated in Article 6.8, a format of the change order, the number of copies required, and the authorized representatives who may sign the change order shall be agreed upon. It shall be understood, however, that any change order involving a modification of the Contract shall require the countersignature of the PURCHASER's and the CONTRACTOR's authorized representatives, as defined under the Contract.

7. The extent to, and manner in which, rectifications (not requiring a change in price, a change in time schedule or reductions in the size of Equipment or materials of construction) can be carried out by the CONTRACTOR when urgently required during construction or erection at the Site, without formal approval of the PURCHASER, shall also be agreed at such meeting.

7.1 Where such changes require changes in drawings, the PURCHASER may require the CONTRACTOR to modify the relevant drawings at the same time as the changes are made.

ANNEXURE XX

Mechanical Completion and Pre-commissioning procedures

1. Mechanical Completion operations

These operations include the following:

- 1.1 Conduct the hydrostatic, pneumatic, and other field tests of operating Equipment embodied in the Plants that are set forth in the specifications or manufacturers' instructions.
- 1.2 Prepare all sections of the Plants and utilities to meet safety requirements.
- 1.3 Align pumps and drivers.
- 1.4 Install packings in pumps and compressors.
- 1.5 Install packings and lubricants in valves and cocks.
- 1.6 Prepare radiographic photographs of all pressure and special piping (to be undertaken at or after welding).

2. Pre-commissioning operations

These operations include the following:

- 2.1 Fill lubricating and seal oil in the Equipment where required.
- 2.2 Check motor rotation and turbine speed, including overspeed trips.
- 2.3 Furnish and install Start-Up suction strainers in pumps, blowers and compressors.
- 2.4 Circulate lubricating and seal oil in blowers and compressors to assure correct operations.
- 2.5 Dry out and cure linings in primary waste heat boiler, secondary reformer, transfer line auxiliary boilers of the utilities etc., dry out primary reformer heaters and other such refractories.
- 2.6 Clean all lines of loose materials by flushing or blowing and do any other special cleaning or preparation of individual lines as may be called for in the specifications or drawings, including cleaning of the high pressure steam system, demineralized water lines and CO₂ removal system. Boil out auxiliary boilers and waste heat boilers. Pickle and inertize any Equipment or pipelines requiring such treatment.
- 2.7 Pull all blinds except those installed for operation.
- 2.8 Install orifice plates after lines have been hydrostatically tested and flushed.
- 2.9 Check correct action of instruments as far as possible.
- 2.10 Connect thermocouples, check connections and check out circuits.
- 2.11 Remove all loose material from vessels and load all internals and packing materials. Close up vessels except vessels containing catalysts.
- 2.12 Load all catalysts and close up the reactors.
- 2.13 Fill electrical equipment with oil as required.
- 2.14 Check electrical installation for operability.
- 2.15 Conduct preliminary tightness tests and purge the unit.
- 2.16 Conduct pre-operation pressure testing and acceptance tests including those required by local technical inspection authorities and issue relevant documents.
- 2.17 Conduct a simulated operation of sections of the Plant using air, water and steam where possible. Circulate water through the piping system where possible. Operate all pumps that can be run on cold or hot water for an adequate period of time following special instructions worked out for this purpose.

ANNEXURE XXI

Manuals

1. As part of his Contract services, the CONTRACTOR shall provide to the PURCHASER 6 copies each of the following manuals:

(a) Operating manual, with complete details of the operation, at capacity and under all conditions, of the Ammonia and Urea Plants to produce specification-grade products;

(b) Maintenance manual for the maintenance of all major Plant and Equipment, particularly all pumps, turbines, compressors, workshop machines, electrical motors, generators etc. This shall be in addition to the Vendor's maintenance sheet and shall include instructions on lubrication;

(c) Manual of safety procedures for all safety and emergency measures for operation of the Plant;

(d) Manual of analytical procedures for all routine, emergency and monitoring tests required for the operation of the Plant, monitoring the effluents and emissions and checking the quality of raw materials and finished Products;

(e) Manual for monitoring environmental aspects;

(f) Manual for instrumentation maintenance;

(g) Special instructions for maintenance and calibration of on-line analysers.

2. All the above manuals shall be in the (_____) language.

3. In addition the CONTRACTOR shall provide the PURCHASER with the originals of all pamphlets, installation, operation and maintenance instructions etc., received from Equipment manufacturers and Subcontractors of the CONTRACTOR and, where required, shall identify the Equipment to which such instructions refer.

ANNEXURE XXII

Forms of performance bank guarantee
and performance bond a/

A. Form of performance bank guarantee

To: (legal name and address of PURCHASER)

At the request of (name and address of CONTRACTOR) (hereinafter called CONTRACTOR), we hereby open our irrevocable, confirmed guarantee No. () for an amount of maximum (amount). In consideration of the CONTRACTOR having entered into a Contract dated () (hereinafter called CONTRACT) with (name and address of PURCHASER) (hereinafter called PURCHASER) for the supply, construction and erection of a Semi-Turnkey Ammonia and Urea Plant to be built at (town), we (bank) do hereby unconditionally agree and undertake to pay forthwith to the PURCHASER in repatriable currency on demand by the PURCHASER and without prior recourse to the CONTRACTOR such sum or sums not exceeding (amount), as may be demanded by the PURCHASER simply stating that the CONTRACTOR has failed to fulfil his obligations relevant to the supply of Equipment, the construction and erection of the Works or other Contractual Responsibilities under the Contract, for reasons for which the CONTRACTOR is liable under the Contract. It is understood that any demand made hereunder by the PURCHASER shall be conclusive evidence of the CONTRACTOR's failure to comply with his obligations relevant to his Contractual Responsibilities under the Contract for reasons for which the CONTRACTOR is liable under the Contract. The amounts being guaranteed hereunder shall be applied towards the payment by the CONTRACTOR of damages under and in accordance with the Contract. This guarantee shall come into force immediately and remain in full force, operative and binding on us for a period of () months. We agree to extend at the request of the PURCHASER this Bank Guarantee beyond the date mentioned above for 3 months at a time up to the date that a Provisional Acceptance Certificate is issued in accordance with the Contract. We (bank) shall at all times be bound on the simple demand of the PURCHASER to pay the PURCHASER forthwith the amounts hereby guaranteed until we are released and discharged by the PURCHASER from the liabilities/obligations hereby guaranteed and this guarantee is returned to us duly cancelled by the PURCHASER. Our (Guarantor's) liability to the PURCHASER hereunder shall be that of a principal debtor and the PURCHASER may at his option treat us as primarily liable for the aforesaid amount or any balance which may at any time be due and payable by us to the PURCHASER in terms of the Bank Guarantee.

We hereby declare and confirm that under our Constitution and the applicable laws and regulations of (country of the bank), we have the necessary power and authority, and all necessary authorizations, approvals and consents of (governing body of bank), governmental and other regulatory authorities have been obtained (copies of which are attached hereto as annexure) to enable us to enter into, execute, deliver and perform the obligations undertaken by us under this guarantee, and the signatory to the guarantee is our duly authorized officer(s), and the obligations on our part contained in the guarantee, assuming them to be

a/ Only one to be selected.

valid and legally binding according to (name of banker's country) law by which we are expressed to be governed, are valid and legally binding on and enforceable against us under the aforesaid laws and in the court at (town). We further confirm that it is not necessary or advisable under the laws of (country of the bank) in order to ensure the legality, enforceability and priority of the guarantee or of any parts thereof, that this guarantee be filed, registered or recorded in any public office or elsewhere or that any other instrument relating thereto be executed, delivered, filed, registered or recorded, that any tax or duty be paid or that any other actions be taken.

(bank)

B. Form of performance bond

KNOW ALL MEN BY THESE PRESENTS: that (_____) (here insert full name and address or legal title of CONTRACTOR)

as Principal, hereinafter called CONTRACTOR, and (_____) (here insert full name and address or legal title of surety)

as Surety, hereinafter called Surety, are held and firmly bound unto (_____) (here insert full name and address or legal title of PURCHASER)

as Oblige, hereinafter called PURCHASER, in the amount of (_____) for the payment whereof CONTRACTOR and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

the CONTRACTOR has by written agreement dated (day, month, year) entered into a Contract with the PURCHASER for (_____) in accordance with Drawings and Specifications prepared by (_____) (here insert full name and address or legal title of the CONTRACTOR)

which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the CONTRACTOR shall promptly and faithfully perform the said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the PURCHASER.

Whenever the CONTRACTOR shall be, and declared by the PURCHASER to be in default under the Contract, the Owner having performed the PURCHASER's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

(a) Complete the Contract in accordance with its terms and conditions, or

(b) Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or, if the PURCHASER elects, upon determination by the PURCHASER and the Surety jointly of the lowest responsible bidder, arrange for a contract between such bidder and the PURCHASER, and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract Price", as used in this paragraph, shall mean the total amount payable by the PURCHASER to the CONTRACTOR under the Contract and any amendments thereto, less the amount properly paid by the PURCHASER to the CONTRACTOR.

Any suit under this bond must be instituted before the expiration of (2) years from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the PURCHASER named herein or the heirs, executors, administrators or successors of the PURCHASER.

Signed and sealed this (_____) day of (month, year)

(_____)
witness

(_____)
principal seal
(_____)
title

(_____)
witness

(_____)
principal seal
(_____)
title

ANNEXURE XXIII

Forms of bank guarantee

1. Form of bank guarantee for advance payment under Article 21.2

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 called PURCHASER 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 Article 21.2 of the Contract dated (___) (hereinafter called CONTRACT), between PURCHASER and (_____) a Company incorporated in (_____) (hereinafter called CONTRACTOR which expression shall, unless repugnant to the context or contrary to the meaning thereof, include its successors and assigns) for the supply of a Semi-Turnkey Ammonia and Urea Plant, as envisaged in the Contract, it is stipulated that the sum of (___) shall 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 Contract and against receipt of the said advance by (name of CONTRACTOR), the CONTRACTOR 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 PURCHASER any amount up to a total sum of (_____).

4. The BANK shall effect payment under this letter of guarantee immediately upon the PURCHASER's written request stating that the CONTRACTOR 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 CONTRACTOR.

6. This letter of guarantee shall be initially valid for a period of (_____) months from the Effective Date of the Contract and shall be extended by suitable periods in accordance with the Contract (but not more than (6) 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 Contract, 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 PURCHASER, and the PURCHASER at his discretion, and without any further consent from the BANK and the PURCHASER's right against the BANK may, compound with or give time or other indulgence to or make any other arrangement with the

CONTRACTOR and nothing done or omitted to be done by the PURCHASER in pursuance of any authority contained in this Guarantee shall affect or discharge the liability of the BANK.

(bank)

2. Form of bank guarantee under Article 21.3

At the request of (name and address of CONTRACTOR) (hereinafter called CONTRACTOR), we hereby open our irrevocable guarantee No. _____ for an amount of maximum (amount). In consideration of the CONTRACTOR having entered into a Semi-Turnkey Contract dated (_____) (hereinafter called Contract) with (name and address of PURCHASER), (hereinafter called PURCHASER) for the grant of licences and technical know-how and for the supply of Plant and Equipment, the construction and erection and for other services for the Ammonia and Urea and auxiliary Plants to be built by the PURCHASER, we (bank) do hereby agree and undertake to pay forthwith to the PURCHASER in repatriable currency on demand by the PURCHASER and without prior recourse to the CONTRACTOR such sum or sums not exceeding (amount) as may be demanded by the PURCHASER stating that the CONTRACTOR has failed to fulfil his obligations relevant to the Performance Guarantees and for other guarantees and warranties under the Contract for reasons for which CONTRACTOR is liable under the Contract. It is understood and agreed that any demand made hereunder by the PURCHASER shall be conclusive evidence of the CONTRACTOR's failure to comply with his obligations relevant to the guarantees and warranties under the Contract for reasons for which CONTRACTOR is liable under the Contract.

The amount being guaranteed hereunder shall be applied towards the payment by the CONTRACTOR of damages under and in accordance with the Contract. This Bank Guarantee shall come into force immediately and shall remain valid for a period of _____ months, such period to be extended for additional (6)-month periods, in accordance with the Contract, up to the date of Final Acceptance by the PURCHASER of the Plants as per the Contract and we (bank) shall at all times prior to such acceptance be bound on the demand of the PURCHASER to pay the PURCHASER forthwith the amount guaranteed hereof, PROVIDED that the amount of the Bank Guarantee mentioned above shall be reduced to (amount) on the date of Provisional Acceptance by the PURCHASER of the Plants in accordance with the provisions of the Contract.

(bank)

ANNEXURE XXIV

Packing and shipping

1. The CONTRACTOR shall ensure that in procurement and in inspection, all items of Equipment are delivered in proper seaworthy packing, and where special protection is required, shall so specify in the procurement specifications, and shall inspect the items accordingly.
2. Where FOB procurement is involved, the CONTRACTOR shall ensure that clean bills of lading are obtained for all deliveries. Where space limitations will only permit deck cargo, CONTRACTOR shall specify the special protective measures required to protect the Equipment during sea transport.
3. Where air or land shipment is involved, the CONTRACTOR shall give appropriate packing instructions to his Subcontractors.
4. In the event that due to late deliveries or procurement, shipment has to be made by air instead of by sea, the CONTRACTOR shall advise the PURCHASER on packing and give appropriate instructions to the Subcontractors.
5. During inspection the CONTRACTOR shall ensure that:
 - (a) A packing list is enclosed with all closed packages;
 - (b) The packages are marked as stipulated in annexure XXV;
 - (c) Certificates of origin, where required, are available.
6. The CONTRACTOR shall ensure that packages delivered to (port(s) of entry/Site) should be within a maximum of (specify size and weight of packages).
7. The number of invoices, the methods of dispatch of original invoices etc., shall be in accordance with Article 12.

ANNEXURE XXV

Receipt and storage at the Site
and marking instructions

The CONTRACTOR and the PURCHASER should draw up a protocol, before any Equipment arrives on the Site, for joint inspection of all Equipment and Materials on their arrival at the Site and for assessment of the value and nature of shortages or breakages in accordance with Article 4.

The CONTRACTOR shall review and elaborate 6 months before the first shipment the instructions and strategy for the marking of the packages, allotment of numbers to Equipment and Materials, allocation of storage space (in warehouses or in the yard) in order to facilitate the smooth issue of Equipment and Materials for erection.

The CONTRACTOR shall review, when the procurement has been planned, the instructions given to streamline these instructions further, also supplying numbers allotted to Equipment and parts, and the strategy for storage erection, and marking.

1. The area for the storage of Equipment should be as agreed between the PURCHASER and the CONTRACTOR.
2. Storage instructions shall be given by the CONTRACTOR's representative at the Site, subject to the PURCHASER's approval.
3. Marking instructions shall be as follows:

(specify marking instructions). a/

a/ Marking instructions could be agreed later. This clause should then read: "The packages shall be marked as agreed by the PURCHASER and the CONTRACTOR within (12) months after (__)".

ANNEXURE XXVI

Procurement procedures

1. Procurement procedures for spare parts have been outlined in Article 10 of the Contract, and shall be followed. In addition, details of the mode of procurement are given in this annexure.
2. The CONTRACTOR shall issue pre-qualifying notices a/ for all groups of spare parts (other than spare parts for proprietary equipment) inviting potential Vendors for pre-qualification. All documents required for this purpose shall be mentioned in these notices. The PURCHASER and the CONTRACTOR shall agree at the first design meeting after the Effective Date of Contract on the newspapers in which such notices are to appear.
3. The CONTRACTOR shall send to the PURCHASER a list of companies pre-qualified by him for purchase of different types of spare parts, indicating reasons for the rejection of any Vendor. The PURCHASER shall have the right to add to or subtract from such list of pre-qualified Vendors. All costs of the CONTRACTOR in satisfying himself on the competence of any bidders shall be borne by the CONTRACTOR.
4. The PURCHASER and the CONTRACTOR shall agree on the general format of the purchase orders to be issued for procurement at the meeting proposed for the 4th month after the Effective Date of Contract.
5. The CONTRACTOR shall thereafter issue tender specifications for each type of spare part, modifying or extending the general format as the need may arise. Where the PURCHASER's representatives are available at the CONTRACTOR's offices, the PURCHASER's representatives shall approve such specifications.
6. The CONTRACTOR shall receive bids in two parts, technical specifications and prices, and shall open the price tenders in accordance with the procedure laid down between the PURCHASER and the CONTRACTOR. b/ Any clarification requested from the bidders shall be undertaken in writing or in the presence of the representatives of the PURCHASER. Where representatives of the PURCHASER are not present, complete minutes of such meetings shall be sent to the PURCHASER.
7. The CONTRACTOR shall prepare bid tabulations in ample detail to enable the PURCHASER to select the final bidder, and shall make recommendations to the PURCHASER on the selection of the Vendor. Should this Vendor not be the lowest bidder, full details shall be supplied on the reasons for rejecting the lowest bidder. The actual selection of the Vendor shall be in accordance with Article 10 of the Contract.
8. The CONTRACTOR shall prepare the final purchase orders, fully safeguarding the PURCHASER's interest, for the signature of the PURCHASER or his representative at the CONTRACTOR's offices, or as otherwise agreed between the PURCHASER and the CONTRACTOR in writing.

a/ These may not be required for spare parts, but some Governments and agencies require pre-qualification.

b/ The procedure may also need to comply with that of a financing agency.

9. The PURCHASER shall thereafter open letters of credit or, in the case of reimbursable procedures (such as those of some financing agencies), b/ provide appropriate payment guarantees acceptable to the Vendor, within the time limits agreed in the purchase order.

10. The CONTRACTOR shall ensure that all orders are placed for delivery dates in accordance with the time schedule laid down in annexure XV, and in an orderly manner for use at the Site. The PURCHASER shall ensure that payment is made in accordance with the purchase orders.

11. Purchase of spare parts for proprietary items of Equipment for which quotations shall be obtained by the CONTRACTOR at the time of purchase by him of the Equipment shall be in accordance with a separate protocol between the PURCHASER and the CONTRACTOR (but in all cases where procedures of the financing agency are required, these shall be followed). b/

12. In addition to spare parts, other equipment (e.g. a simulator for training purposes) may also be purchased by the CONTRACTOR for and on behalf of the PURCHASER, if agreed by the PURCHASER and the CONTRACTOR. In such cases also, the provisions of Article 10 and this annexure shall apply unless other procurement methods are agreed upon between the CONTRACTOR and the PURCHASER.

ANNEXURE XXVII

Rates, charges and personnel services

1. Home office charges

The home office charges of the CONTRACTOR for work undertaken in accordance with Article 15 on a cost-plus basis, or for other work on this basis, as agreed between the PURCHASER and the CONTRACTOR shall be computed as follows:

1.1 Direct cost of personnel

<u>Designation</u>	<u>Direct costs per hour</u>
—	—
—	—

1.2 To arrive at the overall direct costs, the direct personnel costs shall be multiplied by the hours worked by each category of staff. The CONTRACTOR shall prepare time logs specifying the name of the person undertaking the work, the dates and hours worked, and where the PURCHASER's Site representatives are present, the time logs shall be approved by them on a weekly basis.

1.3 To the direct personnel costs shall be added (_____) per cent to cover the CONTRACTOR's overheads and profits.

1.4 To the above charges shall be added direct expenses e.g. travel etc. at actuals to arrive at the total amount payable by the PURCHASER for such work.

2. CONTRACTOR's expatriate personnel charges

2.1 The charges, in foreign exchange, for the deputation of the CONTRACTOR's expatriate personnel to (PURCHASER's country) shall be as follows:

For each Day of absence from the home office:

<u>Personnel</u>	<u>Rates per day</u>
Construction manager	
Start-Up manager	
Specialist engineers	
Erection specialists	
Assistant for erection and Start-Up	
(Others may be specified)	

2.2 (It is recommended that this should not have an escalation clause. In some cases, however, this may be required. The escalation in such cases should be based on an index specified in this clause, which index should be an officially published index of the CONTRACTOR's government agencies.)

2.3 In addition, the CONTRACTOR's expatriate personnel shall be entitled to tourist-class air travel tickets for themselves (and family, where permitted according to clause 5.5.2.1 below).

3. Overtime charges

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

Up to 54 hours/week	(100 per cent) of normal rates
Above 54 hours/week	(130 per cent) of normal rates
For weekly and public holidays	(130 per cent) of normal rates

3.2 No additional payments shall be made in local currency.

4. Personnel to be deputed by the CONTRACTOR

4.1 The CONTRACTOR shall provide the following expatriate personnel to the Site for the period noted against each person/category of persons.

<u>Category</u>	<u>Expected number</u>	<u>Total expected man-months</u>
—	—	—
—	—	—

(The requirements shall depend upon availability of personnel in a given country.)

4.2 The period of stay mentioned above is only indicative and the CONTRACTOR shall agree to extend the stay of such personnel if required by the PURCHASER, or to provide additional personnel in the categories required above, if desired by the PURCHASER.

4.3 The above personnel shall be in addition to the specialists of the Vendor(s). The CONTRACTOR estimates that the following specialists of Vendor(s) will be required:

<u>Category</u>	<u>Number</u>	<u>Expected man-month</u>
—	—	—

Payments to the specialists of Vendor(s) shall be negotiated between the PURCHASER and the CONTRACTOR and the Vendor(s) separately at the time of placing orders with the Vendor(s).

5. Terms and conditions of personnel services

5.1 The CONTRACTOR shall provide such qualified and competent expatriate personnel as is necessary for the proper and final implementation of the Contract. Such expatriate personnel should be fit for working in a (tropical) climate.

5.2 Within (4) months from the Effective Date of the Contract, the parties shall further agree upon the details about the expected initial number of each category of the CONTRACTOR's personnel and the duration of their stay at the Site. This shall be subject to clause 4.1 above.

5.3 Before any of the CONTRACTOR's personnel is sent to the Site, the PURCHASER shall be informed of his bio-data and the PURCHASER shall have the right to satisfy himself as to the competence of such a

person. Any person so rejected shall be replaced promptly by the CONTRACTOR. This right shall, however, not apply to Start-Up personnel.

- 5.4 If any of the CONTRACTOR's personnel is guilty of misconduct, the PURCHASER shall have the right, after giving reasons thereof to the CONTRACTOR in writing, to send him back to the country of his home office, and ask for and obtain an adequate replacement at the CONTRACTOR's expense.
- 5.5 In consideration of the services to be rendered by the CONTRACTOR's personnel under the Contract, the PURCHASER shall provide, in addition to what is specified under this Annexure, clauses 1, 2 and 3 above, the following allowances, services and facilities to the CONTRACTOR's personnel engaged in work under the Contract at the Site.

5.5.1 Local allowances

The PURCHASER shall pay to each of the expatriate personnel engaged in the work a living allowance at the rate of (amount in local currency) for each calendar day of presence at the Site.

5.5.2 Travelling

5.5.2.1 Tourist-class return air fare for each assignment for each expatriate from the expatriate home office to the Site by (air carrier) or an IATA carrier at the discretion of the PURCHASER. When an expatriate has completed 18 months at the Site he shall be entitled to a tourist-class return air fare to the country of his home office. Tourist-class return air fares shall be provided for families of expatriates whose assignments are anticipated to be for periods in excess of 12 months. The air fare shall be extended to cover the family defined as the wife and all accompanying unmarried children under the age of 18 years, up to a maximum of 4 children, of the said expatriate.

5.5.2.2 At the beginning and end of assignments, the CONTRACTOR's expatriate personnel and their wives shall each be entitled to a baggage allowance of 20 kg in addition to that included in the price of each air ticket.

5.5.2.3 Transport within (PURCHASER's country) by plane (economy class) or road (air-conditioned class) for expatriate personnel and their families on their arrival and departure, and for expatriate personnel travelling on official business.

ANNEXURE XXVIII

Civil engineering specifications

Not applicable to the Semi-Turnkey Contract.

ANNEXURE XXIX

Erection codes and specifications

These are generally based upon the country of origin of the CONTRACTOR and/or the erection company undertaking the erection. Complete specifications are available, for instance in the DIN code. The codes to be used should be decided by the PURCHASER and the CONTRACTOR in consultation with the erection company selected.

ANNEXURE XXX

Guarantees of consumption of raw materials
and utilities

1. Ammonia Plant

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

<u>Items</u>	<u>Units</u>	<u>Units per Tonne of ammonia</u>
(a) Consumption		
Natural gas <u>a/</u>	millions of kcal	
High pressure steam	Tonnes	
Electrical power <u>b/</u>	kWh	
Cooling water (<u> </u>)	m ³	
Boiler feed water (110 °C, 120 kgf/cm ²)	Tonnes	
(b) Output		
Medium pressure steam	Tonnes	
Low pressure steam	Tonnes	
Purge gas	millions of kcal	
Boiler feed water preheating	millions of kcal	
Condensates	Tonnes	

1.2 The consumption of natural gas is based upon the following characteristics, within the limits specified:

(generally, these should be part of the characteristics given for gas in annexure IV. However, not all the characteristics given therein are required to be mentioned here).

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

(specify limits at which the Plant can operate.) The guarantee for gas consumption shall be as mutually agreed, in accordance with Article 5.14.1.

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

a/ Natural gas consumption includes requirements such as feedstock and direct fuel.

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

shall be directly proportional to the lower heating value of the gas.

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 CONTRACTOR.

1.4.1 If either the CONTRACTOR or the PURCHASER 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 5.14.1 of the Contract.

2. Urea Plant

2.1 The guarantees for the consumption of raw materials and utilities for the Urea Plant are:

<u>Items</u>	<u>Units</u>	<u>Units per Tonne of urea</u>
(a) Consumption		
Ammonia (as 100%)	Tonnes	
High pressure steam	Tonnes	
Electric power <u>c/</u>	kWh	
Cooling water (32 °C)	m ³	
(b) Production		
Low pressure steam	Tonnes	
Condensate	Tonnes	

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

ANNEXURE XXXI

Guarantee Test procedures

1. The Guarantees for the consumption of raw materials and utilities shall be demonstrated in the Performance Guarantee Tests to be run in accordance with Article 26.4.1 of the Contract for the Ammonia Plant, Article 26.4.2 for the Urea Plant and Article 26.4.3 for the power plant.
2. The CONTRACTOR shall give at least 30 Days' notice to the PURCHASER in writing of his intention to run any guarantee test. If such test has to be repeated for faults due to the CONTRACTOR, 15 Days' notice shall be given to the PURCHASER unless otherwise agreed between the CONTRACTOR and the PURCHASER.
3. The Performance Guarantee Tests of the Plants shall be run under the direction and supervision of the CONTRACTOR's personnel but all measurements shall be taken jointly by the PURCHASER and the CONTRACTOR and in the event of any dispute relating only to the correctness, sufficiency and/or adequacy of the tests and/or the manner in which the tests were conducted, the provisions of Article 37 of the Contract shall apply.
 - 3.1 The first (20)-Day test of the Ammonia and/or Urea Plant shall commence within (90) Days of the Initial Operation of the Plant(s), provided that the PURCHASER fulfils his obligations for the supply of feedstock etc. under Article 5.14. Subject to the provisions of clause 3.2 below, this (90)-Day period shall be extended if the Plant(s) is (are) unable to operate normally and in the event of failure of this test, the CONTRACTOR shall be permitted not more than two other tests to be run within (6) months immediately thereafter (subject however to the provisions of Article 27.3 of the Contract). a/
 - 3.2 If, for reasons ascribable to mistake(s) and/or error(s) in process and/or detailed engineering or for any other reasons related to the work and services provided or performed by the CONTRACTOR, and/or mistake(s) and error(s) in the contractual specifications and instructions, the CONTRACTOR is not able to perform the test(s) within the period(s) stated in clause 3.1 above, the provisions of clause 7 below shall apply.
 - 3.3 The CONTRACTOR shall have the right to have the Plant(s) operated in accordance with his requirements at his own risk during the period permitted to the CONTRACTOR to perform the test(s) and the PURCHASER's personnel shall work under the direction and technical instructions of the CONTRACTOR. The PURCHASER shall have the right to operate the Plants as and when such operation shall not interfere with the CONTRACTOR's work.
4. The guarantee test periods for the Ammonia and Urea Plants shall, in each case, be a (20)-Day sustained continuous test at (90) per cent of capacity followed immediately by a (10)-Day test at 100 per cent of capacity.

a/ The words in brackets are to be removed if Article 27.3 is not used.

- 4.1 During the operation of the Urea Plant under Article 26.4.2.2, the ammonia in the ammonia storage at the beginning and end of the test shall not be depleted.
 - 4.2 The production of ammonia shall be measured by (method of measurement of ammonia should be given). b/
 - 4.3 The production of urea shall be measured by the use of the integrating on-line recorders on the conveyor for the (20)-Day test period, but shall be measured by isolating, packing and weighing the actual daily production of urea during the (10)-Day 100 per cent of capacity test period.
 - 4.4 The measurement of the quantities of all inputs and outputs (other than ammonia and urea) in accordance with annexure XXX and their methods of measurement shall be discussed and agreed to at the meeting contemplated under Article 6.8 and appropriate instruments specified.
5. During the 10-day guarantee test for the Urea Plant under Article 26.4.2.2 (unless otherwise agreed), the Ammonia and the Urea Plants shall be run simultaneously for a consecutive (7) Days to prove the adequacy of the Off-Sites, utilities and carbon dioxide, in accordance with Article 26.4.4 of the Contract.
- 5.1 The adequacy of the Off-Sites, utilities and carbon dioxide shall only be considered as having been demonstrated if the Urea Plant operates at 100 per cent of capacity; or if the Urea Plant operates at 95 per cent of capacity and the agreed liquidated damages are paid by the CONTRACTOR.
6. The power plant shall be operated at 100 per cent of capacity for (7) consecutive Days to prove the guarantees for power and steam production, and the guarantee for fuel consumption.
- 6.1 The electrical production capacity shall be measured by aggregating the watt-hour meters over a period of 168 hours. The guarantee test shall be considered to be complete when the power plant averages (_____) kWh/h during this period.
 - 6.2 The method of measuring the steam shall be discussed at the meeting contemplated under Article 6.8 and appropriate instruments provided.
7. Detailed procedures for all the tests including the calibration of instruments shall be agreed upon by the CONTRACTOR and the PURCHASER at least (3) months before the commencement of the first test, in accordance with Article 26.4.5.2 of the Contract.
8. In all cases the CONTRACTOR shall supply the necessary instruments. Instrument tolerances for the measurement of different consumptions shall

b/ Weight tanks are initially expensive, but give an accurate measure of production. Flow meters, even when automatically controlled for temperature, give a high instrument error, which, in the case of some flow meters, can be as much as approximately ± 5 per cent.

be agreed for the following:

- Natural gas flow meter: (_____)
- Other gas meters: (_____)
- Steam meters: (_____)
- Power meters: (_____)
- Cold water meters: (_____)
- Hot water and condensate meters: (_____)
- Temperature recorders: (_____)
- Ammonia measurement system: (_____)

at the first design meeting contemplated under Article 6.5 of the Contract, except where already specified above. c/

9. Samples of ammonia and urea shall be withdrawn jointly at least twice every 8 hours and sent for analysis. The results shall be averaged over a 24-hour period and each such result shall meet the product specifications contained in annexure XVI.

10. The maximum period in which the CONTRACTOR shall be allowed to run his tests shall be (18) months after Initial Operation of the Plant, or (52) months after the Effective Date of Contract, whichever is earlier, extended by such time as is required to replace equipment, after which the provisions of Article 27.4 shall apply. (Subject to his paying the liquidated damages, if any, in accordance with Article 27.3.) d/

10.1 In the event that the CONTRACTOR does not complete or is unable to complete any or all of the Performance Tests and Guarantees of the Plant(s) for reasons attributable to the CONTRACTOR within the 9 months after Initial Operation of the Plant(s), the PURCHASER shall in addition to the remedies under the Contract have the right to stop all payments due to the CONTRACTOR and the CONTRACTOR shall be required to undertake the work specified under Article 18.16, if any, without delay and the validity of his bank guarantee shall be extended.

c/ These tolerances should, preferably, be agreed upon at the contract stage.

d/ If Article 27.3 is not used (text B), the words in brackets should be removed.

ANNEXURE XXXII

Arbitration terms and rules

The terms and rules of arbitration as agreed upon by the PURCHASER and the CONTRACTOR should be stated here. If arbitration under the rules of the International Chamber of Commerce or some other agreed court is agreed upon, then the relevant documents should be specified here.