

Sub: Invitation For Investment Opportunities

The Ministry of Industry and Minerals / Republic of Iraq has the pleasure to announce several Investment Opportunities to rehabilitate and modernize its selected factories in different industrial sectors.

Specialized International Companies, Businessmen, and Financers are invited to participate in these Opportunities that may achieve economic feasibility and create rapid positive revenues.

The concept is that the investor and his supporting team shall rehabilitate and manage the plant on his account against a share of production achieved for a negotiated period of time.

The strength points of these opportunities are:-

- 1- High local demand of the products.
- 2- Availability of trained and experienced manpower.
- 3- Availability of local raw materials.
- 4- Adequate investment legislations and favorable terms for agreement.
- 5- Fast return on investment.

The Ministry expresses its willingness to assist you with all the necessary clarification as well as facilitating necessary visits to the factories (if required).

You are kindly requested to submit your offers within the indicated validity (Tuesday, June 5,2007) :-

Contact Details

Tel: 00964 1 8162006 Ext. 3127 , 3122

E-mail :invest@industry.gov.iq

Mobile: 00964 7901 371 867

Address: Ministry of Industry / Investment Department .

Nidhal Street

Baghdad – Iraq

**Republic of Iraq
Ministry of Industry & Minerals
Investment Department**



Investment File

Rehabilitation of

Muthana Cement Plant

January 2007

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PART I

INVESTMENT OPPORTUNITY

Rehabilitation of Muthanna Cement Plant

Invitation:

The Ministry of Industry and Minerals (MIM) / Investment Department, in cooperation & coordination with Muthana Governorate Council, invites Investors and international Competent Companies to invest in rehabilitation of Muthanna Cement Plant at Muthanna Governorate - south of Iraq, about 35 KM from Samawa City. That is to finance and implement the activities to rehabilitate the plant in accordance with modern Cement Industry technology, Manage and operate the plant at the investor account against share of product accomplished.

History of the plant

The plant is one of the Cement plants operated by the state company of southern Cement (totally owned by the State) . It was implemented by the German firm(K.H.D.Humboldt wedag) in accordance with a contract signed on 30/3/1981. the plant was operated by (K.H.D Engineering) for the period beginning 1984 up to mid 1986.

The plant is based on dry process with pre-calcination... the product is Sulpher-resisting Cement at a designed capacity of 1920 000 ton clinker/year(2000 000 ton Cement/year) consists of two lines 960 000 ton clinker/ year and 1000 000 ton cement/ year, each.

Due to shortage of financial resources and the Embargo imposed on Iraq during nineties, a low quality spare parts were used and poor maintenance was implemented which caused reduction in the production capacity and the necessity to rehabilitate and modernize the plant to cope with new development in Cement Industry , and to bring the plant to its design capacity.

Concept and Evaluation Criteria

The evaluation criteria for selecting the investor shall be :-

- 1- The share of MIM as a percentage of production offered by the Investor, not less than year 2002 production quantity minimum.
- 2- Rehabilitation plan and scope of work .
- 3- Obligation of the Investor/ group of investors to install Electrical generation unit with capacity capable to operate all plant production & Utilities units, during and after Rehabilitation activities .

- 4- **Obligation of the Investor/ group of investors to keep all current plant personnel, paying them their salaries & incentives, yearly increase in salary @ any increase obtained according to Iraqi laws, in addition to incentives on increase in production.**
- 5- **The period planned to implement the rehabilitation activities to conclude the targeted production capacity of the plant.**
- 6- **The least period of sharing agreement for the investment contract.**
- 7- **Maximum production capacity obliged to be fulfilled by the Investor.**
- 8- **The Investor Financial capability to fulfill his under-taking to rehabilitate the plant supported by :-**
 - **Financial statements for the last three years.**
 - **Supporting letter from Banks and Financial houses to show the Investor Financial capabilities.**
 - **Documents on the financial capabilities of the investor partners or the supporting parties.**
 - **Documents on financial facilities that Banks may grant to the investor.**
- 9- **The technical and managerial capacity of the investor and his supporting partners to achieve the rehabilitation works (Engineering Companies , Vendors, Site work Contractors), Operate and manage the plant after completion of rehabilitation. Organizational structure of the investor/group of investors to be provided .**
- 10-**Similar experience of the Investor and his supporting companies in similar works with documental reference.**

The project advantages

The Strength point of the project is:-

- 1- **The plant is located at an area of abundance raw material needed for Cement Industry, huge limestone and Gypsum reserve is available there in areas near the plant site.**
- 2- **Muthanna Governorate where the plant is located has a long history in Cement Industry with a rather low cost labors of good experience in different levels .**
- 3- **Availability of filling Station in Bags and loose to enable transportation by train to other Governorates in Iraq.**
- 4- **The growing demand on Cement to meet the requirements of the reconstruction plans in Iraq.**
- 5- **Adequate security of the area.**

The Investor Obligations:

1st: It is important to the interested investor, before and after purchasing the investment file, to visit the plant to have detailed information on site condition, the prevailing conditions of the plant, look at any necessary drawings, and present any request for clarification and questions to the specialized team on the address mentioned below. According to detailed investigation, in addition to the informations and general conditions, The Investor might Submit his investment offer which should contain detailed suggested rehabilitation works, expected investment amount, rehabilitation duration, rehabilitation procedures, intermediate & final targeted production capacities, investment package agreement period, percentage of product share, philosophy and detailed procedure for managing & operating the factory before and after completion of rehabilitation activities until the end of investment agreement.

2nd: The investor should consider the followings according to the investment file conditions:

- 1. The investment package should assure the installation of Electric generation unit with a capacity capable to operate all factory units, buildings and utilities.**
- 2. It is preferable for the interested investor to arrange for a seminar shoeing his experience and points of view for the Rehabilitation approach.**
- 3. The investment package should include obligation to keep & getting use from the current available factory employee and assure the payment of their salaries & incentives.**
- 4. The Rehabilitation package should be fulfilled on all factory production units, utilities, other facilities & Quarry units.**

Measures

- 1. The Interested investor may send his authorized representative to
1-1:Ministry of Industry & Minerals (MIM)/ Investment Dept.
1-2: State Company of Southern cement/Najaf Governorate, their detail contacts here below.**

To purchase the investment file against the amount USD 250 (only two hundred and fifty USD) starting from 15 / 4/2007.

2. Please contact the following address for any information or clarifications:-

Ministry of Industry / Investment dep.

Al-Nidhal Street

Baghdad – Iraq

Tel: 00964 1 8162006 /Ext. 3127,3122

(00964 1 8166040

E-mail :invest@industry.gov.iq

Mobile: 00964 7901 371 867

3. The Investment Package proposal to be submitted to the Ministry of Industry & Minerals/on or before 5/6/2007.

**Investment Department
Ministry of Industry & Minerals
Republic of Iraq**

PART II

General Conditions:

(For plants rehabilitation agreement)

1- Scope of rehabilitation works:

The "investor" shall undertake, according to the Agreement, to rehabilitate and develop all production lines, facilities, and production vehicles, in a manner to guarantee achieving the targeted capacity in a certain period. He may reach the targeted capacity in stages. The "investor" shall in his proposal, specify the target capacity of each stage according to his action plan.

2- The Agreement concept:

The core concept of the "investment Agreement" is that the "investor" shall perform all rehabilitation works in accordance with the terms of the investment file, and to undertake management and operation of the plant through out the period of rehabilitation and afterwards, at the agreed upon capacity, including supply and transport of raw material, operational and auxiliary materials, cost of water, fuel, electricity etc, additionally to pay the salaries and allowances of plant employees working at the state company during the rehabilitation period, and afterwards, all at his own expense against having a share of the production.

3- Action plan:

The "investor" shall submit, in two months from signing the "Agreement" a detailed action plan and a detailed time schedule on the implementation of the rehabilitation works, taking into consideration stoppage of production units, for necessity only, for limited time in order to keep the continuity of production as much as possible through the rehabilitation period, upon agreement between the Investor and state Company for Southern Cement.

4- Maximum Use of Employee during Rehabilitation Agreement:

A- The "investor" shall, within two months from signing the Agreement, in coordination with the plant management, submit a plan on maximum use of the plant Employee in access to the production

activities requirements in the rehabilitation works which he performs or in other projects he may establish in Iraq.

B- The "investor" shall keep the employment of all personnel of the plant (including labors), pay their salaries and annual allowances according to prevailing rates of their colleagues at the Ministry of industry and Mineral, pay incentives in accordance with an incentives system based on achieving the target capacities to be agreed upon before signing the 'Agreement'.

5- Penalty on Delay & non-achieving production Guaranteed capacities:

A: the investor undertake to supply the Ministry of industry /state company with its share of the targeted stages capacities, regardless of achieving or not that targeted capacity on the contractual date.

B: The Penalty in (A) above shall continue for (3 months) only, starting from the contractual date for achieving that stage capacity. The investor shall be considered failed to complete the work if he couldn't achieve the contractual target capacity at the expiry of the above mentioned period.

In case the investor succeed in achieving the targeted production capacity within this (grace) period, this period shall not be a reason or part of request to extend the timing of the succeeding target capacities. These dates should be kept and respected as given in the Agreement.

C: In case the investor failed to achieve the FINAL targeted capacity (at the end of the rehabilitation period), at a shortage not more than 10% of the targeted FINAL capacity, he shall be liable to supply- as a Penalty- a quantity of production amounting to one ton of production for each one ton shortage.

In case this shortage is more than (10%). The investor should take, within six month, any necessary measures to rectify the situation to reach the contractual targeted capacity on his account. The investor during this period (6 months) shall continue to supply the Ministry of

Industry and Minerals/state Company with the quantity of product mentioned above.

In case the investor fail at the end of this period to achieve the targeted production capacity, he shall be considered completely failed to fulfill his contractual obligations and the Agreement shall be considered terminated without any right to the investor to claim for any compensation on actual cost or expenses he has borne for his activities of this "Agreement"

6- Insurance:

The "investor" shall be obliged after signing the "investment Agreement" to get an "All risk insurance" policy for the plant and to insure all plant personnel against work accidents and risks.

7- Abide to labor laws:

The "investor" shall abide to all labor laws and the Iraqi instruction safety rules.

8- Letter of Guarantee:

The "investor" shall, on signing the "Agreement" submit an unconditional letter of Guarantee issued by a recognized Bank of an amount of (300) Million Iraqi Dinar, valid for one year, to be raised by another (300) Million each three months until it reaches (3) Billion Iraqi Dinar in 2.5 years. The LETTER OF Guarantee shall be released after the expiry of the "Agreement" and hand - over the plant.

The Ministry shall have the right to-without court warning or judgment-confiscate the amount of the letter of guarantee in case of regress or failure of fulfillment of the investor obligations.

9- Electricity Generation unit:

The "investor" shall undertake to supply and install an Electricity generation units of a capacity sufficient to meet plant and services

requirement of electric power at full production capacity either in one or two stages. The investor shall undertake to supply at least 17 M.W generation capacity within a period not more than (9) months from the date of the agreement and to supply full generation capacity within 18 months from the date of agreement. Failure to meet the requirement of this clause shall be subjected to the terms of clause (8).

10- Plant Management:

The "investor" shall present in his investment proposal his suggestions on the way he intend to manage the plant, technically and administratively to insure the smooth operation at the best performance to achieve the agreed upon production capacity in a continuous smooth way during the period of rehabilitation and afterwards.

11- Property of executed rehabilitation works:

All supplied and executed works of rehabilitation in accordance with the investment Agreement, shall remain the property of the Ministry of Industry and Minerals, including the technical equipment and vehicles of the quarry. This does not include personal materials used by the staff of the "investor" personnel, for which he can re-export after listing quantity and type.

12- Continuous Maintenance during Agreement period:

The investor, after completion of rehabilitation works shall continue to achieve agreed upon capacity by performing continuous necessary maintenance during the "Agreement" period and undertake to handover the plant on the expiry of the Agreement period in good technical condition able to produce at the rate of production rate agreed upon.

13- Letting of Agreement:

The "investor" shall not be allowed to letting the whole Agreement or part of it to a third party without a written approval of the Iraqi Authorized Side.

14- Materials used in rehabilitation:

All materials, equipment, machines and their parts to be used for rehabilitation should be Brand new, reliable and genuine.

15- Monthly Report:

The "investor" shall submit a monthly report to the Ministry of industry and Minerals/ technical committee, showing the progress of rehabilitation works and disuses the report to facilitate any obstacles he may meet.

16- Exemption of custom duties:

All equipment, materials, apparatus and their parts imported by the investor for the purpose of rehabilitation works which shall be part of permanent work and certified by the Ministry/ state company shall be exempted from custom duties. The investor may ask for other exemptions and privileges in accordance with prevailing laws, in his proposal.

17- Inventory material at plant stores:

All inventory materials owned by the state company should be listed and priced by the Ministry / state company. The investor have the option to buy all or part of these materials in case he needs them for the rehabilitation work.

18- Quarry license:

The Ministry under-takes to transfer the quarry license of the lime stone to the name of the investor in accordance with Minerals Investment law No 91 year 1988. The investor should abide to the State Company of Geological, Survey and Mining, regulations and instructions concerning work at quarries and plan of extraction.

The investor may agree with other suppliers of raw materials as he find it suitable.

19- Explosives:

In case the investor use explosives in his work at the quarry, he shall be responsible to abide to the prevailing regulations and rules of the relevant authorities.

20- Guard:

In due time, the investor shall coordinate with the state company management to organize the guard and security of the plant and the quarry in such a way that the security and safety inside the plant lay on the investor responsibility, and out side the plant on the relevant Governmental authorities responsibility.

21- Laws and regulation:

The investor shall abide with terms of prevailing Iraqi laws and regulations when performing his obligations of the "Agreement" with out jeopardize to his privileges of the "Agreement".

22- Agreement contract:

The investor, in his proposal, shall specify the minimum Agreement period he find it necessary. At the end of this period the Agreement shall be ended unless the two parties agree on extension.

23- Entry/ exit visa and Residence permits:

The Ministry/ state company shall support the investor to obtain Entry/ Exit visa and Residence permits for his Employees according to prevailing Rules and Regulations.

24- Force Majors:

The "Agreement" shall contain "Force Major" clause and the rights and obligations of each party. The prevailing condition at the time of signing the Agreement is not considered a force major case.

25- Dispute settlement:

The disputes between the parties shall be settled amicably. In case of failure to reach an amicable settlement the parties may apply the Arbitration procedures of the prevailing laws in Iraq.

The Iraqi courts, only, shall have the jurisdiction to look in disputes.

26- Care of works:

The investor, through out his work in rehabilitation and development shall take due care of the plant machines, equipment and facilities...etc., paying utmost care to the safety during the rehabilitation and the Agreement period in addition to apply all safety measures during with.

27- Good Implementation:

In case it appears to the Ministry of Industry/ technical committee, that a work is done inadequately, or using improper material or by unqualified labor or in a way endangering other equipment or facilities, the investor should agree to the Technical committee written request to stop the work and remedy the situation through an action to be agreed upon in a joint meeting.

28- Product Marketing:

The "investor" shall have the right to sell his share locally at the price he finds suitable and export the excess abroad, after consideration of article (35).

29- Secrecy:

The "investor" undertake to keep the information's contained in the "Investment Agreement" confidential. He has no right to disclose or transmit the information's to other parties (except his partners) before he gets a written approval from the Ministry of Industry & Minerals.

30- The "investor" legal entity registration:

The "investor" or the investing group shall establish a legal entity to perform his activities of the Agreement which should be registered at

the Companies Registrar office in according with the Iraqi Ministry of Trade regulations and terms of companies law no 21 of the year 1997 and its amendments.

31- Final Report:

The investor, at the end of the "Investment period" shall hand over to the Ministry of Industry & Minerals/ state company a detailed report targeting to help the Ministry/ state company to keep the smooth efficient operation and maintenance of the plant (operation manual, maintenance manuals, inquiry and ordering manuals, and Inventory records etc).

32- Common services:

The investor and the Ministry / state company shall coordinate to control and run the facilities which serve other parties-such as water supply in away that such requirements of other parties shall be ensured.

33- Previous liabilities & Obligations:

The investor shall not be part or responsible of any liabilities and obligations on the Ministry/ state company before signing the Agreement concerning the activities of the state company/ Plant. The same applies on the other parties liabilities and obligations towards the Ministry or the Company or the Plant.

34- Termination:

In case this Agreement is Terminated by the Ministry of Industry and Minerals for No reason related to the failure of the investor to fulfill his contractual obligations, the Ministry shall compensate the "investor" for the actual expenses he spent to implement his activities according to this Agreement.

35- Present Production:

The "investor" undertake to sell to the Ministry at cost (to be negotiated and agreed upon before signing the Agreement) the

present quantity produced during the period of running the plant parallel to the rehabilitation activities until the end of the first year from the Agreement date validity.

In Case the whole quantity at prevailing rate, is received by the Ministry before the end of the first year, then the sharing formula shall be applied according to the agreement.

36- Site handover and effective dates:

The periods agreed upon in the Agreement for achieving targeted production stages and final production capacities, shall be counted starting from the date of handing over the plant to the investor to be within three months from the date of signing the Agreement otherwise the terms of clause (8) of this Agreement shall be applied.

PART III

Data and Scope of work

1- Introduction

Muthanna Cement plant is one of two cement plant run by the state Company of cement for the southern region (one of the state companies of the Ministry of Industry and Minerals). The plant consists of two clinker production lines.

The original contract of the plant was signed with the German Company (K.H.D Humboldt wedag) on 30/3/1981. The plant was operated by (K.H.D Engineering) for the period beginning 1984 till mid 1986. The plant is designed on Dry process and produce sulphate resisting Cement at a design capacity of 1960 000 ton clinker and 2000 000 ton cement / year. Plant operation is controlled by computer and provided with advanced quality control systems compared to other Iraqi cement plants.

Due to shortage of funds and the Economic Embargo imposed on Iraq during 1990-2003 . poor maintenance was performed with absence of standard spare parts. This situation prevailed till now. The result was low productivity of the plant. It needs badly a large scale rehabilitation and modernization work to bring the plant to its design capacity according to modern development Technology in cement Industry.

2- The Required Investment

The aim is to rehabilitate the plant technically and to operate & manage it on economical basis , to reach its targeted production capacity , all at the investor expenses, against a share of the product for certain period to be agreed upon with Ministry of Industry & Minerals (MIM)/ Republic of Iraq, taking in consideration the following conditions:

- 2-1 The investor shall undertake to perform the necessary rehabilitation works for all production lines of the factory & quarry to ensure that the plant shall work at the targeted production capacity.
- 2-2 The investor in cooperation with his supporters, specialized in cement Industry, shall depute technical experts to visit the plant site to evaluate the technical requirements of rehabilitation & conclude detail investigation.
- 2-3 The current management of the plant will provide all needed assistance to help the experts team to perform the technical investigation of the plant including providing technical data, and drawings.
- 2-4 The Investor shall present to the Ministry of Industry & Minerals, his technical and Investment proposal showing the share percentage of

product he requires based on the budget he expect to invest in the rehabilitation works, agreement duration and plant management policy after rehabilitation.

- 2-5 The Ministry of Industry and Minerals team will negotiate the winner investor to conclude a final agreement .

3- Plant Site

Muthana Cement plant is situated at Muthanna Governorate south of Iraq, about 35 KM south of Samawa city, the center City of the Muthana Governorate (Drawing No1 shows the geographical site, Drawing No 2 shows the layout of the plant).

1- Plant description and production process

The plant is composed of the following units:-

- 4-1: Raw materials quarries (Limestone and sand).
- 4-2: Crusher at capacity of 1400 ton/hr.
- 4-3: Raw materials stores 2 each 70 000 ton.
- 4-4: Raw materials mills 2 each 320 ton Milled material.
- 4-5: Raw materials silos 4 each 10 000 ton Milled material.
- 4-6: Pre heater System.
- 4-7: Rotating Kiln 2 each 3200 ton Clinker/ day.
- 4-8: Kiln cooler 9 chambers for Clinker cooling, for each line .
- 4-9: Clinker store (one) 140 000 ton.
- 4-10: Cement Mills 4 capacity 100 ton/ hr each .
- 4-11: Cement silo 4 10 000 cement each.
- 4-12: Cement bags packing station 6 machines 100 ton/ hr each.
- 4-13: Sample Stations.
 - 4-13-1: Crasher samples station.
 - 4-13-2: Mills samples stations.
 - 4-13-3: Kiln samples stations.
- 4-14: Water Treatment station with R.O Unit.
- 4-15: Fuel heating Unit and Compressors.
- 4-16: Heavy oil Stores (2) 9000 000 lit. each.
- 4-17: Chemical laboratory and X-ray Unit.

Note: Refer to Process description / Annex No1

5-Prevailing Condition of the Plant and scope of work needed

Kindly refer to Annex No (2).

6-Raw Materials

A- Raw materials used as given below

| | Materials | Percentage | Supply Site |
|----------|-------------------|-------------------|--|
| 1 | Lime stone | 72% | Lime stone is extracted from the quarry 5.3km away from factory |
| 2 | Clay | 23% | Supplied from the quarry which have a length of 5-12km |
| 3 | Iron ore | 2% | Red Iron ore from hussainiya area (Anbar Governorate (250 km away from plant location) Black Iron ore supplied from State Company for Iron and Steel - Basrah |
| 4 | Gypsum | 3% | From Sawa lake 23 km away from the center of Muthanna Governorate |

B-Fees of raw material extracted according to Law No. (91) of year 1988 Article (22) Organization of Mineral Investment:

| Row Mat. | Fees (I.D)/m³ |
|-----------------|---------------------------------|
| Lime stone | 1500 |
| Gypsum | 750 |
| Sand | 250 |
| Sand glass | 2000 |
| clay | 300 |
| iron | |

7-Quality of product

According to Iraqi Specification No.5 year 1984 as follows:-

| Group code | Activity place | Material Name | Acceptance limit % | Rejection limit % | Notes |
|-----------------------|----------------|---------------|---|--------------------------------------|--|
| G6 Filling station | Cement Silo | Cement | LSF from 66-102% | Less than 66 higher than 102 | When exceeding failure limit material is to be thrown away |
| | | | C3a less than 3.5 | higher than 3.5 | |
| | | | Mgo less than 5 | higher than 5 | |
| | | | Freelime less than 2 | higher than 2 | |
| | | | IR less than 1.5 | higher than 1.5 | |
| | | | LOI less than 4 | higher than 4 | |
| | | | otoclave less than 0.8 | higher than 0.8 | |
| | | | So3 less than 2.5 | higher than 2.5 | |
| | | | Compressive strength after three days not less than 15 newton/mm ² | Less than 15 Newton /mm ² | |
| | | | Compressive strength after 7 days not less than 23 newton/mm ² | Less than 23 Newton /mm ² | |
| | | | Initial setting time not less than 45 min | Less than 45 min | |
| | | | Final setting time not more than 10 hrs | More than 10 hrs | |
| | | | Blain not less than 2500 cm/gr | Less than 2500 cm/gr | |
| | | | Weight of filled cement bag 48.5-51.5 kg | Less than 48.5 or more than 51.5 kg | For bagged cement |

8- Local Market demand:

There are now (17) established cement factories in Iraq. All of them are the property of the State. Its total design capacity 1900000 ton/year, however the actual production capacity currently is around 300000 ton/year only.

There was always big gap between demand and actual production quantities. The rather high production capacities during several past decades was not enough to cope with the high demand to meet the development requirements at that time, the low production rate during the last 15 years was-again- not enough to meet the low demand.

The forecast for cement consumption shows that the consumption may reach 27 million ton/year in the coming years, based on the wide program for reconstruction, infrastructure requirements and large scale housing scheme (as Iraq is suffering from a severe shortage of housing units) accordingly there is a strong investment opportunities in rehabilitation of existing cement plants and for new plants as well.

The prevailing production is not enough to cover local demand which is expected to be much more higher when the reconstruction activities start at a large scale. The gap between demand and consumption is covered currently by importing cement from outside Iraq. Price in local market is rather high reflecting the reality of high demand against shortage of production covered by importation.

9- Human Resources:

Iraq possess an accumulated technical experience in cement Industry, both in dry and wet process. The experience is represented in a number of Engineers, technician, skilled and semi-skilled labors working in operation and maintenance activities, in addition to other management and Accounting experienced personal. However, the investor may hire Experts and specialists from outside Iraq for supervising rehabilitation works and training Iraqi staff on new technologies if required.

10-Environmental Requirements and standards

The investor is obliged to fulfill (ISO-14000),(ISO-9001) & European environmental restrictions, it is important to consider the following Environmental requirements:-

10-1: The investor must present an environmental impact assessment (EIA) certified by the ministry of Environment, and must include:-

10-1-1: The environmental impact evaluation and the positive and negative effect of the project on environment.

10-1-2: To suggest methods to avoid pollution and control methods to comply with the environmental enforcements and regulations.

10-1-3: The expected accidental pollutions and the precautions that must be taken.

10-1-4: The use of the alternative applicable cleaner technology and minimization use of resources.

10-1-5: Waste minimization and recycling or re-use.

10-1-6: Assessing the costs of merits and demerits resulting out of the project.

10-2: The factory must have dust precipitators at all chimneys for all the industrial processes and other methods to prevent the discharge of dust from the chimneys or other sources more than 150 mg /m³ and must not exceed 0.2 mg /m³ at the factory fence with the wind direction.

10-3: Treatment of the industrial waste water according to the Iraqi river regulation standard.

10-4: The solid waste must be transferred to special locations in coordination with the relevant authorities.

10-5: The availability of pollution monitoring instruments and providing the ministry of Environment with the pollution monitoring data. In case of the unavailability of the monitoring instrument the investor (factory) must do the monitoring by a reliable consultants and laboratories.

10-6: Construct and update an environmental database concerning environment protection in addition to the pollution concentration & level caused by the factory.

The implementation of the environmental requirements and standards mentioned above and others will not eliminate the task of the Ministry of Environment to make field inspection to check fulfillment of the environmental requirements and that the factory is applying the environmental law No.3 year 1997, issued by Iraqi Authorities.

11- Legal Framework

Upon agreement between the Ministry of Industry & Minerals and the Investor, terms of the Investment law No 13 for the year 2006(attached), including its privileges for investor, shall be adopted in the rehabilitation Agreement between the two parties.

Iraqi Law No.(22) of year 1997 for the State companies, will be applicable.

12- Privileges for Investor

12-1: Has the Right to establish trade representation offices and branches in Iraq, such offices and branches shall be registered with the Iraqi Registrar of companies office .

12-2: Has the Right to establish a business entity jointly with an Iraqi or foreign Investor.

12-3: In case an agreement is concluded on basis of product sharing, the Investor shall have the right to sell his share in the market at the price he define.

12-4: Investor may collaborate with Iraqi partners.

12-5: Right to possess, use, dispose his invested money in Iraq in accordance with central bank regulations.

12-6: Use freely convertible currencies or Iraqi legal currency (Iraqi Diner), the right to transfer money into and out side Iraq in accordance with Central Bank regulations.

12-7: The Ministry of Industry & Minerals shall put at the disposal of the investor the plant site and adequate storage space including existing equipment to implement modifications – Rehabilitation, to enable him to fulfill his obligations .

12-8: The imported fixed assets shall be exempted from all duties provided they are brought to Iraq within three years from the date of Agreement . This period may be extended or reduced by the Establishment Authorized, if found necessary.

12-9: The Imported spare parts for the plant shall be exempted from duties.

12-10: Selling the plant product is not subjected to any price restriction.

12-11: The investor may request for any additional privileges which might be specified clearly according to the prevailing laws and to be included in the final Agreement.

13- Investor obligations :

In addition to the details mentioned in the Articles of General Conditions:-

13-1: The Investor and his supporting technical entity should possess sufficient experience and qualifications to construct (rehabilitate) cement plants .

13-2: The Investor should obtain quality certificate (ISO 9000).

13-3: Agree to engage Iraqi labors to operate the plant and insure them against risks, supply safety equipment and requirement. He may engage foreign employees for leading technical positions.

13-4: Abide to Health and safety regulations and Instructions issued by world Health organization (WHO) and International labors organization (I.L.O) and abide to Emission standards criteria available at the Ministry of labors and social Affairs.

13-5: Shall Under take to supply power generation Unit of 45 MW capacity to Cover the plant needs of electricity as the national grid is not reliable at the time being, its rectification and increase of generation capacity may takes years.

13-6: Abide to produce cement with specification according to European standard:

(EN96 TYP 42.5minimum).

13-7: The investor should fill in data forms enclosed with required details.

Ministry of Industry & Minerals
Data Form

- **Project Name:**
- **Interested Company Name :**
- **Company legal entity (share holding Co., Limited,...etc), attach copy of establishment certificate & names of shareholders who have 30% share and above:**
- **Registered Capital :**
- **Company or Firm legal representative:**
- **Identification :**
- **Applicant address in Iraq:**
- **Contact details in Iraq and outside Iraq:**
- **Suggested Production Capacity *:**
- **The Applicant must abide by the Technical, Financial and Legal terms stated in the Investment file, clarify how to fulfill*:**
- **Technical Supporters with confirming documents* :**
- **Name of Financing Group/s with his/ their reference/s , supported by latest financial report/s: ***
- **Technical References & Expertise *:**
- **Similar Implemented and under construction projects (References) *:**

Signature:

Name:

Position in the company:

Stamp:

Note: Details for articles pointed by () To be given in details separately according to the enclosed forms .*

Suggested Production Capacity Muthana Cement Plant.

- 1- The Investor obliged to clarify herewith his plan to increase the production capacity of Muthana cement plant to the targeted production capacity, clarifying the stages and time duration for each.**
- 2- The final targeted production capacity of the plant is 1800 000 ton/year.**
- 3- The investor should consider the following conditions:-**
 - 3-1: Fulfill production capacity of 62500 ton/month on the (15)th month from the date mentioned in Article (36) General conditions.**
 - 3-2: Fulfill production capacity of 125000 ton/month on the (30)th month.**
 - 3-3: Fulfill production capacity of 150000 ton/month on the (36)th month.**

Undertaking to abide by the Technical, Financial & Legal terms stated in the Investment file, clarify how to fulfill:

Technical Supporters with Confirming Documents.

**Name of Financing Group/s with his/their
Reference/s, Supported by the latest financial
report/s.**

Technical References & Expertise.

Similar Implemented & under construction projects (References).

Appendix No. 1

General description of production processes

1-Quarries:-

a- Limestone quarry:-

The limestone quarry is about 3-5 Km from the factory, and the raw limestone material after removing of the over barding ,then locating of the standard explosives 12 m deep into the limestone and exploding these explosives. The limestone obtained in various dimensions up to 1.5m.

b- Clay quarry:-

The natural origin clay is supplied from several quarries which are rich in clay material, with 1.5m deep. These quarries are about 5- 12 Km from the factory.

2- Crusher:-

The limestone and clay are fed to the crusher through a hopper to be mixed and crushed, and the crusher reduces the limestone particle size to about 3cm. then the raw mix is transported to 2 silos, whose capacity is 70,000 ton raw mix for each silo.

3- Raw mills:-

The raw mix is transported from the raw mix silos to the mixing station by means of belt conveyors together with the iron ore with amounts of the limestone and clay for correction purposes, and the amount and the fixed ratio of each one of these components is controlled by the laboratory due to the quality specifications.

The raw mix is then transported to the raw mills to be ground to fine size particles.

The fineness of the produced material can be identifying by means of two kinds of sieves.

The grinded material are transported by air slides and stored in 4 silos, with capacity of 10.000 ton grinded material for each silo.

4- Preheaters:-

The grinded raw mix is fed to the Preheaters unit, and several processes will take place until these materials have been calcined into these Preheaters:-



The preheater unit has (4) stages and the temperature of the raw mix in the first stage is about (320-330 C), while its temperature at the end of the fourth stage reaches about (800-850 C), then it enters the rotary kiln.

5- The Rotary Kilns:-

The calcined material enters the rotary kiln at which complex chemical reactions take place to form clinker compounds.

The temperature of each of kiln zones differs from the temperature of the other zone, and the highest temperature in that of the sintering zone where the materials have to be burned, and it is about (1450 C).

6- Cooler unit:-

The clinker formed in to the rotary kiln leaves the kiln from the kiln discharge end and enters the cooler unit to be cooled from (1200 C) to about (150 C).

The cooled clinker is then transported by clinker drag chains to the clinker stockpile whose capacity is 140.000 ton/clinker.

7- Cement mills:-

Clinker is transported from the stockpile and fed to the cement mills after mixing with about 4% by weight gypsum material, and is grinded in these mills until its fineness reaches about 2800 Cm /g (Blaine).

8- Cement silos:-

Finished cement is stored in 4 cement silos, with storing capacity of 10.000 ton cement for each silo.

9- Packing unit:-

Al- Muthenna factory contains (6) packing machines in its packing unit.

The capacity of each one of the 6 packing machines is about 100 ton/hr.

Annex No. (A) Contains mass flow diagram.

Note: - Appendix No. (2) Contained the actual state of the factory.

Appendix No. 2

The actual status of the factory:-

The actual status of the factory can be described briefly as follow:-

1- Limestone quarry:-

Al-Muthenna cement factory depend in getting its demand of limestone material mainly upon “Al-Kuddary” deposit, whose total Confirmed reservoir is about (641) million ton as following:-

167 million ton Class (B) Industrial reservoir which can be exploited
368 million ton Class (C1) Industrial reservoir which can need
Auditing & confirming.
106 million ton Class (C2) geological reservoir.

The amount of exploited reservoir is (14) million ton.

The remaining reservoir (which can be exploited) is (153) million ton.

It is quite notable that the available amounts of limestone covers the factory demand with the capability for either increasing the actual factory production or insulation of a new plant whose capacity is abut 2 million ton/year for abut (361)years.

Al-muthenna quarry needs to work in an acceptable level a lot of necessities for exploding, pulling and loading.

The existing limestone production range is (1500-2000) ton/day, while the factory demand to reach the designed capacity is about 10.000 ton/day.

2- Limestone crusher:-

The low crusher production is caused by insufficient raw material supplied and due to the wearing of some of instruments and machinery and the deficiency of spare parts. The very important factor here is the break down of both of stacker and reclaimer unit.

The existing production of the crusher is abut (495) ton/h.

3- Raw mills:-

The raw mills production a dually reach's 200 ton/hr. which is so far from the design capacity, and this low efficiency is due to the deficiency of spare parts and other necessities.

This low production affects the continuance of the rotary kiln.

4- Rotary kilns:-

Rotary kilns are working with about one their design capacity, due to the lack of spare parts and the breakdown of several important units which control kiln process, and because of the cancellation of several important parts. The actual production of each one of the rotary kilns is about 60 ton/h, compared with the designed capacity of about 133.4 ton/h for each kiln.

5- Cement mills:-

Cement mills are working with only 70% of their design capacity, due to the deficiency of large number of machinery and instruments and controlling units and feeders.

6- Packing unit:-

The design capacity of the packing machines is 600 ton/h, but the effect of the lack of spare parts leads to the actual low capacity.

Note: - appendix No. (3) Contains adscription of the machinery and instruments and other necessities needed for qualifying of the factory.

Note: - appendix No. (4) Describes the initial work volume needed to reach the design capacity.

Appendix No.3

**Description of Machines, equipments
and the factory requirements for
Rehabilitation**

Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | monopolistic Or General | Original Manufacture | Qua. |
|-----|-----------------------|-----------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 1 | Double hammer crusher | 02.06 | rotor diameter : 2400 mm rotor width : 3000 mm rotor speed: 30 mm/s no of hammers :128 hammer unit weight :150 kg through put : 1400 t/h feed material : limestone +feed size max :1.05 m ³ edge length max : 1400 mm product size : 0>35 mm plus 10% over size moisture of the mixture :10>9% motor required : 2x 1100 kw speed :1000 rpm | Importation | B | monopolistic | K.H.D Co. | 1 |

Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | monopolistic Or General | Original Manufacture | Qua. |
|-----|-----------------------|-----------|---|--|------------------------|-------------------------|----------------------|-------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 2 | Belt conveyo r compl. | 02.07 | <p>Belt width : 2600 mm c-t-c distance 20.6 m conveying speed :1.05 m/s belt quality : EP300/3 cover 5+2 material flow : 1400 t/h material flow max : 2200 t/h material to be conveyed : limestone / clay grain size : 0.35 mm moisture : max 9% power req. : 16 kw motor req. :22 kw speed:1500 rpm</p> | Importation | B | general | K.H.D Co. | 120 m |

Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | monopolistic Or General | Original Manufacture | Qua. |
|-----|---|-----------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 3 | Box – feeder with steel Conveyor of clay compl. | 02.03 | <p>Material : moist clay Moisture content approx.: 20% Max feed size:. 0.5 m Axial center to center : 10000 mm Overall length : 11.165 mm Internal width of box : 1500 mm Discharge and internal width of box of feeder end : 1200mm Internal height : 1000 mm Box made of sheet metal is welded hand having shutter at the discharge end.</p> | Importation | B | general | K.H.D Co. | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | monopolistic Or General | Original Manufacture | Quantity |
|-----|-----------------------|-----------|---|--|------------------------|-------------------------|----------------------|----------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 4 | Apron conveyor compl. | 02.02 | Belt width : 2400 mm c-t-c : 13702 link pitch: 3/5 mm inclination :21% conveying velocity : 0.04-016 m/s material flow ; 1400 t/h max material flow : 1500 t/h material conveyed :limestone edge length max :900*1400*1200 mm bulk density:1.5 kg/m ³ power req. : 64 kw D.C motor : 90 kw Speed :375 – 1500 1/min Drive coupling :reduction gear | Importation | A | general | K.H.D Co. | 1 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-----------------------------------|-----------|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 5 | Raw material storage consist of : | 05.01 | <p>Material storage : limestone + clay Shed diameter:100,4m Diameter: 92 m Bulk density : 1.5 kg/dm³ Grain size : 0-30 mm Angle of repose : 38% Stockpiling principle: chevron consist of : A_ staker for raw mix: Material flow : 1800 t/h c-t-c distance of jib: 27.5 m belt width:1400 mm angular position of jib : - 12° , 16° height of pile : 16,8 m</p> | Importation | B | general | K.H.D Co. | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | monopolistic Or General | Original Manufacture | Qua. |
|-----|----------------------------------|----------------------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 6 | Stacker/ Raw material storage | Raw material storage | <p>Swiveling range :360° Jib belt speed : 2.09 m/s Motor req:1-stacker belt :75 kw 2- swivel drive : (0.6 – 1.6) kw speed : 1500 rpm 3-lifting mechanism:11kw speed :1500 rpm B – centurial unit c- bridge – type scraping reclaimed limestone/ clay material flow : 800 t/h rail diameter :94 m scarping blade width : 630 mm scarping blade speed: 0.5 m/s scarping chain speed:0.2 m/s operating speed:0.52 m/s reversing speed motors:0.212 m/s</p> | Importation | A | general | K.H.D Co. | |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------------------------------------|-----------|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 7 | Reclaimer/ Raw material storage | 05.04 | <p>Motor required: Chain conveyor : 75 kw Speed : 1500 rpm Scraping chain :0.5 m/s Raking down device:22kw Speed : 1500 rpm Operating speed: 0.25×2 kw</p> <p>Speed : 1500 rpm</p> <p>Reversing speed :4× 2 kw Speed:1500 rpm Central lubrication system 5 × 0.18 kw Speed : 1500 rpm d- bin discharge vibrating conveyors: type: VBL width :1600 mm</p> | Importation | A | general | K.H.D Co. | |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-----------------------------|-----------|---|--|------------------------|-------------------------|---|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 8 | | | <p>Conveying length : 2500 mm Material flow :800 t/h Grain size:35mm Bulk density : 1400 kg/dm ^3 Unblance –motor:2×3kw Speed:1000 rpm</p> | | | | | |
| 9 | Stacker gear box | 05.02 | <p>Type: KCH 225 N1: 1500rpm N2 : 67rpm Power : 75 kw Serial no : 8-82260-2663-37110</p> | Importation | B | monopolistic | <p>WGW Westdevtsche Getriebe werke Gmbh Germany</p> | 2 |
| 10 | Reclaimer scraper- gear box | 05.02 | <p>Type: KCH 225 N1: 1500rpm N2 : 10 .71rpm Power : 75 kw Serial no : 8-8227-0-2053-137110</p> | Importation | B | monopolistic | <p>WGW Westdevtsche Getriebe werke Gmbh Germany</p> | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | monopolistic Or General | Original Manufacture | Qua. |
|-----|----------------------------------|-----------|---|--|------------------------|-------------------------|---|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 11 | Reclaiming scraper gear box | | Type: BLC 250 – 12 H N1: 3000 rpm N2 : 3.625 rpm Power : 400 kw | Importation | B | monopolistic | PIV ANTVIEBW REIMER GMBH CO-GK Hamburg | 2 |
| 12 | Gear unit of raw mill drive | 08.05 | Type :SZN710 Reduction step :2 Reduction ratio : 9:1 Input speed : 985 rpm Output speed : 109.4 rpm Gear rating 5000 kw | Importation | B | monopolistic | Flender Germany | 2 |
| 13 | Oil gear pump for main gear unit | 08.05 | Type: SME Q=125 l/min Pressure:3 bar Motor:4kw Speed:950 rpm | Importation | B | monopolistic | Fa-gerber-ich | 8 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | monopolistic Or General | Original Manufacture | Qua. |
|-----|-------------------------------|-----------|--|--|------------------------|-------------------------|-------------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 14 | Oil cooler compl. | 08.05 | Type LZA Surface area 1.6 m2 Allowable pressure = 6 bar Operating temp= 100 C° Heat capacity: 42000kcal/h | Importation | B | monopolistic | GERBERICH-CO-GERMANY | 14 |
| 15 | Main bearing gear pump compl. | 08.05 | Type:BML3155R Power: 15 kw, Speed 1500 rpm Operating temp :80 c° Viscosity : 1380 m^2 /sec Kw: 15 | Importation | B | monopolistic | GEAR-STEIMEL GERMANY | 8 |
| 16 | Gear box | 04.03 | Type: KZN-320 N1: 1500rpm N2 : 60 rpm Power : 145 kw | Importation | A | monopolistic | FLENDER COMPANY GERMANY | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|--------------------------------|-----------|--|--|------------------------|-------------------------|---------------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 17 | Actuators | 08.07 | Type: v 580-g350 Power:1.5 kw Gear ratio: 1.02 :1 Speed gear :40 1/min Stroke length : 350 mm | Importation | A | monopolistic | LEWA GERMANY | 2 |
| 18 | Main bearing gears pump compl. | 08.05 | Type:BML3155R Power: 15 kw, Speed 1500 rpm Operating temp :80 c Viscosity : 1380 m ² /sec, Kw: 15 | Importation | B | monopolistic | GEAR-STEIMEL GERMANY | 8 |
| 19 | Gear pump | 08.02 | Gear pump with electric pump Type KP 1/4, P:0.55 kw N:1450 1/MIN Capacity :1.5 l/min | Importation | B | monopolistic | RENK WULFEL GERMANY | 4 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|---------------------------------------|-----------|--|--|------------------------|-------------------------|------------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 20 | Slid bearing for pinion of raw mill | 08.02 | Type : JSW slid bearing Size: 34-300 diam. With water cooling | Importation | A | monopolistic | RENK WULFEL GERMANY | 4 |
| 21 | Filling and lubrication system | 08.02 | Ratio of 55:1, elivery 10cm ³ Double stock /min at 8 kg/lm ² 30-50 with grease barrel emptying compressed air 4bar, temp: 60°C max 10 bar | Importation | A | monopolistic | LINCOLN HELIOS-GERMANY | 4 |
| 22 | Pinion with shaft for tube mill drive | 08.02 | Z=35, Pitch circle: 899.59 B=600mm, Modulus: 25.4 Angle of pressure = 25°, B=8.4° Correction of tooth profile : +4.61/-2.05 Lubrication : grease spraying system complete replacement | Importation | A | monopolistic | KHH | 4 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|------------------------------------|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 23 | 08.02 | Girth gear for tube raw mill drive | Z=278, Pitch cycle : 7145.31 b=600 mm, Modulus= 25.4 Angle of pressure = 25°, B=8.4° Correction of tooth profile : +4.61/-2.05 Lubrication : grease spraying system complete replacement | Importation | A | monopolistic | KHD | 2 |
| 24 | 08.02 | 1.Mill fan of raw mill | Type:HK250/330,Single : intake, Altitude : 50 abs According to : 1007 , 26mbar Flow rate at inlet at (943.2 m bar) 90°c, 8540 m³/min total pressure difference : 68 mbar flow rate at outlet at (1007,0 mbar), 90°c 8000 m³/min fan speed : 735 rpm power required : 1450 kw motor required : 1600 kw motor speed : 735 rpm | Importation | B | General | KHH | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|---|--|------------------------|-------------------------|----------------------|-------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 25 | 08.02 | 2. Front wall wearing planet with fastener | ×For raw mill Ø 5.9 13.4 m long | Importation | A | General | MOGUTEUX | 2 set |
| 26 | 08.02 | 3. Lining plate for drying chamber with fastener | For raw mill Ø 5.9× 13.4 m long Drying room | Importation | B | General | MOGUTEUX | 2 set |
| 27 | 08.02 | 1. Lining plate for 2 nd chamber with fastener | For raw mill Ø 5.4× 13.4 m long Drying room | Importation | A | General | MOGUTEUX | 2 set |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|----------------------------------|--|--|------------------------|-------------------------|----------------------|-------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 28 | 08.02 | Partition diaphragm lining plate | <p>Partition diaphragm lining plate Consist of : inner plate , slotted plate 590/382 ×450 thickness 60mm Inner wearing plate 242/187 ×450mm Central slotted plate 415/244 × 520 60 mm 60 mm thickness outer slotted plate : 577.5/503 × 320 mm locking plate : 614.5/580 ×150 60 mm thickness fastener for above plat</p> | Importation | A | General | MOGUTEUX | 2 set |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 29 | 02.04 | 1.Conveyor belt compl. without structure | Belt width :1200 mm c-t-c distance : 53 mm conveying height : 10.64 m conveying speed : 1.05 m/s belt equality: cover 5+2 material flow: 450 t/h grain size : 0-50 mm moisture approx :20% | Importation | B | General | KHD | 1 |
| 30 | 06.05 | Gear box of conveyor belt | Type: KZN-160 N1: 1500 rpm . N2 : 86 rpm Power : 22 kw | Importation | A | monopolistic | FLENDER GERMAY | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|---|--|------------------------|-------------------------|----------------------|-------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 31 | 02.06 | Double shaft hammer crusher wearing plate | <p>Double shaft hammer crusher wearing plate include:</p> <p>1 - linear plate drawing no : ZE401-096 dimension : 50× 390× 448 mm material : st 70-2N</p> <p>2. linear plate drawing no : ZE401-096 dimension : 50× 350× 221 mm material : st 70-2N</p> <p>3. counter sunk screw. Drawing no: ZE 401-096 dimension : M24 * 80 DW604 material : st 70-2N</p> <p>4. nut drawing no : ZE 401-096M24* U12-24,st 70-2n qty : 136</p> | Importation | A | General | MOGUTEUX | 1 Set |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|--|--|------------------------|-------------------------|----------------------|-------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 32 | 02.06 | Double shaft hammer crusher wearing plate | 5. chose – head screw M36×20120DW79 , 2,qty:84 6.wearing plate:20× 490×90mm st 70-2N . QTY : 2 7. impact beam:150× 3430 mm st 70-2N.QTY:2 8. linear plate:50×300×448 mm st 70-2N . QTY:14 9.linear plate:50× 390×448 mm st 70-2N 10.linear plate:50×390×221mm st 70-2N .QTY : 8 11.liningauvil:670×813×3170mm st 70-2N . QTY : 1 12 . FOWER SEGMENT ING parts st 70-2N , QTY : 1 13. upper segment4 parts st 70– 2N . qty :2 14. lateral wall lining st 70 – 2N qty : 4 | Importation | A | General | MOGUTEUX | 1 Set |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | monopolisticl Or General | Original Manufacture | Qua. |
|-----|----------|--|---|--|------------------------|--------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 33 | 04.04 | 1- Two way actuator compl. | Two way actuator compl. Include shuts body welded steel design according standard drawings with lining as wearing plate | Locally | B | General | KHD | 2 |
| 34 | 04.06.01 | 2- Two way actuator compl. | Welded steel design with wearing plate according to standard drawings with. | Locally | B | General | KHD | 2 |
| 35 | 27.02 | 3- behind raw mill sample station | Input about : 40 kg/h ,Humidity max :1 % ,O/ p output :100 cc Feed grain size : 0.1 mm | Importation | B | General | KHD | 1 |
| 36 | 27.02 | 4- behind the cement mill sampling station | Input about : 40 kg /h Humidity max :1 % o/p output :100 cc Feed grain size : 0.1 mm | Importation | B | General | KHD | 1 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 37 | 06.03 | Weight feeder of raw mixtures include : 1. Rubber belt 2. gear boxes 3. driven roll and tension roll of rubber bell | Type : D140/ /.2F2, Belt width : 1400mm c-t-c distance : 3300 mm feed material : raw mixtures through put : 350 t/h adjusting range : 10:1 | Importation | B | General | PHISTER GERMANY | 2 |
| 38 | 06.03 | Weight feeder of pure limestone include : 1. rubber belt 2. gear boxes 3. set of rolls | Type : D100/ /.2.V Belt width : 1000mm c-t-c distance : 2500 mm centre in let -out let:2300 mm feed material : limestone through put : 60 t/h adjusting range : 1/10 | Importation | B | General | PHISTER GERMANY | 2 |
| 39 | 06.03 | Weight feeder of pyrite limestone include : 1. rubber belt 2. gear boxes set of rolls 50 | Type : D100/ 1.2 V Belt width : 1000mm c-t-c distance : 2500 mm through put : 30 t/h adjusting range : 10:1 | Importation | B | General | PHISTER GERMANY | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 40 | 06.03 | Weight feeder of standard clay include : 1.rubberbelt 2.gear boxes 3. set of rolls 60 | Type : D100/ 1.2 V, elt width : 1000mmc-t-c distance : 2500 mm through put : 30 t/h adjusting range : 10:1 | Importation | B | General | PHISTER GERMANY | 2 |
| 41 | 06.04 | Apron conveyor of feeding raw mix compl. With all auxiliaries | Belt width : 1200mm c-t-c distance : 4/25 m link pitch : 250 mm conveying validity : (0.02-0.2) m/sec material flow 320-350)t/h grain size (0-3-) mm power req :9 kw motor req :15 kw speed :150-1500 rpm | Importation | B | General | PHISTER GERMANY | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|---|--|--|------------------------|-------------------------|----------------------|----------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 42 | 06.03 | Belt under raw mix feeder include : 1.rubber belt 2.gear boxes 3. set of rolls | Belt width : 800mm c-t-c distance : 29.8 m conveying validity : 2.09 m/sec material flow : 350 t/h | Importation | B | General | KHD | 2 |
| 43 | 06.05.01 | Belt conveyor of feed raw material to grinding mill incl: 1. rubber belt 2. gearbox 3. drive roll 4. tension roll 5. item of safety operation | Belt width : 800 mm c-t-c distance : 60.3 m conveying speed : 2.09 m/s Material flow : 350 t/h Power req: 22kw Motor req : 30 kw Speed : 1500 rpm | Importation | B | General | KHD | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|----|-------|--|--|--|------------------------|-------------------------|---------------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 44 | 06.03 | Return Belt incl: 1. rubber belt 2. gearbox 3. drive roll 4. tension roll 5. item of safety | Belt width : 1400mm c-t-c distance : 19.5 m conveying speed : 1.68 m/s material flow : 640 t/h power req :7 kw Motor req :11 kw, speed :1500 rpm | Importation | B | General | KHD | 2 |
| 45 | 08.01 | screw conveyor squirrel Gage motor | Type:ROOLD132M4 Power: 7.5kw | Importation | A | General | IBAV HAMBURO ERMANY | 8 |
| 46 | 08.14 | Overhead traveling service crane for mill drive room without rails | Lifting capacity:10 ton Spane:9.8 m Lifting height : 5m Lifting speed :5m /min | Importation | B | General | KHD | 1 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 47 | 08.14 | Electric monorail Hoist for grinding Media charging Without rails | Lifting capacity:5t Lifting height:10m Lifting speed:8m/ mi | Importation | B | General | KHD | 2 |
| 48 | 08.13 | Hot gas generator For raw mill Incl: 1-combusion air system. 2-burner equipment | Type ST-L90 Total capacity 83.7x10 ⁶ kj/h Temperature: 1100C° Flow rat:27.540 m ³ /h Total pressure difference at 1.2 kg/cm ² : 20mba | Importation | B | General | KHD | 2 |
| 49 | 09.01 | high pressure fan | p:5.5 kw speed:3000 rpm | Importation | B | General | | 4 |
| | | = | power:7.5 kw speed:3000 rpm | = | = | = | | 6 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|-------------------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 50 | 09.02 | Root Blower | Type SNH2 ,Q:6m ³ /h Intake pressure:1.6 bar Dp:500 mbar Power:11 kw N: 3000 | Importation | B | General | Hibbon France | 4 |
| 51 | 09.02 | Root Blower | Type SNH 110 600 mbar Flow rate:140m ³ /min Motor:200 kw Speed:1500 rpm | Importation | B | General | Hibbon France | 6 |
| 52 | 10.01 | High pressure Fan | Power:5.5 kw Speed:3000 rpm | Importation | B | General | | 14 |
| 53 | 10.01 | High pressure Fan | Power:4 kw Speed:3000 rp | Importation | B | General | | 8 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|------------------------------------|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 54 | 10.01 | High pressure Fan | Power:3 kw Speed:3000 rpm | Importation | B | General | | 4 |
| 55 | 10.05 | Deducting of silo feeding complete | Capacity : 30000 m ³ /h Filter area : 198 m ² | Importation | B | General | KHD | 2 |
| 56 | 10.11 | Gear motor screw conveyors | Power 2.2 kw N1=1500 rpm N2=75 rpm | Importation | B | General | BAUE GERMANY | 2 |
| 57 | 11.01.03 | Proportion gates compl. | Pneumatic operating cylinder | Importation | B | General | LARA | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No . | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|------|-------|---|---|--|------------------------|-------------------------|----------------------|----------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 58 | 11.01 | <p>High capacity bucket elevators Serial no. 9 – 8432 – 5 – 4787 1-conveyor belt with fastening of bucket. 2-Drum for drive complete with shaft 3-Basket pulley compl with shaft for return. 4-Hallow shaft gear unit type KCH 250 with back stop. N1:1500,N2:32 5-Turbo coupling voith type 422 TVC. 6-Flat geared motor type D2A4 CFG.</p> | <p>Bucket width: 800 mm Center –t – c: 34.275 m Capacity: 300 t/h Motor req. 55 kw</p> | Importation | B | General | KHD | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|--------------------------|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 59 | 11.01.02 | high pressure fan | POWER : 2.2 KW Speed :3000 rpm | Importation | B | General | KHD | 2 |
| 60 | 11.01.02 | high pressure fan | POWER : 3 KW Speed :3000 rpm | Importation | B | General | KHD | 4 |
| 61 | 11.01.02 | Rotary piston blowers | Type: SNH 2 Q: 6 m ³ /h P : 11 kw | Importation | B | General | HIBBON FRANCE | 2 |
| 62 | 11.01.02 | Proportion gates compl . | Pneumatic operating cylinder | Importation | B | General | LARA | 2 |
| 63 | 11.01.03 | Proportion gates compl . | Pneumatic operating cylinder | Importation | B | General | LARA | 2 |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 64 | 11.02.1 | spare parts incl: 1. Preheater flap compl. 2-double flab box for raw meal pipe with shaft -right hand -left hand 3-double flab box with shaft -right hand - left hand 4-single flab | Type PRZ 5433 | Importation | B | General | Mogatux | 8 |
| | 11.03.01 | | Double line system height 4/m,No of stages : 4 stages | | | | | |
| | 11.03.01 | | Single flab box "650 | = | B | General | 8 | |
| | 11.03.01 | | 100 heat resistance steel GX40 | | | | | = |
| | 11.03.01 | | 100 heat resistance steel GX40 | = | B | General | 4 | |
| | 11.03.01 | | 670 heat resistance steel GX40 | | | | | = |
| | 11.03.01 | | 650 heat resistance steel GX40 | = | B | General | 4 | |
| | | | 500 heat resistance steel GX40 | | | | | = |
| | | | According to drawing no 841-23-936 va 8-11 | = | B | General | 4 | |
| | | | According to drawing no 841-23-936 va 8-11 steel plate design | | | | | = |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|---|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 65 | 11.02.01 | 10- immersion pipes for stages II, III and IV | Made of high – temp special steel segmental type according to mogotaux – system with new design to ceiling of each cyclone (II, III, IV) | Importation | A | monopolistic | Mogatux | 6 |
| 66 | 11.02.03 | 11- preheater fans | Type: KH 170 1310 Flow rate at fan inlet: 4457 m ³ /min Total pressure differential: 62.5 mbar Power req: 650 kw at fan working point | Importation | B | General | KHD | 4 |
| 67 | 11.02.05 | 12- mixing chamber compl | according drawing 841023 936VA, 8 – 11 Mixing chamber arranged at inlet chamber, housing made of steel plate, gas of welded sectional steel prepared for the refractory brick . | Importation | B | General | KHD | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|---|--|--|------------------------|-------------------------|-----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 68 | 11.02.05 | Fresh air fan | Type MR 160/230 Flow rate: 2242 m ³ /min Fan speed: 540 rpm Power at Fan working point: 110 kw | Importation | B | General | KHD | 2 |
| 69 | 11.03.01 | Hydraulic system generating longitudinal kiln motion complete with comp. thrust roller for two stations | Type HDR 50 | Importation | A | monopolistic | REXO ROTH GERMANY KHD | 2 |
| 70 | 11.03.01 | REXO ROTH GERMANY KHD | - girth gear No of teeth 148 Modulus 39 Tooth width 500mm - pinion : No of teeth 28 Modulus 39 Tooth width 550mm | Importation | B | General | TYSSEN KHD | |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|--|--|--|------------------------|-------------------------|----------------------|-------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 71 | 11.04 | Kiln inlet | Complete kiln inlet section inner diameter 4.4m High temp. steel casting | Importation | B | General | KHD | 2 |
| 72 | 11.03.01 | Spring loaded inlet sealing | According to the standard drawing | Importation | B | General | KHD | 2 |
| 73 | 11.03.01 | Spring load outlet sealing | According to the standard drawing | Importation | B | General | KHD | 2 |
| 74 | 11.03.01 | Protection segment with supporting arm complete with screws and nuts for kiln 4.4 diameter | Material for each part Gx40 | Importation | B | General | KHD | 2 Set |
| 75 | 11.03 | Nose block for rotary kiln inlet 4.4m diameter | Material for each part Gx40 | Importation | B | General | Mogotaux | |
| 76 | 11.03 | Supporting roller with bearing of 4.4 m kiln | According to the standard drawing | Importation | B | General | KHD | |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|--|--|------------------------|-------------------------|----------------------|---------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 77 | 11.03 | Rotary kiln tube: 4.4*64 m Replacement zone | <p>1- Replacement zone of fixing the outlet segmental block length about 1040 mm at end joint (8)</p> <p>2- Replacement zone from joint no.(8) to joint no. (3) length out 3360 mm</p> <p>3- Replacement zone for metal RSt 37-3N joint from (3) to (3) about 2400 mm under neath station (type) drawing 913-16-196BA Metal :RSt 37-2N</p> | Importation Or locally | A | General | KHD | 2 Kilns |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|--|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 78 | 11.04.03 | Multi cyclone dry separator. Compl: repair set: | Type : HMZV800S flow rate : 6630 m ³ /min rate At 1002 mbar , and 246 'c, Δp : 10. 5mbar housing plate thickness : 4mm multi cyclone cell : 5 No. of small yclones :800 Diameter : 150 Material : st 52 | Importation | C | General | KHD | 2 |
| 79 | 11.01.04 | Rotary lock under multi cyclone . (discharge the clinker dust). Compl. Geared motor. | Dimensions : 225 x 225 mm (in let) 290 x 180 mm(out let) through put : 11 m ³ /h bulk density: 1.0 t/ m ³ material: ST and GG motor : 0.75 Kw speed : 23 rpm | Importation | B | General | KHD | 30 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 80 | 11.04.04.01 | Screw conveyor Under neat multi cyclone of kiln | <p>Screw diameter:400 mm</p> <p>Screw length : 6678 m</p> <p>Arrangement: horizontal</p> <p>No. of center:1</p> <p>Bearings</p> <p>Material handled : clinker dust</p> <p>Through put :max 5 t/h</p> <p>Through put : 2t/h</p> <p>Temp. : 150- 200 °c</p> <p>General motor reg.:2.3 kw</p> <p>Speed : 32/49 rpm</p> | Importation | B | General | KHD | 30 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------------|---|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 81 | 11.04.04.02 | Screw conveyor under-neath multi cyclone of kiln II | <p>Screw diameter: 400 mm</p> <p>Screw length :14.916m</p> <p>Arrangement: horizontal</p> <p>No of center bearings: 2</p> <p>Material handled: clinker dust</p> <p>Through put: max 10 t/h mix</p> <p>Through put: min 5 t/h min</p> <p>Temp:150-200 °c</p> <p>Geared motor req:2.3 kw</p> | Importation | B | General | KHD | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 82 | 11.04.04.03 | Screw conveyor Dust transport to clinker conveyor item14.01 compl. | Screw diameter:500 mm Screw length :10.465m Arrangement: horizontal No of center bearings:2 Material handled: clinker dust Through put: max 10 t/h Through put: min 4 t/h Bulk density:1.0kg/m3 Temp:150-200 C: Geared motor req:2.3 kw Speed:32.89 rpm | Importation | B | General | KHD | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|---|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 83 | 11.04.05 | Waste air fan compl with: Housing made of steel of reinforced welded design Impeller with shaft - Anti friction bearings with housing of two sides ,motor sides and free sides | Vol. flow at fan inlet at 983 mbar and 250C ^o : m ³ /min Density: 0.66 kg/m ³ Total pressure difference:25.5 mbar Fan speed :740 rpm Power req.: 550 kw Motor speed:740 rpm | Importation | B | General | KHD | 2 |
| 84 | 11.04.08 | Manorial hoist for hammer crusher maintenance compl | Lifting capacity :10 t Lifting height : 8 m | Importation | B | General | KHD | 2 |
| 85 | 12.01 | Filling pump | Delivery rate : 50 m ³ Delivery head : 5 bar Motor require :30 kw Speed : 500 rpm | Importation | A | General | Pillared | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 86 | 12.01 | Heavy oil feed pump | Delivery rate : 15000 kg/h Delivery head : 40 bar Motor rating : 45 kw Speed : 1500 rpm | Importation | A | General | Pillared | 3 |
| 87 | 12.01 | Heat transfer oil heater compl with burner | Thermal capacity : 10.5×10^6 ki/h Feed temp: 250°C Burner type : PS0 G Fuel : fuel oil or natural gas Fuel capacity : 360 kg/h Natural gas : 390 m ³ /h | Importation | B | General | Pillared | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|---|--|------------------------|-------------------------|----------------------|----------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 88 | 14.01 | <p align="center">Steel bucket conveyor complete with :</p> <ul style="list-style-type: none"> - drive assembly - bevel super gear - turbo coupling voith type :driven sprocket system - tension sprocket system conveyor chair belt complete | <p>Lifting height : 49.06 m</p> <p>Delivery rate :400 t/h</p> <p>c-t-c distance:145,483 m</p> <p>belt velocity: 0.33 m/s</p> <p>conveying speed:2.09 m/s</p> <p>Power req:70 kw</p> <p>Motor req:75 kw</p> <p>Speed:N1=1470rpm</p> <p>Bevel super gear</p> <p>Power :83 kw</p> <p>N2 = 224 rpm</p> | Importation | A | General | | 2 |
| 89 | 14.01 | <p align="center">Manorial hoist for hammer crusher maintenance compl</p> | <p>Lifting capacity :10 t</p> <p>Lifting height : 8 m</p> | Importation | B | General | KHD | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 90 | 14.03 | 2 way chute with gate servo drive | heavy welded steel plate design according drawing : 831 – 22 – 177 flat slide gate power : 1.5 kw dimension = 800 × 800 mm × 200 height | Locally | B | General | | 2 |
| 91 | 15.01 | Bin discharge vibrating conveyer complete with frame of welded sectional steel design | Type: VBL width : 600mm conveying length:1500 mm material : clinker /gypsum inclination : 6° / 0° / 10° Grain size : 0-30 mm Bulk density : 1.3 Unbalanced type motor : 2 × 0.8 kw Through put : 200/100/200 t | Importation | A | General | | 30 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|--------|--|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 92 | 15.6.1 | conveyor belt to transport clinker and gypsum incl: - rubber belt heat resistance - driving roll - tension roll - tail pulley compl without structure gearbox type KZN280 | Belt width: 1000 c-t-c distance : 314 m conveying height :32 m conveying speed :1.68 m/s belt quality : EP 100/4 cover 6+2 material flow : 600 t/h material to be conveyed : clinker /gypsum grain size : 0.30 mm bulk density : 1.4 kg/dm ³ power req : 94 kw motor req : 110 kw speed : 1500 rpm | Importation | B | General | | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------------------|---|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 93 | 15.07 15.07.01 | <p>Conveyor belt under the clinker storage incl:</p> <ul style="list-style-type: none"> - rubber belt heat resistance - driving roll - tension roll - gearbox type KZN180 | <p>Belt width: 1000 c-t-c distance : 314 m conveying height :32 m conveying speed :1.68 m/s belt quality : EP 100/4 cover 6+2 material flow : 600 t/h material to be conveyed : clinker /gypsum grain size : 0.30 mm bulk density : 1.4 kg/dm³ power req : 94 kw motor req : 110 kw speed : 1500 rpm</p> | Importation | B | General | | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------------------|--|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 94 | 15.08 15.08.01 | <p>Conveyor belt under the clinker gypsum storage incl:</p> <ul style="list-style-type: none"> - rubber belt heat resistance - driving roll - tension roll - gearbox type KZN125 | <p>Belt width: 1000 c-t-c distance : 24.5 m conveying height : 3.9 m conveying speed :1.68 m/s arrangement : horizontal belt quality : EP 3/5/3 cover 6+2 heat resistance material flow : 600 t/h material to be conveyed : clinker grain size : 0.30 power req : 13 kw motor req : 18.5 kw - speed : 1500 rpm</p> | Importation | B | General | | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|--|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 95 | 15.11 | Two way chute compl. With operated motor | According to the standard drawing no : 9-8432-5-4935 | Locally | B | General | | 2 |
| 96 | 15.11.01 | Conveyor belt feed gypsum to grinding plant incl : <ul style="list-style-type: none"> - rubber belt heat resistance - driving roll - tension roll - gearbox type KZN112 | Reversible moving Belt width: 1200 mm c-t-c distance : 21 m conveying speed :1.68 m/s arrangement : horizontal material flow : 600 t/h material to be conveyed : gypsum grain size : 0.30 | Importation | B | General | | 1 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|--|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 97 | 15.11 | <p>Belt convey feed gypsum to the grinding plant incl:</p> <ul style="list-style-type: none"> - rubber belt heat resistance - tension roll - gearbox type KZN112 | <p>Reversible moving Belt width: 1200 mm c-t-c distance:17.35 m conveying speed: 1.68 m/s material flow : 600 t/h material to be conveyed : gypsum</p> | Importation | B | General | | 2 |
| 98 | 15.11.02 | <p>Belt conveyor feed clinker to the grinding plant incl:</p> <ul style="list-style-type: none"> - rubber belt heat resistance - tension roll - gearbox type KZN125 | <p>Reversible moving Belt width: 1200 mm c-t-c distance : 33 m conveying speed :1.68 m/s material flow : 600 t/h material to be conveyed : clinker grain size : 0.30 motor req:</p> | Importation | B | General | | 1 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 99 | 15.11.03 | Belt conveyor feed clinker to the grinding plant incl: - rubber belt heat resistance - tension roll - driven roll - gear motor | Reversible moving Belt width: 1200 mm c-t-c distance : 5 m conveying speed :1.68 m/s material flow : 600 t/h material to be conveyed : clinker grain size : 0.30 motor req: | Importation | B | General | | 2 |
| 100 | 16.03 | Weight feeders of clinker to grinding mills Incl: 1- head pulley 2- tail pulley 3- rubber belt 4- gear with coupling | Type: D10011.2. Belt width :1000mm c-t-c distance :1600 mm feed material : clinker through put :130 t/h adjusting range:10:1 grain size :0-25 mm - temperature :100 °C motor rating:1.35 kw feed unit: bin | Importation | B | General | Pfister | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|--|--|--|------------------------|-------------------------|----------------------|-------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 101 | 16.03.12 | Weight feeders of gypsum to grinding plant Incl: 1- head pulley 2- tail pulley 3- rubber belt 4- gear with coupling | Type :D10011.2 V 1000 Belt width :1000 mm c-t-c distance :1800 mm feed material : gypsum through put :10 t/h adjusting range: 10:1 grain size :0-30 mm moisture: max 6% temperature :ambient motor rating:0.75 kw feed unit: bin | Importation | A | General | Pfister | 2 |
| 102 | 17.01 | Shell lining for cement mill first chamber | Tube diamer:4.2 Grinding path:length:13m Speed:15.43 rpm | Importation | A | monopolistic | | 2 Set |
| 103 | 17.01 | Shell for cement mill second chamber | Tube diameter:4.2m Grinding path length:13m Speed:15.43 rpm | Importation | A | monopolistic | | 2 Set |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 104 | 17.01 | Pinion with shaft for cement mill drive | No of pith (2)=31 circle teeth pitch D=795.61/m B=650mm Model:25.4 Angle pressure:25,B7.5 Correction of tooth profile:6.36/6.683 | Importation | A | monopolistic | | 4 |
| 105 | 17.01 | Girth gear for tube cement mill | Z=220 Pitch circle d:5653.3mm Angle of pressure:25,B:7.5 correction of tooth profile :6.38/6.683 | Importation | A | monopolistic | | 2 |
| 106 | 17.01 | Lubrication system for Cement mill compl | Type: GMF B/30/60/0/0/0/4/b/3kw Vol.delivery:13.6 cm3/min | Importation | B | General | | 4 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 107 | 17.01 | Transfer wall diaphragm Compl with supporting structure and fastening of cement mill compl | 4.2*13 | Importation | A | monopolistic | | 2 |
| 108 | 17.01 | Discharge wall diaphragm compl with supporting structure and fastening of cement mill compl | 4.2*13 Speed:15.43 rpm | Importation | A | monopolistic | | 2 |
| 109 | 17.04 | Gear box for mill Drive Compl Gear box cement mill | Type SZN 710 Lubrication: oil circulation Reduction ratio: 9:1 Input speed: 985 rpm Output speed:109.4 rpm Gearing rate:5000kw | Importation | A | monopolistic | | 8 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|---|--|------------------------|-------------------------|----------------------|-------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 110 | 17.06 | High pressure fan compl Intake filter, hood Throttle flap | Motor =5.5 kw Speed=3000 rpm | Importation | A | General | | 2 Set |
| 111 | 17.07 | Central chain –bucket elevators of cement mill Incl 1- chain belt type cater pillar D5 Sprocket for drive with shaft 3- Sprocket for tension station 4- Hallow shaft gearing type ICCH250 with back stop 5- flat gear motor for slow motion type:D2A4CF3 – 123/30 g Over head raveling | Bucket width :630 mm c-t-c distance : 30.86 m bucket pitch : 351 mm speed :1.52 m/s material flow : 290 t/h temperature : 110°c power req : 45 kw motor : 55 kw speed : 1.450 rpm | Importation | A | General | Cater pillar | 2 set |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 112 | 17.14 | service crane for cement mill drive room | Lifting capacity : 10 Span :10 m Lifting height :10 Lifting speed: 10 ton | Locally | B | General | | 2 |
| 113 | 17.02 | Helios center lubrication compl | Type ZPU 9A Output:6 L/h Max working pressure:500 bar Capacity: 8L | Importation | B | General | | 8 |
| 114 | 17.02 | Gear pump with motor | Type:BML3155R Power: 15 kw Q : 80 L/min | Importation | B | General | | 4 |
| 115 | 17.02 | Gear pump with motor | Type: SME Q=125 l/min Pressure:3 bar Motor : 4 kw Speed : 950 rpm | Importation | B | General | | 4 |
| 116 | | Oil pump | Type BML2/36BH | Importation | B | General | | 8 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 117 | | High pressure fan | Motor :5.5 kw Speed:3000 rpm | Importation | B | General | | 4 |
| 118 | 17.20 | Slide bearing brass for the floating cement mill | According standard document | Importation | A | monopolistic | | 12 |
| 119 | 17.02 | Oil cooler | Type LZA Surface area 1.6 m2 Allowable pressure = 6 bar Operating temp= 100 °C heat capacity: 42000 kcal/h | Importation | A | General | | 6 |
| 120 | 17.09 | Cyclone Air classifiers of cement mill: A- Various wearing and instillation parts. | Type ZVB 42 | Locally | B | General | | 8 |
| 121 | 17.09 | 1- mill classifier inlet compl. | Drawing No:ZE566-502 Order No.:4963-23/002 | Locally | B | General | | 8 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 122 | 17.09 | 2- Cast basalt lining for the blow-off head compl. | Drawing No:ZE566-502 Order No: 4963:29/566/5670 | Locally | B | General | | 4 |
| 123 | 17.09 | 3-Upper housing part lining for the six separator | Drawing No:ZE566-502 Order No: 4963-29/5661/5670 | Locally | B | General | | 4 |
| 124 | 17.09 | 4-cast basalt lining for the six separator | Drawing No:ZE566-502 Order No: 4963-29/566/5670 | Locally | B | General | | 4 |
| 125 | 17.09 | 5-chilled cast iron lining compl for item no. 105 | Drawing No: ZE566 - 502 Order No: 4963-13/56615033 | Locally | B | General | | 4 |
| 126 | 17.09 | 6- central housing part without wear plat lining | Drawing No:ZE566-502 Order No: 4963-151001-023 | Locally | B | General | | 4 |
| 127 | 17.09 | 7- wear plat lining for item no 107 | Drawing No:ZE566-502 Order No: 4963:151024-35 | Locally | B | General | | 4 |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 128 | 17.09 | 8- Lower housing part comp without | Drawing No:ZE566-502 Order No: 4963:17001-016 | Locally | B | General | | 4 |
| 129 | 17.09 | 9-con for instillation part | Drawing No:ZE566-502 Order No: 4963:22-009 | Locally | B | General | | 4 |
| 130 | 17.09 | 10-set of guide plate for instillation part | Drawing No:ZE566-502 Order No: 4963:22-009 | Locally | B | General | | 4 |
| 131 | 17.09 | 11- inlet cone | Drawing No:ZE566-502 Order No: 4963:22-009 | Locally | B | General | | 4 |
| 132 | 17.09 | 12- wear plate lining compl for item no 109 | Drawing No:ZE566-502 Order No: 4963:171017-020 | Locally | B | General | | 4 |
| 133 | 17.09 | 13- con for instillation part | Drawing No:ZE566-502 Order No: 4963:22:004 | Locally | B | General | | 4 |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 134 | 17.09 | 14- con for instillation part | Drawing No:ZE566-502 Order No: 4963:22/006 | Locally | B | General | | 4 |
| 135 | 17.09 | 15- immersion tubes | Drawing No:ZE566-502 Order No: 4963:20/00/002 | Locally | B | General | | 4 |
| 136 | 17.09 | 16- collecting pipe system | Drawing No:ZE566-502 Order No: 4963:21156615673 | Locally | B | General | | 4 |
| 137 | 17.09 | Gear box for separator KBN200 | Type MLKBV 200 N1=1450 rpm N2=563 rpm Power=110 Serial No.: 8-8264-0-1022-3-740 | Locally | B | General | | 2 |
| 138 | | Fans of separator compl with shaft | Flow rate: 6200m3/h Motor:175 kw Speed:1000 rpm Speed of fan:925 l/h | Importation | B | General | | 2 |
| 139 | | Oil lubrication system of separator compl with oil pump | Drawing No.: ZE 566-522 D/E | Importation | A | General | | 2 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 140 | 17.10 | High pressure fan | Motor req: 3kw Speed: 3000 rpm | Importation | B | General | | 2 |
| 141 | 17.11 | Return convey belt of cement mill compl with: rubber belt driven roll tension roll gear motor type will all safety operation instruments | Belt width: 1000 mm c-t-c distance:12.5m arrangement :horizontal conveying speed:1.31 belt quality: Ed315/3 cover 5+2 material flow:180 t/h material :lement power req:205 kw gear motor:3.7 speed ratio:1500/7/ | Importation | A | General | | 4 |
| 142 | 17.11 | Monorail hoist for grinding media with rail | Lifting capacity:5 ton Lifting height: 10 ton Lifting speed: 8m/min Motors: 7.3 ,0.65,0.48 kw | Importation | B | General | | 4 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|--|--|------------------------|-------------------------|----------------------|-----------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 143 | 17.17 | Electrostatic precipitators of cement mill Incl 1-set inner assemblies (collecting plate, discharge electrodes, supporting insulators) 2- set of Rapping system of discharge electrodes and collecting electrodes with compl quantity of hammers | Horizontal design Type: HFV12-8-16/16 Flow rate: 48340 m3/h Tepmperture:110°C Dew point:45°C Raw gas dust content: 400-600 g/m3 Cleaning – gas dust content at 1013 m bar and 0 °C: 0.15 g/m3 | Importation | A | General | | 2 |
| 144 | 17.11 | Pressure type screw conveyors for discharge the precipitated dust from bin Incl: - screw conveyor shaft - hood of screw gear motor | Diameter:300 Length: 2m Gear motor:5.5 Speed:1500.35 rpm | Importation | A | General | | 12 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 145 | 17.01 | Bearing and housing of the coupling end of main drive for cement mill compl | Type :EFNLB Siz:18 Bore diameter:180mm | Importation | A | monopolistic | Standard of Renk-wul | 16 |
| 146 | 17.01 | Bearing and housing of the opposite coupling end of main drive for mill compl | Type :EFN Size:18 Bore diameter | Importation | A | monopolistic | Standard of Renk-wul | 16 |
| 147 | 17.01 | Bearing and housing of the coupling end of drive for mill compl | Type :EFNLB Size:18 Bore diameter:200mm | Importation | A | monopolistic | Standard of Renk-wul | 16 |
| 148 | 17.01 | Bearing and housing of the opposite coupling end of main drive for raw mill compl | Type :EFN Size:18 Bore diameter:200mm | Importation | A | monopolistic | Standard of Renk-wul | 16 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|---|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 149 | 17.01 | Dust fan of electrostatic Precipitator of cement mill compl | Type:90/145 Flow ratar:808m/min Total pressure diff:27mbar Fan speed:1050 rpm Power req:48 kw Motor req:75 kw Speed:1460 | Importation | B | General | | |
| 150 | 12.01.15 | Pyroclon burner compl. With flexible hoses and air regulating and local pressure gauges | Burner type : cal 4 Pillared atomizing type MC Capacity : 4500 kg/h Rated length :2m | Importation | A | monopolistic | Pillaracl | 8 |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 151 | | Gas reduction station compl. All system mien station secondary station | High pressure reduction inlet pressure : 30-73 bar Outlet pressure : 7 bar Capacity :4000 m/h ³ Warm: water heating :490000 k cal / h Falling velocity : 20 m/s No of boilers :2 No of secondary station :4 | Importation | B | monopolistic | PILLARAD | 8 |
| 152 | 12.01.04 | Heat transfer oil pump | Q :62.5 m ³ /h Pressure : 5 bar Motor rating : 18.5 kw Speed : 3000 | Importation | B | | PILLARAD | 2 |
| 153 | 12.01.11 | Rotary kiln burner compl. Will all flexible hosier and air regulating flaps and pressure gauges | According standard drawings Pillared rotary kiln burner type VR Fuel : heavy oil length : 9.5 of Max. capacity : 6300 kg/h Length of flexible hoses: 5 m Primary air temp max. : 55°C | Importation | A | monopolistic | PILLARAD | 4 |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|----------|--|--|--|------------------------|-------------------------|----------------------|-------------------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 154 | 22.01 | refractories and insulating line for 2 preheater 1. working layer 2. stage 1 up to inlet chamber 3. shaped bricks 2 stage IV up to inlet chamber | Fire clay bricks : 25-33 Al ₂ O ₃ with cold strength at least : 25 N/mm ² Lining thickness : 115 mm Fire clay bricks : 25-33% Al ₂ O ₃ with cold strength at least : 30 N/mm ² Lining thickness : 170 mm Fire clay bricks : 25-33 % Al ₂ O ₃ with cold strength at least : 30 N/mm ² Lining thickness : 115 mm | Importation | A | General | Urex or refratehnic | 399 109 351 |
| 155 | 12.01.04 | Insulation - area of pyroclon reaction duct and inlet chamber – insulating plates | Lining thickness : 25,40,50 mm cold strength at least : 1 N/mm ² application temperature up to :1000°c | Importation | A | General | | 17 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|---|--|------------------------|-------------------------|----------------------|--------------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 156 | 22.01 | - inlet chamber up to stage 11-insulating plates | - inlet chamber up to stage 11-insulating plates | Importation | A | General | | 169 |
| 157 | 12.01 | - suspended roof , stage 1 up to stage 1V - insulating material | - suspended roof , stage 1 up to stage 1V - insulating material | Importation | A | General | | 2 ton |
| 158 | 12.01 | Refractory lining for the two rotary kilns 9.9×64m outlet zone length 1.28m | High alumina fire clay 75-85% Al ₂ O ₃ bricks with : cold strength at least : 40 N/mm ² application temperature:1500°c Lining thickness :200 mm Material as above but cold strength at least : 60 N/mm ² | Importation | A | General | | 15 30 |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|-------------------------------|--|--|------------------------|-------------------------|----------------------|---------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 159 | 22.01 | sintering zone length 25m | <p>magnesite material to form coating: 72-85% MgO</p> <p>with cold strength at least : 35 N/mm²</p> <p>Lining thickness : 280 mm</p> <p>application tempreture:1550°c</p> <p>Good resistance to thermal shocks.</p> | Importation | A | General | | 423 |
| 160 | 22.01 | transition zone length 12-0 m | <p>Special magnesite : 60-75%MgO</p> <p>cold strength at least : 30 N/mm²</p> <p>Lining thickness : 200 mm</p> <p>application tempreture:1500°c</p> <p>good resistance to thermal shocks</p> | Importation | A | General | | 200 ton |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Special Or General | Original Manufacture | Qua. |
|-----|-------|---|--|--|------------------------|--------------------|----------------------|---------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 161 | | Lining thickness : 200 mm application temperture:1500°C good resistance to thermal shocks | High alumina fire clay bricks 50%Al ₂ O ₃ cold strength at least : 35 N/mm ² | Importation | A | General | | 133 ton |
| 162 | 22.01 | transition zone length 12-0 m | Special magnesite : 60-75%MgO cold strength at least : 30 N/mm ² Lining thickness : 200 mm application temperture:1500°C good resistance to thermal shocks | Importation | A | General | | 200 ton |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|--|--|------------------------|-------------------------|----------------------|---------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 162 | 22.01 | calciner zone length 13.8m | <p>application temperature:1970°C Lining thickness:200 mm</p> <p>Light weight refractory bricks SiO₂ cont : 60-75% cold strength: 10 N/mm²</p> <p>application temperature:1300°C Lining thickness:200 mm</p> | Importation | A | General | | 106 ton |
| 163 | 22.01 | conical inlet length 1.605m | <p>fire clay bricks 30-33%Al₂O₃ cold strength : 30 N/mm²</p> <p>Lining thickness To value :1300°C</p> | Importation | A | General | | 21 ton |
| 164 | 22.03 | Refractories and insulating lining for the kiln head 1. working layer - front wall | <p>High alumina fire clay Bricks 70-85%Al₂O₃ cold strength : 40 N/mm²</p> <p>Lining thickness :230 mm Ta – value : 1500°C</p> <p>Abrasion proof , resistance to thermal shocks</p> | Importation | A | General | | 66 ton |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|--|--|------------------------|-------------------------|----------------------|---------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 165 | 22.03 | arch and back | hard fire clay bricks 40-52%Al ₂ O ₃ cold strength : 35 N/mm ² Lining thickness:230 mm Ta – value : 1470°C Abrasion proof, resistance to thermal shocks | Importation | A | General | | 129 ton |
| 166 | 22.03 | - lower part – side back wall | hard fire clay bricks 40-45% Al ₂ O ₃ cold strength : 30 N/mm ² Lining thickness:230 mm Ta – value : 1450°C | Importation | A | General | | 67 ton |
| 167 | 22.03 | insulating layer - insulating of walls and arch insulating plates | Cold strength :1 N/mm ² application temperature:1000°C Lining thickness : 50 mm | Importation | A | General | | 10 ton |
| 168 | 22.03 | insulating plates | Cold strength :1 N/mm ² application temperature:800°C Lining thickness : 50-75,100 mm | Importation | A | General | | 15 ton |

Spear Part Required to Rehabilitation for AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|-------------------------------------|---|--|------------------------|-------------------------|----------------------|---------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 169 | 22.03 | casing of 2 burner nozzle sh. | High alumina ramming compound Compression – strength at 1000°c 30 N/mm ² application temperature:1550°c suitable anchor bolts and welding electrodes | Importation | A | General | | 3 ton |
| 170 | 22.03 | high alumina castable for preheater | high alumina castable 80% Al ₂ O ₃ compression at 1000°c 30 N/mm ² | Importation | A | General | | 100 ton |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------------|--------------------------------|---|--|------------------------|-------------------------|-----------------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 171 | 19.04 | Hover- rotor - packer compacts | <p>Type : 6073 – 6RCV Number of filling sockets: 6 dimensioned drawing. Product to be filled : cement bag weight gross : 50 kg Type of bag : paper bag glued 2 – 4 plies Machine rating : approx. 1800 – 2200 bag s/h Number of operating staff members : 1 (for manual operation clockwise) Total power requirement: 15 kW air volume : 6.300 m3 /h control air requirement approx. 30 Nm3 / h at 5-6 bar</p> | Importation | A | General | | 2 |
| 172 | 20.02.01.08 | Loading device | <p>Drawing no : 7-34-00-4-0010 IBAU HAMBURG GERMANY</p> | Importation | A | monopolistic | IBAU HAMBURG GERMANY | 2 |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------------|------------------------------|---|--|------------------------|-------------------------|---------------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 173 | 20.02.01.08 | Radial fan | Drawing no : 7-95-00-4-0050 EN | Importation | B | monopolistic | IBAU HAMBURG GERMANY | 1 |
| 174 | 19.04.01 | Gear motor conveyor 19.04.01 | Type : 11-342-16-12-1 2/82 N1:1500 1/min N2 : 150.29 1/min P=0.75 kW, M2=41-200 NM Serial NO 1/1200/30503 | Importation | A | monopolistic | LENZE GERMANY | 1 |
| 175 | 19.04 | Filling pot compl | Drawing no : 4917001100 | Importation | B | monopolistic | HAYER AND BOECKER GERMANY | 3 |
| 176 | 19.04 | Gear Box for belt conveyor | Type : 8 FSM Speed ratio =25/1 P = 18.5 Kw Speed =1500 rpm Serial NO .112142 ,EIECON INDIA | Importation | A | monopolistic | Company Elecon India | 6 |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---------------------------------------|---|--|------------------------|-------------------------|------------------------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 177 | 19.04 | Gear Box for belt conveyer | Type : 7 FSM plied ratio = 20/1 Power :11 KW serial no .111010 , eiecon India | Importation | A | monopolistic | Company Elecon India | 6 |
| 178 | 19.01 | Bucket elevator with round Link chain | Type : Din 931 M 24 KHD GERMANY | Importation | A | monopolistic | LENZE GERMANY | 1 |
| 179 | 19.04 | Valve Compl. | Drawing no : 4.912.0001.09 Haver and boecker Germany | Importation | A | monopolistic | HAYER AND BOECKER GERMANY | |
| 180 | 19.04 | Container | Drawing no : 4.918.0027.04 | Importation | A | monopolistic | Haver and boecker Germany | |
| 181 | 19.04 | Waage compel | Drawing no : 4.922.0008.04 | Importation | A | monopolistic | Haver and boecker Germany | |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|---|--|------------------------|-------------------------|--|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 182 | | Gear Box | Type : KZN 225 N1 :1500 1/min, N2 :78 1/min P :72 kw , Serial no : 165-110-087-8-1 | Importation | A | monopolistic | COMPANY : GERMANY FLENDERBO CHOLT | 2 |
| 183 | 19.04 | Rotary drive compl | Drawing no. 4.900.0018.04 | Importation | A | monopolistic | Haver and Boecker Germany | 1 |
| 184 | 19.02 | Bucket feeder ,wheel feeder horizontal | Bucket feeder dim. D500mm Sluice length b 630mm speed of the bucket feeder 1/min 500x63 Cross section of the inlet axbx630mm. Cross section of outlet axb500x630mm L1 430 mm,L2 mm D1 60mm, H 700mm Power = 1.5 | Importation | A | monopolistic | KHD comp. | |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|------------------|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 185 | 19.02 | Gear motor | P= 1.5 N= 39 1/min Chain drive 30 pinch 15/24 teeth and protection cover. | Importation | A | monopolistic | KHD comp. | 1 |
| 186 | 19.04 | Belt conveyor | Gear box type : 6FSM 20: ratio single worm reduction unit motor P= 11 kw speed = 1500 1/min 380V , 3 phase , 50 R | Importation | A | monopolistic | Company Elecon India | 4 |
| 187 | 19.04 | Belt conveyor | Gear box type : 7FSM 20: ratio single worm reduction unit motor P= 11 kw speed = 1500 1/min | Importation | A | monopolistic | Company Elecon India | 4 |
| 188 | 33.04 | Blaine measuring | Blaine measuring instrument | Importation | A | General | | 1 |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 189 | 33.03 | Crucible tongs platinum tips | Size (1.5-2)gm platinum L = 25cm | Importation | A | General | | 1 |
| 190 | 33.05 | Titration apparatus with digital electronic result | Complete system | Importation | A | General | | 2 |
| 191 | 33.01 | High temperature furnace | Max. temperature 1600 °c with PID control and indicators Siz:152mm*76mm | Importation | A | General | | 2 |
| 192 | 33.01 | Jaw crusher | Material: heavy cast-iron Body and moving jaw stock | Importation | A | General | | 1 |
| 193 | 33.01 | Disc grinder | Capacity:10kgs/h Size: reduction about 150m | Importation | A | General | | 1 |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|--|--|------------------------|-------------------------|----------------------|-------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 194 | 33.02 | Test sieve shakers with wire meshing set | 12 test series to the following stander BS410.1969 up to 200mm ASTME11-70up to 8 in diameter | Importation | A | General | | 2 Set |
| 195 | 33.02 | Digital readout balance | weighing range(0.1mg-160g) | Importation | A | General | | 2 |
| 196 | 33.02 | Balance | Range 5-50kg | Importation | A | General | | 1 |
| 197 | 33.02 | Compression testing machine | 600kw (60mp)class // Din:51220 | Importation | A | General | | 1 |
| 198 | 33.02 | Vic at needle apparatus | According to BS complete with accessories | Importation | A | General | | 1 |
| 199 | 33.02 | Stander moulds for mortar cubs | Stander cubs | Importation | B | General | | 24 |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 200 | 25.02 | Prehearter lift for personal and material | Capacity 2175 kg No. of station : 7 Lifting speed : 1m/min Car dimension : 200x235x2500 Motor : 132 kw | Importation | A | General | | 2 |
| 201 | 25.02 | Lift for personal and material beside the cement silos. | Capacity : 1200 kg No. of station :2 Lifting speed : 1m/min Car dimension : 200x235x2500 Motor : 16.3 kw | Importation | A | General | | 1 |
| 202 | 08.14 | Over head traveling services Crane For cement mill drive room | Lifting capacity:10ton Span:10m Lifting height:10m Lifting speed:10.3m /min Motor:10.3kw 0.43kw 2*0.9. kw, 2*0.37kw with control from the floor without rails | Importation | B | General | | 2 |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 203 | 17.15 | Mountrail hoists crane for grinding | lifting capacity:5ton span:10m lifting height:10m lifting speed:8m/min motor:7.3kw, 0.85kw , 0.48kw with control from floor with out rail | Importation | B | General | | 2 |
| 204 | 17.16 | Over head traveling services Crane For cement mill drive room | Lifting capacity:10ton Span:10m Lifting speed:5m /min Motor:10.3kw 2*0.37 kw 0.48kw with control from the floor | Importation | B | General | | 2 |
| 205 | | | without rails lifting capacity:10 ton lifting height:8 m with control from floor with out rail | Importation | B | General | | 2 |

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|-------|--|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 206 | | Electrical monorail Hoist for plate form | Lifting capacity:6.3 ton Lifting height:16m Lifting speed:8 m /min Elect. Trolley speed:16m/min Hoist motor:0.98kw Preision stroke :0.9kw With control from floor Without rails lifting | Importation | B | General | | 1 |
| 207 | 19.10 | EMPTY BAY LIFT | Capacity:1600kw Lifting way:12m Lifting speed:8m/mn Lifting gear:2.5kw 50%ED Traveling speed:16m/min With control from floor With out rails lifting | Importation | B | General | | 3 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|----------------------------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 1 | | Raking handle T140, MB 400 | ref.4072109 | Importation | B | monopolistic | MG Schneider | 24 |
| 2 | | Pusher | ref.4072129 | Importation | B | monopolistic | MG Schneider | 24 |
| 3 | | Gasket | ref.4072130 | Importation | B | monopolistic | MG Schneider | 100 |
| 4 | | Raking cam | ref.407355 | Importation | B | monopolistic | MG Schneider | 100 |
| 5 | | Safety catch | ref.4072179 | Importation | B | monopolistic | MG Schneider | 100 |
| 6 | | R/H guide | ref.4072170 B | Importation | B | monopolistic | MG Schneider | 200 |
| 7 | | L/H guide | ref.4072170A | Importation | B | monopolistic | MG Schneider | 200 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|--|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 8 | | 250 A disconnecting contact | ref.4017025G | Importation | B | monopolistic | MG Schneider | 120 |
| 9 | | Fuse base / disconnecting contact combination single disconnecting | 4017025 c | Importation | B | monopolistic | MG Schneider | 120 |
| 10 | | contact 125 AT-140 drawer double disconnecting | ref.4017025D | Importation | B | monopolistic | MG Schneider | 120 |
| 11 | | contact 125AT140drawer | ref.4017025E | Importation | B | monopolistic | MG Schneider | 120 |
| 12 | | 625A disconnecting contact | ref.4017025K | Importation | B | monopolistic | MG Schneider | 120 |
| 13 | | 400A disconnecting contact | ref.4017025J | Importation | B | monopolistic | MG Schneider | 120 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qu a. |
|-----|------|---|---|--|------------------------|-------------------------|----------------------|-------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 14 | | Partition safety shutter sub-uni including: Contact champers Upper shutter Lower shutter | ref.4017270 ref. 4072222 ref. 4072151 ref. 4051252 | Importation | B | monopolistic | MG Schneider | 100 |
| 15 | | Shutter spring | ref.4072029 VD ref.S4ACHATMT | Importation | B | monopolistic | MG Schneider | 100 |
| 16 | | Grommet | ref.4072167 | Importation | B | monopolistic | MG Schneider | 100 |
| 17 | | Raking roller | ref.4072157 | Importation | B | monopolistic | MG Schneider | 100 |
| 18 | | Partitioning barrier | ref.4072078 | Importation | B | monopolistic | MG Schneider | 100 |
| 19 | | Auxiliary disconnecting block | ref.4018012A | Importation | B | monopolistic | MG Schneider | 100 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|---------------------------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 20 | | Left hand pin | ref.4072072 | Importation | B | monopolistic | MG Schneider | 100 |
| 21 | | Right hand bin | ref.4072192 | Importation | B | monopolistic | MG Schneider | 100 |
| 22 | | Nyi stop nut 4mm dim. | ref.21285204 | Importation | B | monopolistic | MG Schneider | 200 |
| 23 | | Baumann snap ring no.4 | ref.21217104 | Importation | B | monopolistic | MG Schneider | 200 |
| 24 | | Covered trough insulating | ref.4072166RD ref.S4ACHATMT | Importation | B | monopolistic | MG Schneider | 200 |
| 25 | | Bushing outgoing | ref.4072115 | Importation | B | monopolistic | MG Schneider | 100 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|----------------------------------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 26 | | Aux, bus conductor vertical | ref.4017012A | Importation | B | monopolistic | MG Schneider | 100 |
| 27 | | 125A term in pad rear connection | ref.4072176 | Importation | B | monopolistic | MG Schneider | 100 |
| 28 | | 630 term in pad rear connection | ref.4072177 | Importation | B | monopolistic | MG Schneider | 100 |
| 29 | | door handle moving part | ref.4013148 | Importation | B | monopolistic | MG Schneider | 100 |
| 30 | | door handle fixed part | ref.4013206 | Importation | B | monopolistic | MG Schneider | 100 |
| 31 | | drawer handle | ref.4017012A | Importation | B | monopolistic | MG Schneider | 100 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|---|---|--|------------------------|-------------------------|---------------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 32 | | Earl flow switch type 778 DN25 max. flow 50 l/min Lub. oil 300 cst/40c° | | Importation | B | monopolistic | LASER COMP. BERLIN | 10 |
| 33 | | Earl flow switch type 720 NB 32 Flow 40-120 l/min Oil 20 E-50c° | | Importation | B | monopolistic | LASER COMP. BERLIN | 10 |
| 34 | | Flow switch type nova fix HR8MI Oil flow 3-30 l/min | | Importation | B | monopolistic | HONSBER G COMP. REMSCHEID | 10 |
| 35 | | Pressure switch type SA-BA2 order No. 4756-14/059 with light indicator 0.3-5 bar Δp 0.03-0.5 mbar | | Importation | B | monopolistic | COMP. REMSCHEID GERMANY | 8 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|--|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 36 | | local switch type 1 | | Importation | B | monopolistic | BACO | 100 |
| 37 | | local switch type 2 type PR 16 Note The attached drawing for the items 5 and 6 | | Importation | B | monopolistic | BACO | 100 |
| 38 | | | 980 kw DC motor , 985 r/m, 825 V DC,94 V,46A excitation type CIR 500 L2 armature current 1250A excitation current 50A (separate excitation) IP=54 IC air to air with heat exchanger | Importation | B | monopolistic | Jemount Schneider | 2 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|-----------|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 39 | | | Slip ring complete for 550 kw Ac motor type HNBB 560 DWG Nr 2AC9088 6.6 kv 737 r/m | Importation | B | monopolistic | Jemount Schneider | 2 |
| 40 | | | slip ring complete for 1900 kw motor 6.6kv 750 r/m type HNBB 710 C8 BWG Nr 2 AJ 9167 | Importation | B | monopolistic | | 1 |
| 41 | | | slip ring complete for 1950 kw motor 6.6kv 987 r/m type HNBB 630D6 DWG Nr. 2 AC 9091 | Importation | B | monopolistic | | 1 |
| 42 | | | slip ring complete for 2100 kw motor 6.6kv 1000 r/m type HNBB 710 A6 DWG Nr .2 AJ 9166 | | | | | 2 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|--|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 43 | | | slip ring complete for 1100 kw motor 6.6kv 1000 r/m type HNBB 560 C6 | Importation | B | monopolistic | | 1 |
| 44 | | Dual transmitter power supply TPS720 | 940472031731 output : (4-20)mA supply voltage : I15 v | Importation | B | monopolistic | | 1 |
| 45 | | Electrical transducer for active power | Type : MU-P Input 1. ac voltage 3x 380 v 2. ac current 15011A OLP⊗4-20) mA operating range (0-60)kw characters tic curve –c- supply voltage :220v,50Hz | Importation | B | monopolistic | MULLEI & VEIEER | 4 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|---------------------------|--|--|------------------------|-------------------------|----------------------|----------------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 46 | | Oil flow system including | <p>Type: OaP50AG19EID 2050</p> <p>i. oval wheel meter (for heavy oil) flow : max 300L/min , 30L, DN50,PN40 preassure:40bar</p> <p>ii. control unit ZIVS 420 D420 UR10-NW consisting of :</p> <ol style="list-style-type: none"> 1. ZIVS 420 (forward) 2. ZIVS 420 (backward) 3.ZIVD 4. ZIVA420 5. IT10 6. STR 300/1 7. 7. 2HS | Importation | B | monopolistic | Bop REUTH | 1set Bop REUTH |
| | | | | Importation | B | monopolistic | | 1 |
| | | | | Importation | B | monopolistic | MULLEI & VEIEER | 4 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|----------------------------|--|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 47 | | Temperature-transmitter T2 | Version with chopper amplifier Input :(20-1200)c°, Nici-Ni Output (4-20)mA No : 9404 224 20001 | Importation | B | monopolistic | Philips | 15 |
| 48 | | Pcs – transmitter PD2 | Range (-10-0) mbar (4-20) mA No 9404225 7/001 | Importation | B | monopolistic | Philips | 10 |
| 49 | | Single multiplexer unit | Type –M Serial no – 214181312 Two input signal (4-20) mA,220v, 50Hz | Importation | B | monopolistic | LEE-DICKEN | 2 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|--|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 50 | | Electronic reflector – acoustic mill consisting of 1. microphone inclusive support 2. supply unit 3. sound amplifier 4. error amplifier unit 5. output amplifier unit output signal (4-20) mA | No. 1345-101 No. 1330-556-11 No. 1330-541-10 No. 1330-542 No. 1330-442 | Importation | B | monopolistic | Hasler | 3 |
| 51 | | PCS transmitter p | Range and scale 0-60 bar 4-20 mbar 9404 215 43071 | Importation | B | monopolistic | Hasler | 6 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|--|---|--|------------------------|-------------------------|----------------------|------------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 52 | | Temperature – transmitter | Type PCST2 No. : 940422421001 Version with D.C Amplifier input :PT100 Output: (4-20) mA | Importation | B | monopolistic | Hasler | 15 |
| 53 | | Electronic insert EC612 | No. 916313 – 000 | Importation | B | monopolistic | Enddres and Hauser | 10 |
| 54 | | Trip alarm for resistance thermometer RTA730 | No. : 9404 730 66711 Supply voltage : I 15 Output (0-10)v i) one signal relay per output | Importation | B | monopolistic | Philips | 25 |
| 55 | | Per for recorder | 1. Blue per no. : 12-142-92071 2. red per no. : 12-142-92061 | Importation | B | monopolistic | Philips | 100 100 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|---------------------------------------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 57 | | deviation switch complete with roller | SNr. 09698 | Importation | B | monopolistic | Kiepe | 24 |
| 58 | | Contactors | HV, 6.6kv, SF6 contactor 400A Type roll arc DWG Nr. 1968277 situated on with draw able carriage no.2598 | Importation | B | monopolistic | Merlengerin | 4 |
| 59 | | Circuit breaker | For SF6-630A circuit breaker type FG2 110V DC coil for closing mechanism DWG Nr.1968250 | Importation | B | monopolistic | Merlengerin | 4 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 60 | | Motorized pot | Motorized pot. 4-7 Ω , 360° with contract for starting and reverse direction type TC16 no. p51-4.7k Ω | Importation | B | monopolistic | Merlin gerin | 4 |
| 61 | | H.V fuse type mgk 125 a 7.2 kv dwg nr.1968278 | | Importation | B | monopolistic | merlin gerin | 12 |
| 62 | | H.V fuse type mgk 200 a 7.2 kv dwg nr.1968278 | | Importation | B | monopolistic | merlin gerin | 12 |
| 63 | | motor reducer cb 080n / 4d 0.75 ch dwg nr.1187716 | | Importation | B | monopolistic | merlin gerin | 2 |
| 64 | | limit switch x4l 30g dwg nr.1187716 | | Importation | B | monopolistic | Merlin gerin | 4 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 65 | | limit switch xck mid 15 dwg nr.1187716 | | Importation | B | monopolistic | Merlin gerin | 50 |
| 66 | | motor reducer cb 071n/4d 0.5 ch dw nr.1187716 | | Importation | B | monopolistic | Merlin gerin | 2 |
| 67 | | relay lt1. sp12f | | Importation | B | monopolistic | telemechanique | 12 |
| 68 | | micro switch 751 ek.02.11 | | Importation | B | monopolistic | j.s.magasin | 50 |
| 69 | | lamp 160 a 0321 ad .50.09 | | Importation | B | monopolistic | j.s.magasin | 50 |
| 70 | | resister rssid- 25x 168-33ohm | | Importation | B | monopolistic | j.s.magasin | 3 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|---|---|--|------------------------|-------------------------|----------------------|-------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 71 | | relay k2e 641 ta 0346 | | Importation | B | monopolistic | j.s.magasin | 24 |
| 72 | | relay k4e 641 ta 0345 | | Importation | B | monopolistic | j.s.magasin | 24 |
| 73 | | signal lamp xb 2 .mv 103 green 751 .me.03.01 | | Importation | B | monopolistic | j.s.magasin | 12 |
| 74 | | MAIN CIRCUIT BREAKER 3200 A DSAI – 3200 DWG.Nr.1186372 | | Importation | B | monopolistic | merlin gerin | 2 |
| 75 | | copper contact for photo state fa 910 – 308 | | Importation | B | monopolistic | jeumont schneider | 2 set |
| 76 | | copper contact for photo state fa 910 – 310 | | Importation | B | monopolistic | jeumont schneider | 24 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|---|---|--|------------------------|-------------------------|----------------------|-------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 77 | | copper contact for photo state fa 910 -312 | | Importation | B | monopolistic | jeumont schneider | 2 set |
| 78 | | copper contact for photo state fa 910 – 317 | | Importation | B | monopolistic | jeumont schneider | 2 set |
| 79 | | copper contact for photo state fa 910 – 319 | | Importation | B | monopolistic | jeumont schneider | 2 set |
| 80 | | Fuse Franz | 6 A am with striker 22x58mm | Importation | B | monopolistic | | 200 |
| 81 | | Fuse Franz | 10A am with striker 22x58mm | Importation | B | monopolistic | | 150 |
| 82 | | Fuse Franz | 16A am with striker 22x58mm | Importation | B | monopolistic | | 200 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|------------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 83 | | Fuse Franz | 20A am with striker 22x58mm | Importation | B | monopolistic | | 200 |
| 84 | | Fuse Franz | 25A am with striker 22x58mm | Importation | B | monopolistic | | 200 |
| 85 | | Fuse Franz | 32A am with striker 22x58mm | Importation | B | monopolistic | | 150 |
| 86 | | Fuse Franz | 40A am with striker 22x58mm | Importation | B | monopolistic | | 200 |
| 87 | | Fuse Franz | 50A am with striker 22x58mm | Importation | B | monopolistic | | 200 |
| 88 | | Fuse Franz | 125A am with striker 22x58mm | Importation | B | monopolistic | | 100 |
| 89 | | Fuse Franz | 160A am with striker 22x58mm | | | | | 100 |
| 90 | | Fuse Franz | 200A am with striker 22x58mm | | | | | 100 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|------------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 91 | | Fuse Franz | 250A am with striker 22x58mm | Importation | B | monopolistic | | 100 |
| 92 | | Fuse Franz | 400A am with striker 22x58mm | Importation | B | monopolistic | | 150 |
| 93 | | Fuse Franz | 12A gl 22x58 with striker | Importation | B | monopolistic | | 200 |
| 94 | | Fuse Franz | 20A gl 22x58 with striker | Importation | B | monopolistic | | 200 |
| 95 | | Fuse Franz | 40A gl 22x58 with striker | Importation | B | monopolistic | | 200 |
| 96 | | Fuse Franz | 63A gl 22x58 with striker | Importation | B | monopolistic | | 150 |
| 97 | | Fuse Franz | 100A gl size 0 with striker | Importation | B | monopolistic | | 100 |
| 98 | | Fuse Franz | 2A am 14x51mm with striker | Importation | B | monopolistic | | 100 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|------------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 99 | | Fuse Franz | 6A am 14x51mm with striker | Importation | B | monopolistic | | 100 |
| 100 | | Fuse Franz | 10A am 14x51mm with striker | Importation | B | monopolistic | | 100 |
| 101 | | Fuse Franz | 16A am 14x51mm with striker | Importation | B | monopolistic | | 100 |
| 102 | | Fuse Franz | 2A gl 10x38mm | Importation | B | monopolistic | | 100 |
| 103 | | Fuse Franz | 4A gl 10x38mm | Importation | B | monopolistic | | 100 |
| 104 | | Fuse Franz | 6A gl 10x38mm | Importation | B | monopolistic | | 100 |
| 105 | | Fuse Franz | 10A gl 10x38mm | Importation | B | monopolistic | | 100 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|----------------------------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 106 | | Contactor champers | 4072222 | Importation | B | monopolistic | | 100 |
| 107 | | Upper shutter | 4072151 | Importation | B | monopolistic | | 100 |
| 108 | | Lower shutter | 401252 | Importation | B | monopolistic | | 100 |
| 109 | | Shutter spring | 4072029 | Importation | B | monopolistic | | 100 |
| 110 | | Grommet | 4072167 | Importation | B | monopolistic | | 100 |
| 111 | | Racking roller | 4072157 | Importation | B | monopolistic | | 100 |
| 112 | | Partitioning barrier | 4072078 | Importation | B | monopolistic | | 100 |
| 113 | | Auxiliary disconnect block | 4072264 | Importation | B | monopolistic | | 100 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|---|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 114 | | Left-hand pin | 402072 | Importation | B | monopolistic | | |
| 115 | | Right-hand pin | 4072192 | Importation | B | monopolistic | | |
| 116 | | Nylstop nut , 4mm DIA | 21285504 | Importation | B | monopolistic | | 100 |
| 117 | | Baumann snap ring No.4 | 21217104 | Importation | B | monopolistic | | 100 |
| 118 | | Covered trough, insulating | 4072166 | Importation | B | monopolistic | | 100 |
| 119 | | Bushing , outgoing | 4072115 | Importation | B | monopolistic | | 100 |
| 120 | | AUX. bus conductor. Vertical | 4016613 | Importation | B | monopolistic | | 100 |
| 121 | | 125A terminal Pad rear connection | 4072176 | Importation | B | monopolistic | | |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|-----------------------------------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 122 | | 630A terminal Pad rear connection | 4072177 | Importation | B | monopolistic | | 100 |
| 123 | | Door handle , moving part | 4070055B | Importation | B | monopolistic | | 100 |
| 124 | | Door handle ,fixed part | 4070055A | Importation | B | monopolistic | | |
| 125 | | 80A contactor | | Importation | B | monopolistic | | 24 |
| 126 | | Drawer handle | 4072108 | Importation | B | monopolistic | | 24 |
| 127 | | Racking handle | 4072109 | Importation | B | monopolistic | | |
| 128 | | Pusher | 4072129 | Importation | B | monopolistic | | 100 |
| 129 | | Gasket | 4072129 | Importation | B | monopolistic | | 100 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|----------------------------------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 130 | | Racking cam | 4072177 | Importation | B | monopolistic | | 100 |
| 131 | | Safety catch | 4070055B | Importation | B | monopolistic | | 100 |
| 132 | | R/H guide | 4070055A | Importation | B | monopolistic | | 200 |
| 133 | | L/H guide | | Importation | B | monopolistic | | 200 |
| 134 | | 200A contactor | | Importation | B | monopolistic | | |
| 135 | | 250A disconnecting contact | 4016130L | Importation | B | monopolistic | | 120 |
| 136 | | Compact R125 and fuses | | Importation | B | monopolistic | | |
| 137 | | Fuses – base / Disc. cont. comb. | 4016130B | Importation | B | monopolistic | | 120 |

Electrical Spear Part Required to Rehabilitation of AL-Muthana Plant

| No. | Item | Situation | Description According To Supplier Manuals | Source | Importance Grade A,B,C | Monopolistic Or General | Original Manufacture | Qua. |
|-----|------|------------------------------|---|--|------------------------|-------------------------|----------------------|------|
| | | | | Import local Purchasing Or Manufacturing | | | | |
| 138 | | Single disc. contact ,125A | 4016130C | Importation | B | monopolistic | | 120 |
| 139 | | Double disc. Contact,125A | 40161130D | Importation | B | monopolistic | | 120 |
| 140 | | Compact H500 molded case C.B | | Importation | B | monopolistic | | |
| 141 | | 625A disconnecting contact | 4016130J | Importation | B | monopolistic | | 120 |
| 142 | | 400A disconnecting contact | 4016130J | Importation | B | monopolistic | | 120 |

- Process Control system:-

1- The process control system depends on local measurement and PLC automatically system.

Quality control depends on local x- Ray's analysis and monitoring system all over the plant. The plc is the core of an automation system for the plant .it has the following functions:-

- Motor /group control and interlocking.
- Machine and process monitoring.
- Analogue valve reading and limit monitoring.
- Close loop control (PID loops).
- Data acquisition and integration of production.
- Consumption data.
- Generation of plant and process alarms.
- Diagnostic of plant and process alarms.

2- Plant operation.

The necessary process information is clearly arranged by graphic and alpha- numeric displays on the color monitors. Every operator control station comprises a color monitor arranged on a disk of the CCR. Alarm and hand copy printer render the desired documentation of the process run.

3- X-RAY Auxanometer is necessary for Lab analysis required as a central analyzer.

Updating Raw Mix and clay weighing system and controlling the lime clay rate:-

- 1- Updating stacker and declaimer system.
- 2- Replacement of all Raw Mill weighs feeders with a recent type.
- 3- Replacement of Kiln feeding equipment with a recent type.
- 4- Installation of Clinker output weighing device.
- 5- Replacement of all Cement Mill weighing feeders with a recent type.
- 6- Updating of all measuring instruments and all Mechanical and Electrical protection
- 7- Updating of calling system (intercom).
- 8- Supply of two AC motors 1950kw 1000r/min, 6.6 KV for Cement mill.
- 9- Rehabilitation of MV switch and protection
- 10- Rehabilitation of all Mcc boards.

Appendix No.4

The volume of initial work needed to reach the design capacity.

The next suggested steps can be followed to increase the production capacity of the factory:-

First: - Limestone quarry:-

The quarry needs certain amount of machinery and instruments to be able to produce (10.000) ton/day and the enterpriser of limestone transporting is able to supply this amount of limestone which is sufficient for the factory to work in its design capacity.

➤ **Machinery needed for the quarry:-**

| | <u>No.</u> |
|-----------------------------------|------------|
| 1. Bulldozer D475 | 1 |
| 2. Shovel vol. 95 | 2 |
| 3. Dumper comatsu 50ton capacity | 2 |
| 4. Crushing Crane type (NPK 10) | 2 |
| 5. Tanker for oil transporting | 1 |
| 6. Drilling machine | 3 |
| 7. Standard explosives | |
| 8. Exploding instrument | 1 |
| 9. Compressor | 3 |
| 10. Crane for pulling and loading | 1 |

} For over barding removing purposes

Second: - Limestone crusher:-

- 1- General maintenance of qualifying of crusher parts which include: limestone and clay feeders. Replacement of wearied conveyor belts.
- 2- To obtain the certain ratio of limestone and clay (due to the quality control specifications),the limestone and clay feeders must be calibrated, and the same thing must be carried accurately for the crusher weighing units, because this calibration is very important for the stability of the raw mix, which affects the stability of the rotary kiln.

- 3- Qualifying and restarting of stacker, rechaimers in an automatic manner, due to their important influence in mixing and homogenization of kiln feed.
- 4- Qualifying and restarting of the sampling station of the crusher.
- 5- Qualifying of the dedusting of the crusher.

Third: - Raw mill s:-

- 1- Qualifying of both of electrical and mechanical parts of raw mills, including lining, standard grinding media, conveyor belt, vibrators and other electrical parts.
- 2- Qualifying and calibration of all raw mill feeders, including raw mix feeder.
- 3- Qualifying and restarting of raw mill precipitators and cooling towers.

Note: - Al-Tahaddy Co. (member of ministry of industrial of mineral)is working in the present time to quality the precipitators of the raw mills.

- 4- Installation of pendulum flaps of the raw mills.
- 5- Qualifying and maintaining of all of expansion joints of the raw mills.
- 6- Qualifying of dedusting mechanical flitter of the raw mill.
- 7- Qualifying of all of electrical flaps of the raw mills.
- 8- Qualifying of sampling station.

Fourth: - Kilns:-

- 1- Qualifying and maintaining of the preheater unit, including cyclones & feeding ducts, pendulum flaps, mixing room, byrochlone and the inlet chamber.
- 2- Qualifying of expansion joints.
- 3- Qualifying of the shock blaster.
- 4- Qualifying of the immersion tube in the cyclones.

- 5- Qualifying of all of electrical measuring devices in the preheater, including the temperature measuring device, pressure measuring device, gas analyzers.
- 6- Qualifying of the α -ray in the preheater.
- 7- Installation of the front seal & the back seal of the rotary kilns.
- 8- Qualifying of the feeding unit mechanically and electrically.
- 9- Qualifying of the By-pass system.
- 10- Qualifying of the (Briquiting) system of the precipitating and the By-pass systems.
- 11- Maintenance of the kiln hood and cooler.
- 12- Qualifying of all of the cancelled controlling systems.
- 13- Qualifying of all of electrical flaps for kiln.
- 14- Restarting of all electrical measuring devices which were cancelled or stopped.
- 15- Qualifying of multi cyclone unit and the waste air fan.
- 16- Replacement of the back fans and the By-pass.
- 17- Qualifying of sampling station.
- 18- Qualifying of the X-Ray device.
- 19- Qualifying of the fuel heating system.
- 20- Qualifying of the clinker cooler.
- 21- Qualifying of the cyclones & its additional parts.

Fifth: - Cement Mills:-

- 1- Qualifying of cement mills inlets.
- 2- Qualifying of internal lining of mills.
- 3- Qualifying of mills outlets.
- 4- Maintenance of air slides and their related parts.
- 5- Qualifying of lubricating units for mill parts.
- 6- Qualifying of mill cooling system.
- 7- Qualifying of electrical separator.
- 8- Qualifying of cement electro filters.

Note: - Al-Tahaddy Co. (member of ministry of industrial of mineral) is working in the present time to quality mills electro filters.

Sixth: - Water pumps section, which is a privet section for production pf industrial water and drinking water.

This unit is being qualified according to a contract with Ibn Sina general company (Ministry of industrial of mineral).

Note: - Appendix No. (5) Contains requirements for qualifying of train packing station.

Appendix No. (6) Contains developing suggestions.

Appendix No. (7) Contains actual annual production from 1993 till the end of 2005 (Clinker and Cement).

Appendix No. 5

Rehabilitation requirements of train station

FARST: - Mechanical parts:-

1- Belts (Flat Belt conveyor) the numbers (80051, 80052, 80053)

The mechanical demand for this belt with spar parts are:-

1- Gearbox (5) With specifications as shown: -

(7FSM 20:1 ratio single worm reduction unit)

Make elecon.

2- Idlers (750w*114.3 ¢) (60) Roller with the sizes.

3- Motor (5) with specifications as shown: -

(One for each belt)

11kw, 1500 rpm, TEFE, squirrel cage Induction motor insulation class F,
Operation voltage, 380 v

3 phase, 50 Hz

Make = Fenner

2- Traveling Bags Diverter: -the no. of belts (80051, 80052, 80053, 80054, and 80076)

With numbers (80055, 80056, 80057, 80058, 80075)

The mechanical demand for these distributors:-

TROLLEY.

1- Gearbox (5) with specifications as: -

Type = shaft mounted worm reduction unit

Size = 4 SMM

Ratio= 60:1

Make = elecon

2-Motor (5) with specifications as: -

1.5kw, 1500 rpm, TEFE, squirrel cage induction

Motor, frame size =90L

Make= Kinlosker.

3- H.S coupling (5) with specifications as: -

pfh & bush

Size =42 ¢ max – bore

Make= fenner

Type =

DIVERTORS:-

1- Gearbox (5) with specifications as: -

0.75 kW, 160 rpm, guard motor

Type = verticals foot mounting

Make = kirloskar

2- Belt No. (5) With specifications as: -
 Size = 175 mm wide * 2041 endless belt
 Cover thickness = top = 4mm bottom = 2mm
 Make = profile

3- Idler No. (25) Roller With specifications as: -
 size = (60 ¢ * 185 long)

3- Fixed bags diverter: - for the numbers:
(80080,80085,80077,80088,80089,80083,80086,80086)

a- The mechanical demand for these distributors:-
- Power No. (8) With specifications as: -
 0.75 kW, 160 rpm, guard motor
- Gear Motor Type = verticals foot mounting
 Make = kirloskar

- Belt No. (8) With specifications as: -
 Size =175 mm, wide * 2041 endless belt
 Cover thickness: top= 4 mm, bottom = 2mm
 Make prolific

- Idler No. (36) With specifications as: -
 Size = (60 ¢ * 185 long)

4- Belts (flat belt conveyer) for the no. (80059, 80060, and 80062) the loss is:-

1- Belting (8) with specifications as: -

 650mm wide, fabric = nylon – nylon
 Rating =200/2
 Grade = n/7
 Cover thickness .Top = 3mm, bottom = 1-5mm

For the longs as shown:-
80059 = 190.5m+3m.
80060 = 193.35 m + 3m.
80061 = 197.36 m+ 3m.
80062 = 200.22 m+3m.

2- Idler (90) roller with specifications as: -
 (114.3 ¢ * 750 mm w)

3- Motor (4) for each one belt: - :
= 18.5 kw, 1500 rpm, tefc , squirrel cage induction motor insulation
Class enclosure = Ips , operational voltage , 380v, 3-phase , 50HZ
Make = elcon

- 4- Reducer** (4)
 =8fsm, 25=1 rating single worm reduction unit .
 Make = elecon.
- 5- Coupling** (8) with specifications as: -
 = High speed = 200 ϕ brake drum with 55 ϕ max.
 Bore, pin and push type.
 = Low speed = 95 ϕ max. Bore pin and push flung type
 Make=fenner

(5- Belts (flat belt conveyor) for the numbers (80063 ,80064 ,80065 ,80066)
The mechanical parts demands for this belt are:-

- 1- Belting** (2) with specifications as: -
 = 650mm wide, fabric = nylon – nylon
 Rating = 200/2
 Grade = n/7, cover thickness
 Top =3mm, bottom = 1-5 mm
 Make = Dunlop

With the required longs for (belting) as shown:-

- 1- 109.22m +2m.
 2- 114.7m +2m.

- 2-Idlers** (40) rollers with specifications as:
 (ϕ 114.3 * 750w)
- 3- Motor** (4) for each motor with specifications as:
 = 15kw, 1500r.p.m, tefc, squirrel cage induction motor
 Insulation class F, enclosure operational village,
 380v 3-phase, 50HZ.
 Make = kirloskar.
- 4- Gear box** (40) for each gear box belt rollers with specifications as shown: -
 = 8fsm, 25:1 ratio, single worm reduction unit
- 5- Coupling:** (4) for each belt with specifications as shown: -
 High speed =48 ϕ max. Bore pin & bush
 Flange type
 Low speed =95 ϕ max, bore pin & bush flange type
 Make= Fenner

6- (Belts Flat belt conveyor) for numbers (80067, 80069) 2 for each belt
With specifications as shown:

1- Belting

650 mm wide, fabric =nylon – nylon

Rating=200/2

Grand= n 17, cover thickness, top= 3mm, bottom= 1-5mm

Make = Dunlop

With the required longs as shown:-

1) 103.5m+2m

2) 109.5m+2m

2- Motor

(4) for each belt with specifications as shown:

11kw, 1500r.p.m, tefc, squirrel cage induction motor

Insulation class F, enclosure = Ipss,

Operational village= 380v 3-phase 50HZ.

Make = kirloskar

3- Gearbox:

(4) for each belt with specifications as shown:

6fsm, 25:1 ratio, single worm reduction unit

Make=elecon

4- Coupling

(4) with specifications as shown:

High speed =48Ø max. Bore pin & bush

Flange type

Low speed =15Ø max, bore pin & bush flange type

Make= Fenner

7- Belts (Flat belt conveyor) for numbers (80068,80070)

1- Belting 2 with the longs as shown:-

680 mm wide, fabric =nylon – nylon

Rating=200/2

Grand= n 17, cover thickness, top= 3mm, bottom= 1-5mm

Make = Dunlop

Length of conveyor 80068=38.6m+3m

80070=38.6m+3m

2- Motor

(2) for each belt with specifications as shown:-

5.5 kW, 1500 rpm, tefc, squirrel cage Induction motor

Insulation class F, enclosure=Ipss,

Operational village, 380v 3phase, 50 HZ

3-Gear box

(2) for each one belt with specifications as shown:-

6 fsm, 20: ratio, single worm reduction unit

Make=elecon.

4-coupling (2) with the specifications as shown:-
High speed=48¢ max .bore, pin and push flange type
Low speed= 75¢ max, bore pin & bush flange type
Make=Fenner

8- Belts (Flat belt conveyor) for numbers (80081, 80082)

1-Belting (2) with the specifications as shown:-
650 mm wide, fabric=nylon-nylon
Rating=200/2
Grade=n17, cover thickness, Top=3mm, Bottom=1-5mm
Make= Dunlop

2-Idlers (22) rollers with specifications as shown:-
(114.3¢ power, flat*750mm wide)

3-Gear motor (2) with specifications as shown:-
2.2 kW, 82 rpm, gear motor, motor part,
Squirrel cage Induction motor Insulation class F,
Enclosure=Ipss,
Operational voltage, 380v, 3 phases, 50 HZ
Make=Kirloskar

9- Belts (flat belt conveyor) for numbers (80059,80060,80061,80062)

1- 1-Belting the specifications as shown:-
2- 650 mm wide , fabric , nylon rating : 200/2
Grand: N17, cover thickness
Top =3mm
Bottom=1.5mm
Make= Dunlop

2- Pulleys

Head 400Ø × 750w × 75 Ø bearing tail
Take up: 315 Ø × 750w × 60 Ø bear
Snub 270 Ø × 750w × 60 Ø bear

3- Idler

4- carrying }
 Return } 114.3 φ Roller, Flat
 SA carrying }
 SA return }
 Impact 140 Ø rubber disc, flat
 Make= Elecon

4- Motor

11 kw, 1500 r.p.m , TEFC , squirrel cage induction motor,
 Insulation class F ,Operating 380v , 3phase , 50Hz

5-
 4- 5- Reducer

8FSM, 25:1 ratio, single worm reduction unit.

5-
 6-
 7- 6- Coupling

High speed 48 Ø max. Bore pin & Brush flange Type
 Low speed: 75 Ø max bore pin & bush flange type.
 Make= Fenner

The longs as shown:-

| | |
|-------|---------|
| 80059 | 190.5m |
| 80060 | 193.35m |
| 80061 | 197.36m |
| 80062 | 200.22m |

10- Belts (Flat belt conveyor) for numbers (80063, 64, 65, and 66).

The specifications as shown:-

1- 1- Belting

2- 650mm wide , fabric , nylon
 Rating: 200/2
 Grand: N17, cover thickness
 Top: 3mm
 Bottom: 1.5mm
 Make: Dunlop

2- Pulleys

3- Head 400Ø × 750w × 75 Ø bearing tail
 Take up: 315 Ø × 750w × 60 Ø bear
 Bend Sunb: 270Ø *750w*60Ø bear

3- Idler

Carrying }
 Return } 114.3Ø Roller, flat
 SA carrying }
 SA return }
 Impact 140Ø Rubber disc, flat
 Make: ELecon

4- Motor

**15 kw, 150 r.p.m, TEFC, squirrel cage, induction motor,
Insulation class F, 380 v, 3 phases, 50HZ.**

5- Reducer

**8FSM, 25:1 ratio, single worm reduction unit.
Make: Elecon.**

6- Coupling

**7- High speed: 48Ø max. bore pin & Brush flange type
8- Low speed: 95Ø max bore pin & bush flange type.
Make: Fenner.**

The longs as shown:-

| | |
|--------------|-----------------|
| 80063 | 109.12 m |
| 80064 | 110.98 m |
| 80065 | 112.84 m |
| 80066 | 114.7 m |

11- Belts (Flat belt conveyor) for numbers (80067, 80069)

1- Belting

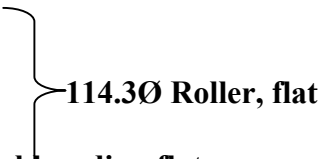
**650mm wide, fabric, nylon –nylon
Rating : N17, cover thickness
Top : 3mm
Bottom: 1.5 mm
Make=Dunlop**

2- pulleys

**Head 315Ø*750w*75Ø bearing Tail
Take up: 270Ø*750w*60 Ø bear
Bend
Sunb: 220Ø*750w*60Ø bear**

3- Idler

**Carrying
Return
SA carrying
SA return
Impact 140Ø Rubber disc, flat
Make: Elecon**



114.3Ø Roller, flat

4-Motor

**11 kw, 1500 r.p.m, Induction motor Operating 380v,3
Phase, 50 HZ
Make: KIRLOSKAR**

5-Reducer

6 FSM, 20:1 ratio, single worm reduction unit

6-Coupling

**High speed: 48Ø max. Bore pin & Bush flange type
Low speed: 75 Ø max bore pin & bush flange type.
Make: Fenner**

12- Belts (Flat belt conveyer) for numbers (80068, 80070)

1- Belting

**650mm wide, fabric, Nylon
Rating: 200/2
Grand: N17, cover thickness
Top: 3mm
Bottom: 1.5mm
Make=Dunlop**

2- Pulleys

**Head 315Ø*750w*75Ø bearing
Tail
Take up: 270Ø*750w*60Ø bear
Bend
Sunb 220Ø*750w*60Ø bear**

3- Idler

**Carrying
Return
SA carrying
SA return
Impact 140Ø Rubber disc, flat
Make : Elecon**

} 114.3Ø Roller, flat

4-Motor

**5.5 kW, 1500r.p.m, TEFC, Squirrel cage, induction motor
Insulation class F
Enclosure: IP55, operating voltage operating 380v, 3phase, 50 Hz
Make=KIRLOSKAR**

5-Reduer

**6 FSM, 20:1 ratio, single worm reduction unit
Make: Elecon**

6-coupling

**High speed: 48Ø max. Bore pin & Brush flange type
Low speed: 75Ømax bore pin & bush flange type.
Make =Fenner**

13- Belts (Flat belt conveyor) for numbers (80081, 80082)

1- Belting

**650 mm wide, fabric, Nylon-Nylon
Rating: 200/2
Grand: N17, cover thickness
TOP: 3mm
Bottom: 1.5mm
Make=Dunlop**

2- Pulleys

**Head315 Ø*750w875Ø bearing
Tail
Take up: 270Ø*750w*75Ø bear
Bend
Sunb: 220Ø*750w*60Øbear**

-3 Idler

**Carrying
Return
SA carrying
SA return
Impact 140Ø Rubber disc, flat
Make= Elcon**

114.3Ø Roller, flat

4-Motor

**2.2 kW, 82r.p.m, Geard motor, motor part, Squirrel cage, induction
Motor Insulation class F
Enclosure: operating voltage operating 380v, 3phase, 50 Hz
Make=KIRLOSKAR**

5-Reducer

**6 FSM, 20:1 ratio, single worm reduction unit
Make: Elecon**

6-Coupling

High speed: 48Ø max. Bore pin & Brush flange type

Low speed: 75Ø max bor pin & bush flange type.

Make: Fenner

The longs as shown:-

| | |
|--------------|---------------|
| 80068 | 38.60m |
| 80069 | 103.5m |
| 80070 | 38.6m |
| 80067 | 103.5m |
| 80081 | 2.25m |
| 80082 | 2.25m |

Second: - the electrical part:-

- 1- Providing the (PLC) with the programs to packing train station system.**
- 2- Providing the (4) weigh instrumentation with printer to vehicles.**
- 3- Rehabilitation of (MCC) to high and low tension.**
- 4- Rehabilitation of belt production system it content:-**

- 1- Motion control.**
- 2- Deviation.**
- 3- Pull cord.**
- 4- Measuring devise to silo level.**

Appendix No. 6

The Plant's Equipments Modernization's Form Al-Munthanna Cement Plant

| Order | The Part Required to be Modernized | Technical Reasons for Modernization | Advantage Wished Technically and Proportion of its Effect Productively |
|-------|--|---|--|
| 1 | <p>Clinker cooler of two lines, the first and the second. Using the following new types that are designed by the international companies of high experience in producing of cement and as follows.</p> <p>1- The modern type used at the present time form KHD company type gyro step 2- The modern type used at the Present time from F.L.Smith company type Ef cross -bar cooler.</p> | <p>1-The clinker cooler is as old as it was set in work since 1984. 2- Because of this small part the productive lines stopped in a high proportion of the total stages. 3- Convoying the best modern types of highly technical and the economic use that are appeared producing in the world of cement production.</p> | <p>1- Increasing the work of the productive lines through decreasing the stoppages witch reached approximately %10 of the total stoppages. Used ones. 2- Decreasing the production costs where castings used are of highly efficiency and working age in comparison with the used now.</p> |
| 2 | <p>Hydro thrust roller bracket. HDR50 compl with hydraulic control unit</p> | <p>1- Substituting the system that has the great importance in the hydro thrust roller bracket as it had been substituted since 1984. 2- Consummating parts of the system completely especially the rollers pistons. And the hydraulic control unit.</p> | <p style="text-align: center;">It helps to operate the furnace in a streamlined way without subjecting the furnace body to the damages caused by the emergency hot convection</p> |

The Plant's Equipments Modernization's Form Al-Munthanna Cement Plant

| Order | The Part Required to be Modernized | Technical Reasons for Modernization | Advantage Wished Technically and Proportion of its Effect Productively |
|-------|---|---|--|
| 3 | <p>The main movement gar boxes of the primary material's grinders, type S2N10</p> | <p>These gar boxes are so old whereof very high vibrations which affect directly on consumption many of the equipments attached to raw materials' grinder</p> | <p>It helps to operate the raw material and cement automatically, and there is lack in the gar boxes of the cement grinders No. 12</p> |
| 4 | <p>Modernizing all the diaphragm of the raw materials and cement grinders by using the modern style followed by the magotteaux company and the plant (opicontrol) diaphragm where the constituents are</p> <ol style="list-style-type: none"> 1- frame st 52 2- Grate plate cost fmu-29 3-Grate side plate cost FMN-11 4-Filling ring cast FMU-29 | <p>The diaphragm and the frames are so old as they were set in work since 1984 till now</p> | <ol style="list-style-type: none"> 1- Increasing productivity producer 2- Increasing the working age 3- Improving the quality of the raw material and milled materials or cement produced |

The Plant's Equipments Modernization's Form Al-Munthanna Cement Plant

| Order | The Part Required to be Modernized | Technical Reasons for Modernization | Advantage Wished Technically and Proportion of its Effect Productively |
|-------|--|--|--|
| 5 | <p>Modernizing the lining of the raw material and cement grinder by using the modern style followed now by MAGOTTEAUX Company by using SHELL Liners according to the following types</p> <p>1- Mono step type material quality: Cast FMU 11</p> <p>2- Class online type: material quality :Cast FMU 11</p> | <p>1- The old age of the linings of the raw materials and cement grinders</p> <p>2-The old lining : All the international companies have been stooped to produce such castings , and modern styles have been found as it is explained through the types referred to and mode by the Mogotteaux company</p> | <p>1- The working age of these types is very high</p> <p>2- Preservation cost is so little as the consumption average of milling the raw materials and cement is so law</p> <p>3- Higher mill productivity</p> <p>4- Decreasing stops.</p> <p>5- It helps to increase the softness and improve the quality of raw mix</p> <p>6- decreasing the consumption average of the grinding media</p> |
| 6 | <p>NO. 1 materials' feeders which contain:</p> <p>1- the mix feeder including the iron feeder</p> <p>2- Iron cement feeder</p> <p>3-modification stone feeder</p> <p>4- ordinary cement feeder</p> <p>5- returning mix feeder</p> | <p>The feeders mentioned were not economic where because of their oldness and unavailability of the spare part for them , they have become of little efficiency where of leads to fall a great amount of the materials out of the feeder , in addition, they need to continuous preservation and subsiding spoiled parts</p> | <p>Modernizing the feeders leads to cleaning the department, and abbreviating time in preservation, in addition to the measurements' accuracy which leads to control the productivity process.</p> |

The Plant's Equipments Modernization's Form Al-Munthanna Cement Plant

| Order | The Part Required to be Modernized | Technical Reasons for Modernization | Advantage Wished Technically and Proportion of its Effect Productively |
|-------|---|---|--|
| 7 | <p>NO.2 materials' grinders' feeders which contain :</p> <ol style="list-style-type: none"> 1- THE feeder including the iron mix 2-Iron cement feeder 3- Modification stone feeder 4- Ordinary cement feeder 5- Returning mix feeder | <p>The feeders mentioned were not economic where because of their oldness and unavailability of the spare part , they have become of little efficiency where of leads to fall a great amount of the materials out of the feeder , in addition, they need to continuous preservation and substituting spoiled parts.</p> | <p>Modernizing the feeders leads to cleaning the department, and abbreviating time in preservation, in addition to the measurements' accuracy which leads to control the productivity process.</p> |
| 8 | <p>NO. (1.2.3) Cement grinders' feeders which include:</p> <ol style="list-style-type: none"> 1- Clinker feeder 2- Gypsum feeder 3- The return feeder | <p>NO.(1.2.3)Cement grinders' feeders which include:</p> <ol style="list-style-type: none"> 1- Clinker feeder 2- Gypsum feeder 3- The return feeder | <p>High efficiency of new feeders , no preservation , and accuracy in measuring the weight and the</p> |

The Plant's Equipments Modernization's Form Al-Munthanna Cement Plant

| Order | The Part Required to be Modernized | Technical Reasons for Modernization | Advantage Wished Technically and Proportion of its Effect Productively |
|-------|--|---|--|
| 9 | Substituting the central control room (CCR) and changing them from physical keys and indexes to keys and indexes in the computer and the operation control would be achieved by computer | Because of the consumption of the keys and the breakdown of the measurement instruments due to environmental conditions and unavailability of spare for them | there is no measurement accuracy preservation consequently the productivity process go on well, in addition to writing productive report when required |
| 10 | substituting the furnace feeding measurement system (1,2) | oldness of these instrument and their incompetence at the present time | oldness of these instrument and their incompetence at the present time |
| 11 | bucket elevator of raw meal feeding to preheater changing from caterpillar chain to belt bucket elevator 800×34275 c-c | the elevator mentioned has been changed from (belt bucket elevator) to chain of the type caterpillar (D5) during the last years because of unavailability of the plastic conveyor belt because of the import conditions knowing that the plastic conveyer can ensure an accurate and exact feeding rated as 300 Ton/h | the modifications and modernizations mentioned helps to increase productivity and decreasing the stops accrued |

The Plant's Equipments Modernization's Form Al-Munthanna Cement Plant

| Order | The Part Required to be Modernized | Technical Reasons for Modernization | Advantage Wished Technically and Proportion of its Effect Productively |
|-------|---|---|---|
| 12 | <p style="text-align: center;">change the local of bucket elevator to level ground (0-0) to prevent over flow of raw mil inside the old level under around</p> | <p style="text-align: center;">the beginning of the elevator's being existing in a depth and a low level of 1.5 meter causes overflow of the raw materials and covering the tension bucket where of leads to spoiling the barn and the housings which leads consequently to munch of preservations and stops</p> | <p style="text-align: center;">increase productivity and decreasing the stops accrued</p> |
| 13 | <p style="text-align: center;">Change the housing of the fans from the old type by using new housings jacketed cooling by water. the including fan as following :-</p> <ul style="list-style-type: none"> 1- Preheater fans (4 Paces). 2- Pay bass fans (2 Paces). 3- West air fans of clinker cooler. | <p style="text-align: center;">the fans that their different barn were mentioned are subject to the increase of their temperature continuously the thing that leads to their wear during a very short working age, now a cooling technique is being used through pouring the water spray over the housings is a primitive way to avoid such problems</p> | <p style="text-align: center;">decreasing stops for the preservation purposes help to increase productivity and rising the working age of the barn of these fans</p> |

The Plant's Equipments Modernization's Form Al-Munthanna Cement Plant

| Order | The Part Required to be Modernized | Technical Reasons for Modernization | Advantage Wished Technically and Proportion of its Effect Productively |
|-------|--|---|---|
| 14 | Change the reclaimer compl. For two raw material storage with a update system | <p>The previous reclaimer has grown old because of the plenty of the technical problems whether those concerning the dredges, chain or the circulatory movement system. The main failure of the declaimer is the weakness of the new steel structure of the two structures the chain structure and the carriage structure with the raw materials dredges. the system has been stopped since two years</p> | <p>Their operation helps to homogenize the raw materials and to fix their quality whereof helps to improve the production quantitatively and qualitatively. Stability of the raw materials helps to increase the furnaces' occupation automatically and to rise the refractory linings age.</p> |
| 15 | <p>Addition a new system to drawing the dust air from tow raw material storage and filtration the dust by dedusting system bag filters</p> | <p>lack of the withdrawing system to draw the dust from the storages leads to irregularity of the work of these storages' instruments and the difficulty of their monitoring and executing the required time examination where of leads to accumulate breakdowns</p> | <p>streaming the work of the raw materials storages which leads to make the raw materials homogeneous where of helps to operate the furnaces automatically and rising the age of the refractory lining</p> |

The Plant's Equipments Modernization's Form Al-Munthanna Cement Plant

| Order | The Part Required to be Modernized | Technical Reasons for Modernization | Advantage Wished Technically and Proportion of its Effect Productively |
|-------|--|---|--|
| 16 | <p>Modernizing the drawing air dust from central column room and clinker storage to prevent the collection clinker dust on the equipments of the steel packet conveyors.</p> | <p>this system has been stopped since a long time whereof helps to accumulate the dust inside the central column room. And this obstructs the works of the instruments of the clinker conveying withdrawer from the clinker storage, in addition to the stoppage of the shoot gates work.</p> | <p>this ensure the continuation and the streaming of the withdrawers and conveying the clinker in addition to operating the shoot gates continuously whereof ensure the ability of controlling the clinker quality and reaching a very good one.</p> |

Appendix No. 7

➤ **The actual annual production from 1993 till the end of 2005:-**

| Year | Clinker | Produced cement |
|-------------|----------------|------------------------|
| 1993 | 370306 | 372895 |
| 1994 | 191569 | 192854 |
| 1995 | 249990 | 172520 |
| 1996 | 260781 | 173932 |
| 1997 | 340250 | 291812 |
| 1998 | 281586 | 251237 |
| 1999 | 410278 | 269306 |
| 2000 | 378011 | 431175 |
| 2001 | 617153 | 622565 |
| 2002 | 869417 | 861486 |
| 2003 | 203014 | 178472 |
| 2004 | 171978 | 221254 |
| 2005 | 190000 | 199000 |

Note: - The production of 2002 year was taken as a base in the calculation of the production average.

Appendix No (8)

Investment Law No.(13) of 2006.

Unofficial translation

In the name of people

Presidency Counsel

Pursuant to what was approved by the Council of Representatives in accordance with provisions of Para (first) of Article (61) of the constitution and elapse of the legal period given in Para 5/A of Article 138 of the constitution ,the following law is promulgated

**No. (13) of 2006
The Investment Law**

Chapter One

Definitions

Article (1)

The following terms, wherever mentioned in this Law, shall have the following specific meanings unless the context indicates otherwise:

A: The Council :the Council of Ministers

B: National Commission for Investment: the commission established in accordance with this law responsible for drawing up the national policy and laying out its guidelines and monitoring the implementation of these guidelines and instructions in investment. It shall specialize in investment projects of a federal nature exclusively.

C: Region's Commission: The investment commission of the region responsible for investment planning and granting investment licenses in the region.

D: Governorate Commission : The investment commission of the governorate not organized in a region responsible for investment planning and granting investment licenses in the governorate.

E: The commission: The National commission for Investment or the Region's commission or the Governorate Commission as the case.

F: Chairman of the Commission: the Chairman of the National Commission for Investment.

G: The Project: the economic activity subject to the provision of this law.

H: The Assets: the tools, apparatuses, equipments, machineries, transportation means and office furnishings and appliances to be used for the project exclusively and the furniture and appliances of the hotels, tourist cities, hospitals, schools and colleges.

I: The foreign Investor: is the investor who does not hold the Iraqi nationality in the case of real person, and is registered in a foreign country in the case of a juridical or legal person.

J: The Iraqi investor: is the investor who holds Iraqi Nationality in case of real person, and registered in Iraq in case of a juridical or legal person.

K: Taxes and duties: all kinds of taxes and duties imposed according to applicable laws.

L: The designed production capacity: is the production capacity designed within a specific unit of the time (hour, day.....etc) in accordance to what is fixed in the documents incoming with the machine of the supplier and the feasibility study of the project.

M: Investment Portfolio: A collection of investments in shares and bonds.

N: Investment: is the investment of capital in any economic activity or project that results in a legitimate benefit for the country.

Goals and Means

Article(2)

This law aims at the following:-

First: To promote investment and transfer modern technologies in order to contribute to the process of the developing and enhancing Iraq, and expanding and diversifying its production and service base.

Second: To encourage the Iraqi and foreign private sector to invest in Iraq by providing the required facilities for establishing investment projects and enhancing its competitive capacities in the local and foreign markets for projects covered by this law.

Third: To develop human resources based on market demands and provide work opportunities for the Iraqis.

Fourth: To protect the rights and properties of investors.

Fifth: To expand exports and improve the balance of payments and balance of trade of Iraq.

Article 3

The following means shall be adopted to realize the objectives of this law:

First: To grant projects covered by provision of this law the necessary privileges and guarantees for its continuation and development by providing support in a way that enhances the competitive capacities of these projects in the local and foreign markets.

Second: To grant projects that obtained an investment license from the Commission, additional facilities and exemptions from taxes and duties in accordance with the stipulations of this law.

Chapter Two

The National Commission for Investment and the Investment Commission in the Regions and Governorates

Article 4

First: A Commission shall be established and called the “The National Commission for Investment”.it shall enjoy a juridical personality and shall be represented by the Chairman of the Commission or the person authorized by him. It shall be responsible for drawing up the national policies for investment and drawing up it's Plans, regulations as well as monitoring the implementation of these guidelines and instructions in investment. It shall specialize in strategic investment projects of a federal nature exclusively.

Second: The National Commission for Investment shall be managed by Board of Director comprised of nine member who must be competent, specialized, and hold a college degree that suits the specialty of the Commission. They must not have been sentenced for a felony or misdemeanor of moral turpitude or have declared their bankruptcy.

Third:

- A. Upon a request by the prime Minister, the Council of Ministers shall nominate a Chairman of the Commission at a grade of Minister and a Deputy Chairman at a grade of Deputy – Ministry for a period of five years and present them to the Council of Representative for approval.
- B. The prime Minister shall appoint four member for a period of five years at a Grade of Director General.
- C. The Prime Minister shall select three members from the private sector for five years after their nomination by Chairman of the Commission and specifying their compensations according to the bylaws.
- D. At the conclusion of the membership of any member of the Commission referred to in Paragraph (A and B) of this Article in cases not involving dismissal and resignation, the Prime Minister shall assign them to any governmental entity at the same grade. Those mentioned in (A) of this article shall be retired on pension when not assigned to a government position equivalent to their grade.
- E. The Council of Representatives may directly dismiss the Chairman of the National Commission for Investment and his Deputy, or upon a request by the Prime Minister for compelling reasons.
- F. The Council of Ministers may dismiss or replace any member of the Commission or replace him with others in case he does not adhere to the standards and regulations of the Commission.
- G. The Board of Directors of the National Commission for Investment shall meet at the invitation of its Chairman. The quorum of convening and adopting resolutions and

recommendation shall be determined by absolute majority. The conduct of work shall be organized by by- laws issued by the commission.

H. The National commission for Investment shall be connected to the prime Minister.

I. The salary scale and entitlements of the Commissions employees shall be determined by a decision of the Prime Minister based on a proposal from the Chairman of the National Commission for Investment.

Fourth:

The Commissions headquarters shall be in Baghdad and it may appoint representatives in the regions and governorates.

Fifth:

The National Commission for investment shall draw up an overall national strategic policy for investment identifying the more important sectors and shall prepare a map of investment projects in Iraq in the light of the information it receives from the regions and governorates. It shall also prepare lists of investment opportunities in strategic and federal investment projects with initial information about these projects and making it available to those wishing to invest.

Article 5

First: The regions and governorates not organized in a region may form investment commissions in their areas. The latter shall enjoy the powers of granting the investment licenses, investment planning ,promoting investment and opening branches in their areas within the provisions of this law in consultation with National Commission for Investment to guarantee the availability of the legal conditions.

Second: The Investment Commission of the regions and governorate shall be composed of at least seven members including the chairman and the vice chairman of at least seven years of experience and competence and with a university degree appropriate to the specialization of the commission and not convicted in a felony or a misdemeanor involving turpitude or has declared his bankruptcy.

Third: The regions and governorates not organized in a region shall establish a mechanism of forming the investment commission of the region and the governorate and dismissing the Commission member in case of not adherence to the Commission regulations and standards.

Fourth: The Investment Commissions of the regions and governorate shall coordinate their work with the National Commission for Investment, and shall coordinate and consult with local governments regarding investment plans and facilities.

Fifth: The regions and governorates Commissions shall draw up their investment plan in a way that dose not contradict with the federal investment policy and shall prepare list of the investment opportunities in the areas that are subject thereto, with initial data about these projects and offer it to those wishing to invest.

Sixth: The regions Commissions shall be connected to the prime Minister of the region and is subject to the scrutiny of the regions Council. The governorate commission shall be connected to the Governor and is subject to the scrutiny of the governorate council in a way that does not contradict with the provisions of this law.

Seventh: Regions and Governorates Commissions board of directors shall convene upon an invitation from their chairman . The quorum of convening and adopting resolutions and

recommendations shall be determined by absolute majority. The conduct of work shall be organized by by – laws issued by the Commission.

Article 6 :

In addition to ordinary correspondence, the Commission may adopt electronic mail with the official entities connected with the work and activity of the Commission through local networks or the Internet according to guidelines set by the Commission.

Article 7 :

- A- The Commission shall accept investment license requests for projects whose capital is not less than the minimum amount determined by the Council of Ministers or the Council of Ministers of region as the case, by a regulation issued based on a proposal by the Commission.
- B- The Commission must obtain the approval of the Council of Ministers before granting the license if the value of the investment project is more than two hundred and fifty million dollars.
- C- The Commission shall make its final decision concerning the requests of investment license within a period not exceeding (45) forty five days from the date of filing a request.
- D- The decisions of the Commission regarding the approved investments projects shall be obligatory for the purposes of this law.

Article 8 :

The Commission shall have an independent annual budget whose revenues shall be made up of its allocated amount in the State General Budget.

Article 9 :

The Commission shall promote investment through the following:-

First: Building confidence in the investment environment, identifying investment opportunities, and promoting and stimulating investment in them.

Second: Simplifying the procedures for registration, issuing of investment projects licenses, and following up existing projects and giving them priority in processing with the official entities. Completing the procedures of answering investor requests and obtaining the required approvals for the investor and the project.

Third: Establishing one window at the National Commission for investment and the Regions and Governorates Commissions, which includes authorized representatives from the ministries, and members nominated by the Councils of the regions and governorates as the case and the concerned authorities to undertake issuing licenses and obtain the approvals of other authorities in accordance with the law.

Fourth: Providing advice, information, and data to investors and issuing special manuals in this regard.

Fifth: Setting forth and implementing programs to promote investment in different areas of Iraq in order to attract investors.

Sixth: Facilitating the allocation of the needed lands and renting them out for establishing projects for a sum to be determined by the Commission in coordination with the concerned authorities.

Seventh: Establishing secure and free investment areas with the agreement of the Council of Ministers.

Eighth: Encouraging Iraqi investors through providing them with easy loans and financial facilities in coordination with the Ministry of Finance and with the assistance of Banking Institutions, provided that the investor obtaining the loan shall employ a number of unemployed Iraqis proportional with the volume of the loan.

Ninth: Any other tasks related to its work and assigned by the Council of Ministers.

Chapter Three

Privileges and guarantees

Article 10:

The Investor irrespective of his /her nationality shall enjoy all privileges, facilitations and guarantees and shall be subject to the obligations stated in this law. The Iraqi and foreign investor shall have the right for the purposes of housing projects, the use of the land for a sum to be determined between him and the land owner without land speculation according to conditions set forth by the National Commission of investment and the approval of the Council of Ministers. The Commission shall facilitate the allocation of the required lands for the housing projects. The housing units shall be allocated for ownership by the Iraqis after the completion of the project.

Article 11:

The investor shall enjoy the following benefits:-

First: the investor shall have the right to take out the capital he brought into Iraq and its proceeds in accordance with the provision of this law and pursuant to the instructions of the Central Bank of Iraq in an exchangeable currency after paying all his taxes and debts to the Iraqi Government and all other authorities.

Second: The foreign investor shall have the right to :

- A. Exchange shares and bonds listed in the Iraqi Stock Exchange
- B. Form investment portfolios in shares and bonds

Third: Renting or leasing land needed for the project for the term of the investment project, provided that it does not exceed 50 years renewable with the agreement of the Commission, and provided that the nature of the project and its benefit for the national economy is taken into consideration when determining the period.

Fourth: Insuring the investment project with any foreign or national insurance company it deems suitable.

Fifth: Opening accounts in Iraqi or foreign currency or both at a bank inside or outside Iraq for the licensed project.

Article 12:

This law shall guarantee the following for the investor:-

First: The right to employ and use non- Iraqi workers in case it is not possible to employ an Iraqi with the required qualifications and capable of performing the same task in accordance with guidelines issued by the Commission.

Second: Granting the foreign investor and non –Iraqis working in the investment projects the right for residence in Iraq and facilitate inter and departure from Iraq.

Third: Non- seizure or nationalization of the investment project covered by the provisions of this law in whole or in part, except for projects on which a final judicial judgment was issued.

Fourth: Non Iraq technicians and administration employees working in any project shall have the right to transfer their salaries and compensations outside Iraq in accordance with the law after paying their dues and debts to the Iraqi government and all other entities.

Article 13:

Any amendment to this Law shall not have any retroactive effect regarding the guarantees, exemptions, and rights recognized by this Law.

Chapter four

Investor Obligations

Article 14:

The Investor shall observe the following:-

First: To notify the National Commission for Investment , the Region or Governorate Commission in writing immediately after the installation and equipping of the fixed assets for the purposes of the project and the date of the beginning of commercial activity.

Second: To keep proper records audited by a certified accountant in Iraq in accordance with the law.

Third: To provide an economic and technical feasibility study for the project and any information, data or documents required by the Commission or other competent authorities regarding the budget of the project and the progress made in its execution.

Fourth: To keep records of the projects duty- free imported materials in accordance with the provisions of this Law and specifying the depreciation periods of these materials.

Fifth: To protect the safety of the environment and to adhere to the valid quality control norms in Iraq and International regulations in this field also adhere to laws connected to security and health and to public order and Iraqi social ethics.

Sixth: To adhere to the valid Iraqi laws regarding salaries, vacations, work hours, work conditions and others as a minimum.

Seventh: Commitment to the correspondence of the work progress schedule submitted by the investor with reality provided that the time difference shall not exceed six months, the National Commission for Investment shall set forth punitive conditions in case of exceeding the six –month period and the Commission shall have the right to withdraw the license.

Eighth: To train and rehabilitate its Iraqi employees as well as raising their efficiency, skill and capabilities. Priority in employment and recruitment shall be given to the Iraqis.

Chapter Five

Exemptions

Article 15:

First: The project that has obtained an investment license from the Commission shall enjoy exemption from taxes and duties for a period of (10) ten years as of the date of commencing commercial operations in accordance with the areas of development defined by the Council of Ministers at the suggestion of the National Commission for Investment based on the degree of economic development and the nature of the investment project.

Second: To Council of Ministers shall have the right to propose draft laws to extend or grant exemptions in addition to the exemptions stipulated in paragraph (First) of this Article, or provide incentives, guarantees or other benefits to any project or sector or region and for the periods and percentages it deems appropriate in accordance with the nature of the activity, its geographical location and its contribution to manpower employment and its effect on driving the economic development, for considerations of national interest.

Third: The National Commission for Investment has the right to increase the years of tax and duties exemption in a way directly proportional to the increase in the Iraqi Investor share in the project to reach fifteen years if the Iraqi Investor share in the project was more than 50% .

Article 16:

In case the project is moved from one development area to another during the exemption period, the project – for the purpose of exemption stipulated in(First) of Article 15- shall be treated during the remaining term the treatment of the project in the development areas it is moving to, provided that the Commission is informed of such move.

Article 17:

The project that obtains an investment license shall also enjoy the following:-

First: Assets imported for the purposes of the investment project shall be exempted from duties provided that their entry to Iraq is made within(3) three years from the date of granting the investment license.

Second: The imported assets required for the expansion, development or modernization of the project shall be exempted from duties in case they led to an increase in the designed capacity, provided they are brought in within three years from the date of notifying the Commission of the expansion or development. Expansion, for the purposes of this law, shall mean adding fixed capital assets aimed at increasing the designed capacity of the project in commodities or services or materials by a percentage exceeding (15%)fifteen percent. Development, for the purposes of this law, shall mean replacing project machines with more developed ones, totally or partially or making a development on the standing devices and equipments of the project by adding new machines and devices or parts thereof with the aim of raising the productive efficiency or improving and developing the quality of the products and services.

Third: Spare parts imported for the purposes of the project shall be exempted from duties if the value of these parts does not exceeded(20%) twenty percent of the fixed assets value, provided that they are not be used for any other purpose.

Fourth: Hotels, tourist institutions, hospitals, health institutions, rehabilitation centers and educational and scientific organizations project shall be granted additional exemptions from duties and taxes on their imports of furniture, furnishings and requisites for renewing and updating purposes at least once every four years, provided that these items are brought into Iraq or used in the project within (3) three years from the date of the approval decision of the Commission on the import lists and their quantities, and provided that these items are not used for purposes other than the imported purposes.

Article 18:

In case it is found that the project assets totally or partially exempted from customs and duties, are sold, in contrary to the provisions at this law or used not for the project, or used not for the declared purpose then the investor must pay the taxes and fines incurred pursuant to the law.

Chapter Six

Procedures for Granting investment and project Establishment License

Article 19:

First: The investor shall obtain the license in addition to obtaining the rest of the licenses for the purpose of enjoying the privileges and exemptions provided by the Commission.

Second: To Commission shall grant the license for investment or project establishment based on a request submitted by the investor according to conditions facilitated and prepared by the Commission. The request submitted by the investor shall include the following:-

- A- Filling a request form prepared by the Commission.
- B- Financial competency from an accredited bank.
- C- Projects performed by the investor inside or outside Iraq.
- D- Details of the project intended to invest in and its economic feasibility.
- E- A timetable for completing the project.

Article 20:

First: The Commission must issue the establishing license through establishing one window in the region or the governorate not organized in a region that includes authorized representatives of the ministries and relevant bodies. The Commission shall grant project establishment license and obtain approvals from the entities in accordance with the law.

Second: To Commission must help the investor to obtain licenses by approaching the competent authorities and exploring the opinions of the entities concerning the issuance of the establishment license. These entities must issue the decision to reject, approve or request amendment within 15 days from the date of being notified. The failure to reply from the entity from which the opinion is solicited shall be deemed as an approval and in case of a rejection there must be cause for it.

Third: In case of disagreement between the National Commission for Investment decision and the other entity related to granting establishment license other than the region commission the dispute shall be raised to prime Minister for settlement.

Fourth: In case the request for registration is rejected, the applicant may file a complaint to the Chairman of the region or the governorate Commission concerned within (15) fifteen days after receiving notification of the rejection decision. The Chairman of the Commission concerned shall take a decision concerning the complaint in question within a period of seven days. The petitioner may appeal the decision of the Chairman of the Commission concerned rejecting his complaint to the authority to which the Commission concerned is connected to within 15 days from the date the complaints rejection and its decision is deemed final.

Chapter Seven

General Provisions

Article 21:

The project capital subject to the provisions of this law shall be made up of the following:-

First: Cash transferred to Iraq through banks and financial companies or any other legal means with the aim of investing it for the purposes of this law.

Second: The in – kind assets and incorporeal rights imported to Iraq or purchased from the local markets by the cash transferred into Iraq:-

A- In- kind assets related to the project.

B- The machinery, tools, equipment, building , construction, transportation means, furniture and offices appliances required for establishing the project.

C- The incorporeal rights that include patents, registered trade marks, technical know- how, engineering services, administrative and marketing services and the similar.

Third: Profits, proceeds and reserves resulting from the capital invested in Iraq in the project if the capital of such a project was increased or was invested in another project covered by the provisions of this law.

Article 22:

The foreign investor shall enjoy additional privileges in accordance with international agreements signed between Iraq and his country or multilateral international agreements which Iraq has joined.

Article 23:

In case the property of the project during the exemption term is transferred to another investor the project shall continue to enjoy granted exemption facilities and guarantees until the end of that period provided that the new investor continue to work on the project in the same specialization or in another, with the approval of the Commission. The new investor must take the place of the former investor in the rights and obligations consequent to the provisions of this law.

Article 24:

First: The investor, with the approval of the Commission, may sell exempted fixed assets or relinquish it to another investor benefiting from the provisions of this law, provided that he uses them in his project.

Second: The investor, after informing the Commission, may sell the exempted fixed assets to any person or other project not subject to the provisions of this law after paying the outstanding duties and taxes.

Third: The investor, with the approval of the Committee, may re-export the exempted fixed assets.

Article 25:

In the event two or more companies or enterprises merge, the new company or entity resulting from the merger must set up separate accounts for each project before the merger in order to register and apply exemptions and facilitations stipulated in this law during the remaining period of the exemption.

Article 26:

Any project approved in accordance with the provisions of the previous applicable laws shall continue to benefit from all exemptions granted to it pursuant to that law and until the expiration of the exemption period and under the same terms.

Article 27:

Disputes arising between parties who are subject to the provisions of this law shall be subject to the Iraqi law unless otherwise agreed, save to the cases that are subject to the provisions of the Iraq law exclusively or the jurisdiction of Iraqi courts.

- 1- Disputes arising from the labor contract shall exclusively be subject to the provisions of the Iraqi law and the jurisdiction of the Iraq courts. Non –Iraqi labor shall be exempted if the work contract stipulated otherwise.
- 2- If parties to a dispute are non – Iraqis and in disputes not arising from a crime, the opponents may agree on the law to be applied, the competent court or any other agreement to resolve their dispute.
- 3- In case of dispute between partners or between the owner of a project subjected to the provisions of this law, and others that result stoppage of work for a period of more than three months, the Commission may withdraw the license and ask the owners of the project to settle the dispute within a period not exceeding three months. If such period elapsed without settling the dispute between the partners or between the owner of the project and others, the Commission may take legal measures to liquidate the project and notify the owner of the project or one of the partners of such action. The liquidation money shall be deposited in one of the banks after paying the dues of the State or any other dues after final judgment of their entitlement is rendered.
- 4- If the parties to a dispute are subject to the provisions of this law, they may, at the time of signing the agreement, agree on a mechanism to resolve disputes including arbitration pursuant to the Iraqi law or any other internationally recognized entity.
- 5- Disputes arising between the Commission or any governmental entity and any of those subject to the provisions of this law on matters not related to violations of one of the

provisions of this law shall be subject to Iraqi law and courts on civil matters. As for commercial disputes, parties may resort to arbitration provided that such an arrangement is stipulated in the contract organizing the relationship between parties.

Article 28:

In case the investor violates any of the provisions of this law, the Commission shall have the right to warn the investor in writing to remove the violation within a specific period.

In case the investor does not remove the violation within the specified period, the Commission shall summon the investor or who represent him to state his position and grant him other respite to settle the issue. Upon repeating or not removing the violation, the Commission shall have the right to withdraw the investor's license it issued and order stoppage of work on the project and retain the state's right to deny the investor the granted exemptions and privileges from the date of the violation and allow others to retain their rights to demand compensation for the damage caused by this violation, without breaching any punishments or other compensations stipulated in the applicable laws.

Article 29:

All fields of investments shall be subject to the provisions of this law except:-

First: Investment in Oil and Gas extraction and production.

Second: Investment in banks and insurance companies sectors.

Article 30:

The council of Ministers may.

First: Issue regulations to facilitate the implementation of the provisions of this law.

Second: Issue bylaws defining the Commission's formations, divisions tasks, process of its work, its authorities, financial affairs, employee affairs and any other matters.

Article 31:

The Committee may issue instructions to facilitate the implementation of regulations issued by the Council of Ministers pursuant to the provisions of this law.

Article 32:

The Provisions of this law shall be applied to the existing and operating projects of the mixed and private sectors which have commenced before the issuance of this law and upon a request from its management and the approval of the Commission with no retroactive effect.

Article 33:

No text shall be valid which contradicts the provisions of this law.

Article 34:

The (dissolved) CPA Order No. 39 of 2003 shall be revoked.

Article 35:

The Arab Investment law No(62) of 2002 issued by the dissolved Revolution Command Council shall be annulled.

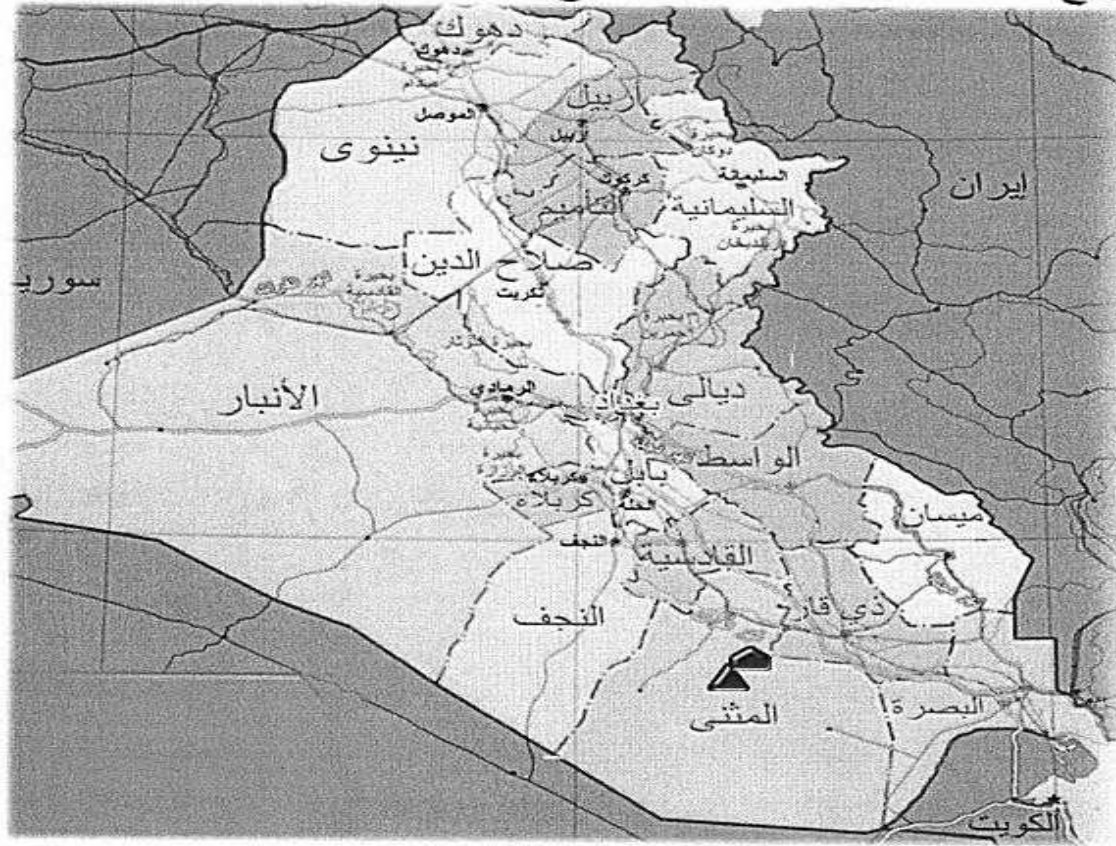
Article 36:

This law shall enter into force from the date of its publication in the Official Gazette.

Justifying Reasons

For the purpose of driving the process of economic and social development and bringing technical and scientific experience and developing human resources, and for creating work opportunities for the Iraqis by encouraging investments and supporting the process of establishing investment projects in Iraq and their expansion and development at various economic levels and by granting privileges and exemptions for these projects, this law is legislated.

خارجة جمهورية العراق
موقع معمل سمنت المثنى - المقلع.

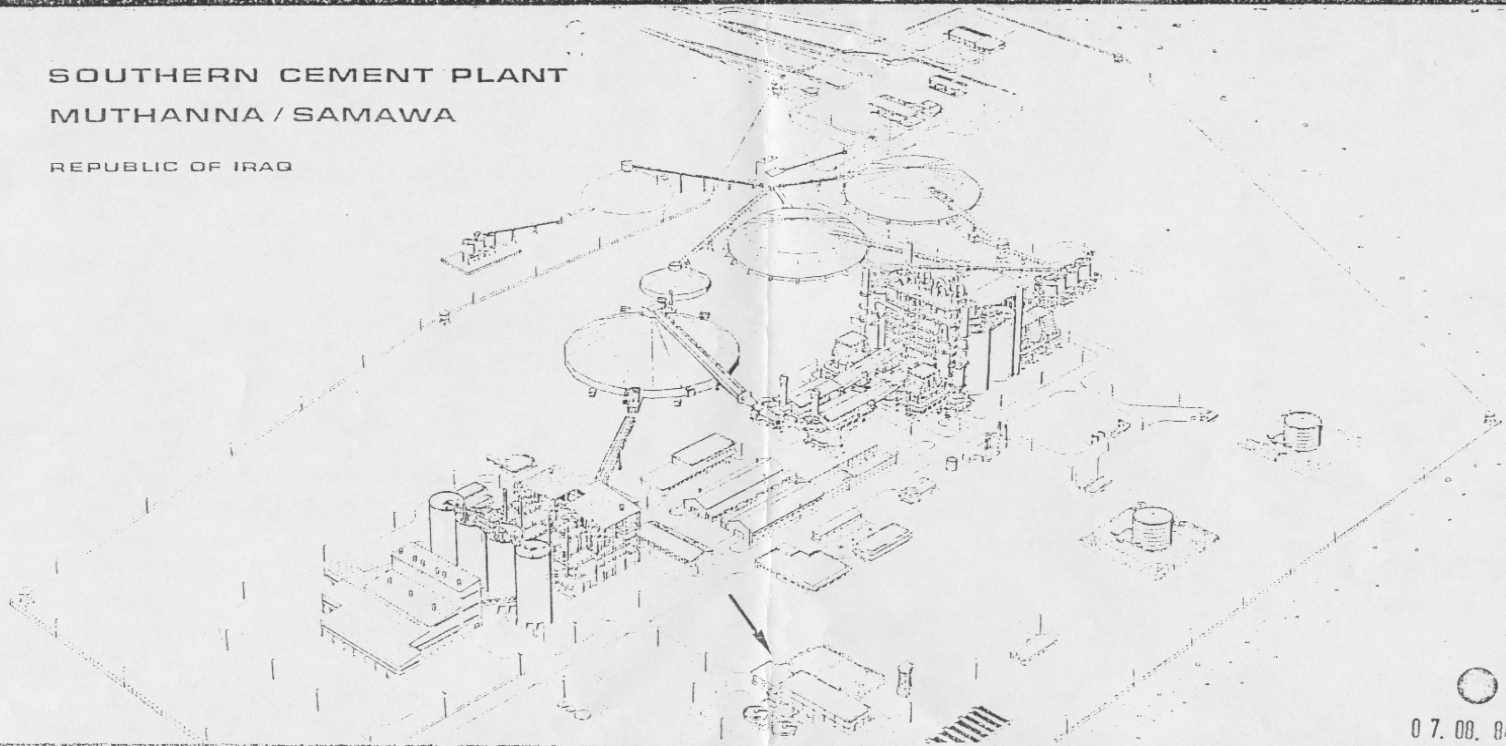


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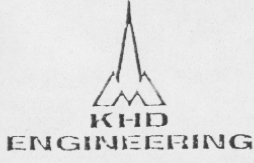
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- ▲ معمل سمنت المثنى
▲ مقلع الحجر

SOUTHERN CEMENT PLANT
MUTHANNA / SAMAWA
REPUBLIC OF IRAQ



07.08.84



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|-----------------------------|--|-------------------------------|----------|
| SOUTHERN CEMENT PLANT | | MUTHANNA / SAMAWA | |
| SECTION NO. 5.4.1 UTILITIES | | | |
| IE-TB | | 6 | REVISION |
| DATE: / / | | | |
| PROJECT: / / | | | |
| DRAWN BY: / / | | | |
| CHECKED BY: / / | | | |
| DATE: / / | | | |
| TECHNICAL DEPARTMENTS | | SHEET NO: 2 DATE: 26.09.83 | |