PHASE VIII – OIL SPARE PARTS AND EQUIPMENT

The list of oil spare parts and equipment for phase VIII is submitted in 13 sections, each representing an operating company. They are itemized in the attachments to this summary.

Given the timely delivery and commissioning of the listed spare parts and equipment during phase VIII, and those still outstanding from phases IV to VII, the Ministry of Oil expects to:

1. Achieve a reliable and sustainable production rate for crude oil of 3.4 to 3.9 millions barrels per day, while improving operational standards and reservoir control.
2. Achieve a sustainable and improved refining capability to meet current and projected demand.
3. Achieve improved refined product quality levels.
4. Increase personnel safety levels.
5. Reduce pollution levels.

In addition to the continuing maintenance and rehabilitation of the oil industry undertaken from phase IV onwards, objectives will include the commencement of the first stages of development of identified (but previously unexploited) oil and gas fields, replacing deteriorating capacity in existing fields, achieving incremental increases, and providing an appropriate base for future development.

The proposals can be grouped into three main sections: upstream, downstream, and transportation and distribution.

UPSTREAM

North and South Oil Companies

The following are activities to be undertaken during phase VIII.

1. Projects to maintain existing plant, pipeline and terminal capacity at current production rates, with enhanced reliability.
2. Projects to rehabilitate and revamp existing production, processing and pipeline networks to improve efficiency and reduce dependency on current operational "risk management" policies.
3. Projects to sustain current production rates, and realize projected rates, by the return to established reservoir management practices, and by the drilling of:
   - 30 vertical and five horizontal wells in the north; and
   - 90 vertical and four horizontal wells in the south;

and the work-over, completion and connection of:
- 30 wells in the north; and 75 wells in the south.
4. Projects to increase the flexibility of storage, transportation and pumping facilities in the north and south.
5. Completion of safety projects to ensure personnel safety in the workplace.
6. Projects to reduce environmental pollution, and to combat pollution incidents.
7. Provision of improved testing and engineering inspection programmes.
8. Negotiation of technical service and consultancy contracts for the study, evaluation and analysis of production systems, leading to improved performance, enhanced production, and improved quality, reliability and flexibility.
9. Continued development of the following South Oil Company projects:
   - Rehabilitation of the Fao tank farm;
   - Development of DG6 and West Qurnah fields;
   - Gas utilization in West Qurnah and Zubair fields; and
   - Development of the Subba and Luhais fields.
10. Continued development by the North Oil Company of the Khormala Dome.
12. Development of artificial gas lift facilities in the north, to supplement water injection programmes.
13. Development and connection of the Naftkhana gas field to supply new power station.

Iraqi Drilling Company

Projects to allow the Iraqi Drilling Company to continue the repair of existing rigs, and the delivery of two new well work-over rigs, and one smaller rig for water drilling are envisaged in phase VIII.

Oil Exploration Company

Projects to allow initiation of lapsed oil and gas exploration, and to commence three-dimensional (3-D) seismic analyses of reservoirs, resulting in improved reservoir management and control are envisaged for phase VIII. Requirements include:

1. 3-D seismic system including two seismic drilling rigs.
2. Spares for existing equipment.
3. Materials, equipment and software for geophysical and geological studies.
4. Service and safety equipment.

Oil Projects Company

The Oil Projects Company needs to improve and enhance its capabilities in order to undertake the development projects in the upstream sector of the industry. In particular attention has been paid to:
1. Consultancy and training projects.
2. Provision of necessary construction machinery and associated spare parts.
3. Safety and servicing equipment.

**DOWNSTREAM**

The overall phase VII objectives for this sector of the oil industry are to sustain and improve product production while adopting acceptable safety and operational standards, to meet current and projected demand, and to achieve improved quality through the introduction of new technologies and practices.

Common requirements to all five downstream operating companies are:

1. Supply of spare parts and equipment, materials, chemicals, replacement units and workshop facilities, and repair and overhaul service contracts, to maintain current performance.
2. Revamping and rehabilitation of existing plant to improve efficiency and product quality.
3. Improvement of storage flexibility, power generation, gas treatment and control facilities.
4. Completion of the provision of all aspects of personnel safety equipment.
5. Completion of facilities to ensure environmental protection, by reducing air and water pollution to acceptable standards.
6. Improvement of general, testing and engineering inspection services.
7. Provision of technical service and consultancy contracts covering studies, evaluation and analysis to identify ways to improve performance, production and product quality.
8. Commencement of preparatory work, studies and design of an isomerization unit (FCC), a reformer, and light gas oil high-density desulphurization units in the refineries.

Additionally, the gas companies will require the supply/commissioning of:

1. Steam generation plants.
2. Nitrogen production plants.
3. Water supply plants.
4. LPG pumping stations.
5. Sulphur granulation plants.

The refining section will require the supply/commissioning of:

1. Automatic lube oil blending facilities.
2. Whole naphtha transformation facilities.
3. Nitrogen plants.
4. Manufacturing facilities for plastic drums and bottles for lubricants.
TRANSPORTATION AND DISTRIBUTION

The overall phase VIII objectives for this sector of the industry are to create improved flexibility in the distribution network through the inspection, testing and completion of pipeline systems and storage networks; improved LPG bottling and dispensing facilities and the continued replacement of damaged LPG cylinders.

Common requirements of the three companies in this sector include:

1. Supply of spare parts and equipment, materials, chemicals, replacement units and workshop facilities, and repair and overhaul service contracts to maintain current performance.
2. Supply of 600,000 LPG cylinders, fuel delivery and loading arms to improve LPG and products distribution.
3. Continuation of the existing programme to improve and revamp product pumping stations.
5. Improvement of general, testing and engineering inspection services.
6. Completion of the provision of all aspects of personnel safety equipment.
7. Completion of facilities to ensure environmental protection by reducing air and water pollution to acceptable standards.
8. Supply and commissioning of new automatic LPG filling plants.

Additionally, the pipeline network will be upgraded as follows:

1. Supply and installation of 10" and 16" lines and accessories to connect Baiji/Hamam al-Alil depot near Mosul, and KK-Dibis and ITP-Qayarah to feed new power stations.
2. Upgrading the 42" dry gas national grid between North Rumailah and Nasiriyah.
3. Commencement of the completion to the second phase of the Nasiriyah-Dura gas pipeline.
4. Installation of the first leg of the second Shuaiba-Baghdad products line.

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Project classification codes

In order to classify the Ministry of Oil requirements into projects a revised classification system has been adopted for the distribution plan, as follows:

08-8-XX-YY-ZZZZ, in which
08 = Oil sector
-8 = Phase VIII
-XX = Company code
-YY = Project code
-ZZZZ = Specific sector code item number

**Fund allocation and company codes**

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**Project codes**

01. "Maintenance and operations" This code covers all spare parts, materials and equipment necessary for the proper maintenance of existing plants, as well as chemicals and consumables necessary for operation at current production rates and required product quality.

02. "Rehabilitation/revamping of existing plant" This code covers the materials, equipment and packages necessary to bring damaged or non-operational and/or obsolete plants back into full operational condition, to facilitate and improve work efficiency and operational flexibility.

03. "Sustaining and enhancement production capabilities" This code covers the activities, materials and equipment required to sustain production and export rates at present and projected figures. Activities such as drilling and work-over of wells, wet crude treatment projects, water injection, erection of new tank farms and pipelines fall under this heading.

04. "Safety and environmental protection". This code covers:
   - All requirements for the safe operation of plants.
   - Safety wear and accessories for personnel protection.
   - Fire fighting and fire prevention needs,
   - Requirements for the protection of the environment by reducing air and water pollution to acceptable levels.
05. “Service and plant equipment” This code covers all equipment and units needed to provide necessary services for general activities such as water supply, cooling and heating the workshops, cranes, bulldozers, etc., for maintenance and plant erection.

06. “Testing, engineering inspection studies and laboratories” This code covers the requirements for plant inspection, material testing (both non-destructive and destructive) general diagnostic pipeline inspection (intelligent pigging), assistance/consultancy/training contracts to address existing problems and the introduction of new technologies. The code also covers the equipment, materials and tools necessary for testing, analyses and quality control requirements in oil sector laboratories.

07. – 99. “New development projects” This code covers the major development projects to be implemented during this phase. Each project will be given a separate serial number; examples of such projects are as follows:

- Initial phases for the development of discovered (but non-producing) oil/gas fields with the aim of achieving incremental increases in available oil and gas, as well as establishing the basis for the eventual future development of these fields.
- Adding major plants to compensate for the depletion of reservoirs and provide substantial increases in production capabilities via water or gas injection schemes and the introduction of new technologies.
- Introduction of new technologies in the downstream sector to provide substantial product quality increases.
- Major transportation and distribution flexibility improvements, resulting from the construction of new pipelines and tank storage farms.

Definitions of units of measurement

In order to facilitate the understanding of the units of measurements of quantities involved, the Ministry of Oil has adopted the following units:

- Units of length: metre or kilometre for pipes, casings, etc.
- Units of volume: litre or barrel or $\text{M}^3$ for liquid chemicals.
- Units of mass: kilogramme or tonne for solid chemicals, mud materials, etc.
- Numbers (nos.): the actual number of listed units or parts to be supplied.
- Set: any number of units, or parts supplied, representing one discrete type of equipment (turbine, compressor, vessel, etc.), or one discrete type of technical classification (e.g., electrical, mechanical, instrumentation, civil engineering, etc.) listed against the respective sector code.
- Item: any combination of numbers, or sets, representing one kind of the material/equipment listed against the sector code.
- Contract: a contract covering the total requirements for a particular service or project activity. This terminology is restricted to service, integrated supply and project contracts.