

# Engineering Procedure

SAEP-309

30 June, 2004

Inspection of Community  
and Operations Support Facilities

Document Responsibility: Inspection Department

## Saudi Aramco DeskTop Standards

### Table of Contents

|                                                                                                                 |                           |   |
|-----------------------------------------------------------------------------------------------------------------|---------------------------|---|
| 1                                                                                                               | Scope.....                | 2 |
| 2                                                                                                               | Applicable Documents..... | 2 |
| 3                                                                                                               | Instructions.....         | 3 |
| 4                                                                                                               | Responsibilities.....     | 5 |
| Attachment I – Electrical Inspection Schedule<br>of Community & Operations<br>Support Facilities..... 11        |                           |   |
| Attachment II – Civil/Structural Inspection<br>Schedule of Community & Operations<br>Support Facilities..... 16 |                           |   |
| Attachment III – Reinforced Concrete<br>Classification System..... 18                                           |                           |   |
| Attachment IV – Plumbing Inspection Schedule<br>of Community & Operations<br>Support Facilities..... 19         |                           |   |

## 1 Scope

This SAEP outlines inspection requirements for Community and Operations Support Facilities owned by Saudi Aramco, specifies the organizations responsible for the inspections of these facilities and establishes the inspection procedures and frequencies. This procedure does not cover inspection requirements for Saudi Aramco Construction Camps operated by contractors, and Substations operated by Power Distribution Department.

## 2 Applicable Documents

The requirements contained in the following documents apply to the extent specified in this procedure.

### 2.1 Saudi Aramco References

#### Saudi Aramco Engineering Procedure

|                                |                                      |
|--------------------------------|--------------------------------------|
| <a href="#"><u>SAEP-20</u></a> | <i>Equipment Inspection Schedule</i> |
|--------------------------------|--------------------------------------|

#### Saudi Aramco Engineering Standards

|                      |                                 |
|----------------------|---------------------------------|
| <i>SAES-P Series</i> | <i>Electrical Power Systems</i> |
|----------------------|---------------------------------|

|                      |                               |
|----------------------|-------------------------------|
| <i>SAES-M Series</i> | <i>Civil &amp; Structural</i> |
|----------------------|-------------------------------|

#### Saudi Aramco General Instructions

|                    |                                                                                                |
|--------------------|------------------------------------------------------------------------------------------------|
| <i>GI-0002.703</i> | <i>Electrical Load Planning &amp; Connection /<br/>Disconnection to SA Distribution System</i> |
|--------------------|------------------------------------------------------------------------------------------------|

|                    |                                                                             |
|--------------------|-----------------------------------------------------------------------------|
| <i>GI-1781.001</i> | <i>Inspection, Testing and Maintenance of Fire<br/>Protection Equipment</i> |
|--------------------|-----------------------------------------------------------------------------|

|                    |                                                                                 |
|--------------------|---------------------------------------------------------------------------------|
| <i>GI-1782.001</i> | <i>Testing, Inspection and Maintenance of Fixed Fire<br/>Protection Systems</i> |
|--------------------|---------------------------------------------------------------------------------|

#### Saudi Aramco Inspection Procedures

|                                   |                              |
|-----------------------------------|------------------------------|
| <a href="#"><u>00-SAIP-51</u></a> | <i>Electrical Inspection</i> |
|-----------------------------------|------------------------------|

|                                   |                            |
|-----------------------------------|----------------------------|
| <a href="#"><u>00-SAIP-75</u></a> | <i>External Inspection</i> |
|-----------------------------------|----------------------------|

|                                   |                                       |
|-----------------------------------|---------------------------------------|
| <a href="#"><u>00-SAIP-76</u></a> | <i>Worksheet Control and Tracking</i> |
|-----------------------------------|---------------------------------------|

|                                   |                                  |
|-----------------------------------|----------------------------------|
| <a href="#"><u>00-SAIP-78</u></a> | <i>Inspection records/Filing</i> |
|-----------------------------------|----------------------------------|

## 2.2 Industry Codes and Standards

National Fire Protection Association

*NFPA 70*

*National Electrical Code*

## 3 Instructions

### 3.1 Definitions

- 3.1.1 COMMUNITY FACILITIES include completed, operational facilities used by Saudi Aramco employees or their dependents such as schools, commissaries, office buildings, recreational facilities, medical facilities, barber and beauty shops, theaters and dining facilities. These include Saudi Aramco owned and maintained facilities. Leased facilities are only applicable if Saudi Aramco provides maintenance.
- 3.1.2 OPERATIONS SUPPORT FACILITIES are Saudi Aramco facilities not included as part of hydrocarbon Processing Plant, Bulk Plant or Community facilities and whose proponent organization does not have its own inspection capability. They consist of, but are not limited to the following:
  - 3.1.2.1 Maintenance facilities, such as the Northern Area and Dhahran Shops.
  - 3.1.2.2 Training facilities, such as JSTC/ITC buildings.
  - 3.1.2.3 Storage facilities, such as Material Supply warehouses and reclamation yards.
  - 3.1.2.4 Miscellaneous facilities, such as aircraft hangars, passenger terminals, airstrips, helipads, hydroponics farms, communication installations, laboratories, fueling areas, office buildings and maintenance shops.
- 3.1.3 MAJOR ALTERATIONS are alterations or repairs, regardless of cost, for which an engineering design package consisting of one or more new or revised Saudi Aramco drawings are prepared.
- 3.1.4 NEW INSTALLATIONS are small projects which are usually managed by proponents (not by Project Management, PMT).

## 3.2 Coordination

- 3.2.1 The Inspection Units involved shall mutually agree on inspection boundaries, if a question arises as to which Inspection Unit has responsibility for a particular facility.
- 3.2.2 Each Inspection Unit shall prepare and keep a current list of Community and Operations Support Facilities for which it will provide inspection coverage. This list can be used to make sure that inspections are performed as set out in this SAEP. A copy of each list shall be provided to the Operations Inspection Superintendent in Dhahran.
- 3.2.3 Facilities outside the areas of responsibility as defined in Section 4 should be referred to the Operations Inspection Superintendent in Dhahran for coordination of required inspections.
- 3.2.4 Facility Operations Supervisors/Superintendents shall take action to correct deficiencies listed in inspection worksheets, even though the Inspection Unit making the inspections and issuing the worksheets is not in the same business line or organization.

## 3.3 Periodic Inspections

- 3.3.1 Electrical Inspections shall be scheduled and conducted on a 12, 24 or 36 month basis in accordance with EIS DE-093684 (Attachment I).
- 3.3.2 Civil/Structural Inspections shall be scheduled and conducted at least every five years in accordance with EIS DE-069699 (Attachment II). Additional inspections may be conducted at the request of the Facility Operations Supervisor/Superintendent or at the discretion of the Inspection Unit Supervisor.
- 3.3.3 Plumbing Inspections shall be made every two years in accordance with EIS DE-069700 (Attachment IV) or at the request of the Facility Operations Supervisor/Superintendent, on the following facilities:
  - Multi-story office and computer buildings
  - Medical facilities
  - Schools
  - Dining facilities

Plumbing Inspections on other facilities shall be scheduled and conducted at least every five years.

3.3.4 Mechanical equipment inspections shall be performed per EIS as required by [SAEP-20](#).

#### 3.4 Other Inspections

3.4.1 Major alterations, repairs and new installations shall be inspected at appropriate intervals during construction and upon completion. Scope and frequency of the inspections shall be at the discretion of the concerned inspection unit supervisor.

3.4.2 Special inspections such as remaining life or condition assessment of existing buildings or facilities can be requested by Facility Department Managers. The scope and scheduling of this inspection shall be at the discretion of the concerned inspection unit supervisor.

#### 3.5 Reporting and Follow Up

3.5.1 An Inspection Report shall be issued to the Facility Operations Supervisor/Superintendent identifying the results of the inspection.

3.5.2 Inspection Reports shall be made on Saudi Aramco Inspection Worksheets as per [00-SAIP-76](#).

3.5.3 The Inspection Worksheets shall be issued to the Facility Operations Supervisor/Superintendent and the Facility Maintenance Supervisor.

3.5.4 Reinspection shall be required for each discrepancy after it has been corrected.

3.5.5 Inspection Worksheets shall be copied to the Area Loss Prevention Division, as appropriate.

## 4 Responsibilities

#### 4.1 RT Refinery Inspection Unit

Shall inspect the Community Facilities in Ras Tanura and the Operations Support Facilities within 2 km. of the plant and community boundaries, except those facilities inspected by Terminal Engineering Inspection Unit. This includes the RT Saudi Aramco airstrip, and Qatif Water Well (Plant 181).

#### 4.2 Terminal Inspection Unit

Shall inspect Operations Support Facilities in the RT and Juaymah terminal areas and everything on the south side of Gate 6 on Terminal Road.

4.3 Juaymah Gas Plant Inspection Unit

Shall inspect Operation Support Facilities within 2 km. of the plant in addition to Qatif Injection/Reproduction Ethane Facility, except the Juaymah Tank Farm handled by Terminal Inspection and the Juaymah Stabilizer handled by RT Refinery Inspection.

4.4 Berri Gas Plant Inspection Unit

Shall inspect Operation Support Facilities within 2 km. of the plant.

4.5 Northern Area Producing Ops. Eng. Insp. Unit

Shall inspect Community and Operations Support Facilities at Abu Ali, Tanajib and Safaniyah.

4.6 Abqaiq Plants Ops. Eng. Insp./Corr. Unit

Shall inspect Community Facilities in Al-Farhah and Abqaiq main camps, Abqaiq Bulk plant (PLT 279) in Abqaiq Community Industrial area, Industrial & Management Training Centers and Operation Support Facilities in Al-Farhah and Abqaiq main camps.

4.7 Southern Area Producing Engineering (SAPED/SACCID) Insp. Units (North Ghawar, South Ghawar, Central Ghawar & Seawater Injection Insp. Units) Shall inspect Community and Operations Support Facilities throughout the Southern Area, which include:

- Udhailiyah, Mubarraz/Al Hasa area community facilities (CGIU)
  - Qurayyah Beach Facility (SWIIU)
  - Abqaiq airstrip (NGIU)
  - Abqaiq helipad next to Abqaiq GOSP-6 (NGIU)
  - Qurayyah helipad (SWIIU)
  - Al-Hasa, Mubarraz Sewage Treatment Plant (CGIU)
  - Abqaiq Sewage Treatment Plant (NGIU)
  - Hawtah Sewage Treatment Plant (SGIU)
  - Abqaiq Bulk Plant next to Abqaiq GOSP-5 (NGIU)
  - Udhailiyah Light Industrial Park (CGIU)
  - Hawtah Camp Facilities (SGIU)
  - Hawtah Airstrip (SGIU)
-

This excludes those facilities handled by Uthmaniyah Gas Plant Inspection Unit, Abqaiq Plants Inspection Unit and Shedgum Gas Plant Inspection Unit.

#### 4.8 Shedgum Gas Plant Ops. Eng. Insp. Unit

Shall inspect Operation Support Facilities within 3 km. of the plant which include;

- Transportation Building
- Saudi Aramco Office Complex
- Communication Building
- Shedgum Storehouse Building and Yard
- Roads & Heavy Equipment Dept. Building and Facilities
- Southern Area Producing Building
- Southern Area Shop Building and Yards
- Helipad

#### 4.9 Uthmaniyah Gas Plant Ops. Eng. Insp. Unit

Shall inspect Operation Support Facilities within 3 km. of the plant, excluding the Southern Area Producing Maintenance shop and the sewage plant.

#### 4.10 Jeddah Refinery Eng. Insp. Unit

Shall inspect Community and Operation Support Facilities within 1 km. of the refinery, the marine facilities and all Saudi Aramco owned or maintained office buildings within the city of Jeddah.

#### 4.11 Western Distr. Inspection Unit

Shall inspect Jeddah Training Center and Community and Operation Support Facilities within 1 km. of the following locations:

- Duba Bulk Plant
- Gizan Bulk Plant
- North Jeddah Bulk Plant
- Tabuk Bulk Plant
- Al Jouf Bulk Plant
- Turaif Bulk Plant

- Najran Bulk Plant
- Abha Bulk Plant
- Saudi Strategic Storage Program (SSSP-5)
- Saudi Strategic Storage Program (SSS-6)

#### 4.12 Eastern/Central Distr. Inspection Unit

In the Central Region, the Community and Operation Support Facilities within 1 km. of the following locations shall be inspected:

- North Riyadh Bulk Plant
- South Riyadh Bulk Plant
- Al Qassim Bulk Plant
- Saudi Strategic Storage Program (SSSP-1)
- Al Sulaiyal Bulk Plant

and everything outside the Riyadh Refinery SSD fence including Riyadh ITC and the Al-Rabwah Compound.

In the Eastern Region, the Community and Operation Support Facilities associated with the following locations shall be inspected:

- Al Hasa Bulk Plant
- Dhahran Bulk Plant & Dhahran Tank Farm
- Qatif Bulk Plant
- Qatif LPG Plant
- Safaniyah Bulk Plant

#### 4.13 Air Fueling Inspection Unit

Shall be responsible for the inspection of the Air Fueling Administration Building in Riyadh.

#### 4.14 East West Pipelines Inspection Unit

Shall inspect Community and Operation Support facilities within all East-West Pipeline pump stations and Pressure reducing Station (PRS-1).

4.15 Riyadh Refinery Eng. Insp. Unit

Shall inspect Community and Operation Support Facilities within the SSD fence, except South Riyadh Bulk Plant.

4.16 Yanbu Refinery Eng. Insp. Unit

Shall inspect Operation Support Facilities associated with the refinery and the refinery's marine terminal.

4.17 Yanbu Gas Plant Eng. Insp. Unit

Shall inspect Community and Operation Support Facilities in the Yanbu area except those inspected by the Yanbu Refinery and Western Distribution Operations Inspection Units. This includes Al-Moajjaz Marine Terminal (AMT).

4.18 Rabigh Refinery Eng. Insp. Unit

Shall inspect Community and Operation Support Facilities within 5 km. of the refinery including, the Industrial city and Rabigh Community Utilities.

4.19 Hawiyah Gas Plant (HGP) Inspection Unit

Shall inspect Operation Support Facilities within 3 km. of the plant which includes facilities inside Saudi Aramco Office Complex such as Hawiyah Main Admin Office Building, Dining Building, Communication Building, and facilities outside HGP such as Gasoline Station, Helipad, Fire Training Area, and Transportation Building. HGP Inspection Unit is also responsible for Hawiyah/Haradh Remote Operation, Maintenance Offices & Shelters.

4.20 Shaybah Inspection Unit

Shall inspect all Community and Operations Support Facilities within the vicinity of Shaybah plants as well as other remote facilities under its responsibilities such as Residential & Industrial Complex, Communication Building, Airstrip, Aviation Facilities, Sewage Treatment Plant, GOSP-1, 3 and Central Producing Facility Buildings.

4.21 Haradh Gas Plant Inspection Unit

Shall inspect all Community and Operations Support Facilities within the vicinity of Haradh Gas Plant as well as other remote facilities under its responsibilities such as Bachelor Camp, Fire station, Transportation Building, Communication Building, Air Strip, Terminal Building, Sewage Treatment Plant, PDD and Storehouse Buildings.

4.22 Inspection Department Dhahran Facilities Insp. Group

Shall inspect Community and Operation Support Facilities in the Dhahran area.

4.23 Facility Maintenance Supervisor

Shall be responsible for notifying the appropriate inspection unit when work on major alterations, repairs or new work is started and completed.

4.24 Facility Operations Supervisor/Superintendent

Shall issue Maintenance Work Orders or initiate design package requests to correct discrepancies that have been identified on Inspection worksheets.

4.25 Responsible Operations Inspection Unit

Shall perform all inspections required by this SAEP and maintain files on all inspections completed.

**Revision Summary**

30 June, 2004      Major revision.

| SAUDI ARABIAN OIL COMPANY                                                                                                                                                                                                                                                                            |     |      |                              |                            |                                                   |                   |              |                                                                                                                                                             |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|------------------------------|----------------------------|---------------------------------------------------|-------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| EQUIPMENT                                                                                                                                                                                                                                                                                            |     |      | INSPECTION INTERVAL – MONTHS |                            | INSPECTION PROCEDURE                              |                   |              |                                                                                                                                                             |          |
|                                                                                                                                                                                                                                                                                                      |     |      | OSI                          | T&I                        |                                                   |                   |              |                                                                                                                                                             |          |
| <p><b>1.0 SCOPE</b></p> <p>This Equipment Inspection Schedule (EIS) covers the electrical external inspections required by SAEP-309. This EIS is to insure that the electrical system of a facility is adequately inspected. The requirements are listed in order of priority for public safety.</p> |     |      |                              |                            |                                                   |                   |              |                                                                                                                                                             |          |
| <b>2.0 INSPECTION INTERVALS &amp; DETAILS</b>                                                                                                                                                                                                                                                        |     |      |                              | 12                         | INSPECTION INTERVAL will be by building category: |                   |              |                                                                                                                                                             |          |
|                                                                                                                                                                                                                                                                                                      |     |      |                              |                            | NR                                                | 24                | CATEGORY I   | A building where large numbers of people gather, i.e., schools, office buildings, etc.                                                                      |          |
|                                                                                                                                                                                                                                                                                                      |     |      |                              |                            | NR                                                | 24                | CATEGORY II  | A building that houses equipment or materials representing substantial capital investment but is relatively unattended, i.e., warehouses, storehouses, etc. |          |
|                                                                                                                                                                                                                                                                                                      |     |      |                              |                            | NR                                                | 36                | CATEGORY III | A building that is normally unoccupied and contains materials representing small capital investment.                                                        |          |
| NR = Not Required                                                                                                                                                                                                                                                                                    |     |      |                              |                            |                                                   |                   |              |                                                                                                                                                             |          |
| <b>REVISIONS</b>                                                                                                                                                                                                                                                                                     | NO. | DATE | BY                           | DESCRIPTION                |                                                   | CHECKED           | CHECKED      | APPROVED                                                                                                                                                    |          |
|                                                                                                                                                                                                                                                                                                      | 3   |      |                              | INCORPORATED INTO SAEP-309 |                                                   |                   |              |                                                                                                                                                             |          |
|                                                                                                                                                                                                                                                                                                      |     |      |                              |                            |                                                   |                   |              |                                                                                                                                                             |          |
|                                                                                                                                                                                                                                                                                                      |     |      |                              |                            |                                                   |                   |              |                                                                                                                                                             |          |
| Ops. Insp. Supr.                                                                                                                                                                                                                                                                                     |     |      | Ops. Insp. Supt.             |                            |                                                   | Chief Insp. Engr. |              |                                                                                                                                                             |          |
| <b>EQUIPMENT INSPECTION SCHEDULE</b>                                                                                                                                                                                                                                                                 |     |      |                              |                            | PLANT NO.                                         | INDEX             | DRAWING NO.  | SHT. NO.                                                                                                                                                    | REV. NO. |
| ELECTRICAL INSPECTION OF COMMUNITY AND OPERATIONS SUPPORT FACILITIES<br><br>SAUDI ARABIA                                                                                                                                                                                                             |     |      |                              |                            | ALL                                               | A                 | DE-093684    | 1 OF 5                                                                                                                                                      | 3        |
|                                                                                                                                                                                                                                                                                                      |     |      |                              |                            | J.O.                                              | B.I.              |              |                                                                                                                                                             |          |

### Attachment I (Con't)

| SAUDI ARABIAN OIL COMPANY                                                                   |     |                                 |                     |                                                                                                                                                                                                                                                                                                                                                        |           |                   |             |              |          |
|---------------------------------------------------------------------------------------------|-----|---------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|-------------|--------------|----------|
| EQUIPMENT                                                                                   |     | INSPECTION<br>INTERVAL – MONTHS |                     | INSPECTION PROCEDURE                                                                                                                                                                                                                                                                                                                                   |           |                   |             |              |          |
|                                                                                             |     | OSI                             | T&I                 |                                                                                                                                                                                                                                                                                                                                                        |           |                   |             |              |          |
| 2.1 FIRE DETECTION<br>AND ALARM<br>SYSTEM; AND<br>ELECTRIC<br>DRIVEN FIRE<br>PUMP           |     | NR                              | Per<br>Sect.<br>2.0 | INSPECT for:<br><br>Test records from operating proponent indicating<br>periodic functional checks.<br>Integrity of wiring.<br>Additions to system.<br>Power source integrity (AC & Battery).<br>Number and Location of smoke and heat sensing<br>devices.<br>Smoke and heat sensing device integrity.<br>Alarm and acknowledgment function of system. |           |                   |             |              |          |
| 2.2 EMERGENCY<br>AND<br>EXIT LIGHTS                                                         |     | NR                              | Per<br>Sect.<br>2.0 | INSPECT for:<br><br>Operation.<br>Number and location of emergency and exit lights.<br>Power source integrity. (AC & Battery)<br>Lamp integrity.<br>Dual power source.<br>Arabic and English lettering.<br>Inspection Tag – current<br>Lights and Signs – unobstructed                                                                                 |           |                   |             |              |          |
| REVISIONS                                                                                   | NO. | DATE                            | BY                  | DESCRIPTION                                                                                                                                                                                                                                                                                                                                            |           | CHECKED           | CHECKED     | APPROVED     |          |
|                                                                                             | 3   |                                 |                     | INCORPORATED INTO SAEP-309                                                                                                                                                                                                                                                                                                                             |           |                   |             |              |          |
|                                                                                             |     |                                 |                     |                                                                                                                                                                                                                                                                                                                                                        |           |                   |             |              |          |
|                                                                                             |     |                                 |                     |                                                                                                                                                                                                                                                                                                                                                        |           |                   |             |              |          |
| Ops. Insp. Supr.                                                                            |     |                                 | Ops. Insp. Supt.    |                                                                                                                                                                                                                                                                                                                                                        |           | Chief Insp. Engr. |             |              |          |
| EQUIPMENT INSPECTION SCHEDULE                                                               |     |                                 |                     |                                                                                                                                                                                                                                                                                                                                                        | PLANT NO. | INDEX             | DRAWING NO. | SHT. NO.     | REV. NO. |
| ELECTRICAL INSPECTION OF COMMUNITY AND OPERATIONS<br>SUPPORT FACILITIES<br><br>SAUDI ARABIA |     |                                 |                     |                                                                                                                                                                                                                                                                                                                                                        | ALL       | A                 | DE-093684   | 2<br>OF<br>5 | 3        |
|                                                                                             |     |                                 |                     |                                                                                                                                                                                                                                                                                                                                                        | J.O.      |                   | B.I.        |              |          |

### Attachment I (Con't)

| SAUDI ARABIAN OIL COMPANY                                                                |                              |               |                                                                                                                                                                                                                                                                                                                                                                                                           |                            |           |                   |             |
|------------------------------------------------------------------------------------------|------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------|-------------------|-------------|
| EQUIPMENT                                                                                | INSPECTION INTERVAL – MONTHS |               | INSPECTION PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                      |                            |           |                   |             |
|                                                                                          | OSI                          | T&I           |                                                                                                                                                                                                                                                                                                                                                                                                           |                            |           |                   |             |
| 2.3 EMERGENCY GENERATORS AND TRANSFER SWITCHES/UPS                                       | NR                           | Per Sect. 2.0 | INSPECT for:<br><br>Records of test operations.<br>Integrity of wiring<br>Battery maintenance.<br>Shutdown Devices.<br>Contact condition.<br>Equipment labels.<br>Equipment & panelboard grounding<br>Scheme of operation.<br>Protective equipment ratings.<br>Warning signs - Danger, etc.                                                                                                               |                            |           |                   |             |
| 2.4 LIGHTING AND DISTRIBUTION PANELS                                                     | NR                           | Per Sect. 2.0 | INSPECT for:<br><br>Panel Identification<br>Abnormal heating of connections and terminals.<br>Correct rating of all protective devices (e.g., fuses, GFIC, circuit breakers, O/L heaters, etc.)<br>Bushing and insulator cleanliness.<br>Bushing and Insulator condition<br>Connections condition<br>Panelboard circuit directory<br>Panelboard grounding<br>Wire color coding<br>Unused Openings Sealed. |                            |           |                   |             |
| REVISIONS                                                                                | NO.                          | DATE          | BY                                                                                                                                                                                                                                                                                                                                                                                                        | DESCRIPTION                | CHECKED   | CHECKED           | APPROVED    |
|                                                                                          | 3                            |               |                                                                                                                                                                                                                                                                                                                                                                                                           | INCORPORATED INTO SAEP-309 |           |                   |             |
|                                                                                          |                              |               |                                                                                                                                                                                                                                                                                                                                                                                                           |                            |           |                   |             |
|                                                                                          |                              |               |                                                                                                                                                                                                                                                                                                                                                                                                           |                            |           |                   |             |
| Ops. Insp. Supr.                                                                         |                              |               | Ops. Insp. Supt.                                                                                                                                                                                                                                                                                                                                                                                          |                            |           | Chief Insp. Engr. |             |
| EQUIPMENT INSPECTION SCHEDULE                                                            |                              |               |                                                                                                                                                                                                                                                                                                                                                                                                           |                            | PLANT NO. | INDEX             | DRAWING NO. |
| ELECTRICAL INSPECTION OF COMMUNITY AND OPERATIONS SUPPORT FACILITIES<br><br>SAUDI ARABIA |                              |               |                                                                                                                                                                                                                                                                                                                                                                                                           |                            | ALL       | A                 | DE-093684   |
|                                                                                          |                              |               |                                                                                                                                                                                                                                                                                                                                                                                                           |                            | J.O.      |                   | B.I.        |
|                                                                                          |                              |               |                                                                                                                                                                                                                                                                                                                                                                                                           |                            |           | 3 OF 5            | 3           |

### Attachment I (Con't)

| SAUDI ARABIAN OIL COMPANY                                                                   |     |                                 |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |             |              |          |
|---------------------------------------------------------------------------------------------|-----|---------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|-------------|--------------|----------|
| EQUIPMENT                                                                                   |     | INSPECTION<br>INTERVAL – MONTHS |                     | INSPECTION PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |                   |             |              |          |
|                                                                                             |     | OSI                             | T&I                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |             |              |          |
| 2.5 LIGHTING<br>SYSTEMS AND<br>WALL DEVICES                                                 |     | NR                              | Per<br>Sect.<br>2.0 | INSPECT for:<br><br>Correct lamp wattage.<br>Complete fixture assembly.<br>Broken sockets.<br>Damaged or dirty reflectors.<br>Adequate supports.<br>Over-heated or burned wiring.<br>Switches in good working order.<br>Correct receptacle polarity.<br>Outdoor and bath ground fault receptacle operation.<br>Worn or improper extension cords.<br>Convenience outlet identification<br>Untapped and incorrect wire splicing<br>Installation / mounting of lights and wall devices. |           |                   |             |              |          |
| 2.6 TRANSFORMERS                                                                            |     | NR                              | Per<br>Sect.<br>2.0 | INSPECT for:<br><br>Correct Type (Outdoor/Indoor)<br>Integrity of Enclosure (Corrosion)<br>Correct Rating of Protective Devices<br>Record of insulating oil tests<br>Cable termination integrity<br>Bushing and insulator cleanliness/integrity<br>Ground connections integrity<br>Area Housekeeping<br>Cooling Fan operation                                                                                                                                                        |           |                   |             |              |          |
| REVISIONS                                                                                   | NO. | DATE                            | BY                  | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |           | CHECKED           | CHECKED     | APPROVED     |          |
|                                                                                             | 3   |                                 |                     | INCORPORATED INTO SAEP-309                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |                   |             |              |          |
|                                                                                             |     |                                 |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |             |              |          |
|                                                                                             |     |                                 |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |             |              |          |
| Ops. Insp. Supr.                                                                            |     |                                 | Ops. Insp. Supt.    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           | Chief Insp. Engr. |             |              |          |
| EQUIPMENT INSPECTION SCHEDULE                                                               |     |                                 |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | PLANT NO. | INDEX             | DRAWING NO. | SHT. NO.     | REV. NO. |
| ELECTRICAL INSPECTION OF COMMUNITY AND OPERATIONS<br>SUPPORT FACILITIES<br><br>SAUDI ARABIA |     |                                 |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ALL       | A                 | DE-093684   | 4<br>OF<br>5 | 3        |
|                                                                                             |     |                                 |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | J.O.      |                   | B.I.        |              |          |

### Attachment I (Con't)

| SAUDI ARABIAN OIL COMPANY                                                                   |                                 |                                 |                     |                                                                                                                                                                                                                                                               |           |                   |             |              |          |
|---------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|-------------|--------------|----------|
| EQUIPMENT                                                                                   |                                 | INSPECTION<br>INTERVAL – MONTHS |                     | INSPECTION PROCEDURE                                                                                                                                                                                                                                          |           |                   |             |              |          |
|                                                                                             |                                 | OSI                             | T&I                 |                                                                                                                                                                                                                                                               |           |                   |             |              |          |
| 2.7                                                                                         | JUNCTION BOX<br>ENCLOSURES      | NR                              | Per<br>Sect.<br>2.0 | INSPECT for:<br><br>Proper Identification<br>Covers - in place with proper sealing<br>Unused Openings sealed<br>Excessive corrosion<br>Approved Area use<br>Moisture evident and source<br>Adequate support<br>Cover thread lubrication<br>Grounding Adequate |           |                   |             |              |          |
| 2.8                                                                                         | CABLE AND<br>CONDUIT<br>SYSTEMS | NR                              | Per<br>Sect.<br>2.0 | INSPECT for:<br><br>Adequate supports<br>Proper Materials employed<br>Continuous unbroken runs for each termination<br>Excessive corrosion<br>Physical damage<br>Seals in Classified Areas<br>Non-engineered installations<br>Grounding Adequate              |           |                   |             |              |          |
| REVISIONS                                                                                   | NO.                             | DATE                            | BY                  | DESCRIPTION                                                                                                                                                                                                                                                   |           | CHECKED           | CHECKED     | APPROVED     |          |
|                                                                                             | 3                               |                                 |                     | INCORPORATED INTO SAEP-309                                                                                                                                                                                                                                    |           |                   |             |              |          |
|                                                                                             |                                 |                                 |                     |                                                                                                                                                                                                                                                               |           |                   |             |              |          |
| Ops. Insp. Supr.                                                                            |                                 |                                 | Ops. Insp. Supt.    |                                                                                                                                                                                                                                                               |           | Chief Insp. Engr. |             |              |          |
| EQUIPMENT INSPECTION SCHEDULE                                                               |                                 |                                 |                     |                                                                                                                                                                                                                                                               | PLANT NO. | INDEX             | DRAWING NO. | SHT. NO.     | REV. NO. |
| ELECTRICAL INSPECTION OF COMMUNITY AND OPERATIONS<br>SUPPORT FACILITIES<br><br>SAUDI ARABIA |                                 |                                 |                     |                                                                                                                                                                                                                                                               | ALL       | A                 | DE-093684   | 5<br>OF<br>5 | 3        |
|                                                                                             |                                 |                                 |                     |                                                                                                                                                                                                                                                               | J.O.      |                   | B.I.        |              |          |

## Attachment II – Civil/Structural Inspection Schedule Of Community & Operations Support Facilities

| SAUDI ARABIAN OIL COMPANY                                                                         |                                 |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                            |         |                   |              |
|---------------------------------------------------------------------------------------------------|---------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------|-------------------|--------------|
| EQUIPMENT                                                                                         | INSPECTION<br>INTERVAL – MONTHS |      | INSPECTION PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                            |         |                   |              |
|                                                                                                   | OSI                             | T&I  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                            |         |                   |              |
| 1.0 CONCRETE<br>STRUCTURES                                                                        | NR                              | 60   | INSPECT for:<br><br>Review drawing and specifications<br>Signs of soil failure/settlement at structure area<br>Drainage around structure area<br>Structure is effectively supporting load/working as intended<br>Signs of Overstressing<br>Signs of Impact Damage<br>Signs of Surface Deterioration<br>Signs of Internal Steel Corrosion<br>Structure Defects;<br>Cracking<br>Delamination<br>Spalling<br>Breaking<br>Grouting deterioration;<br>Cracking<br>Separation<br>Breaking/Spalling<br><br>CLASSIFICATION CODES<br><br>Structure Defects and Grouting Deterioration should be given a Classification code at each inspection interval in accordance with Attachment III of SAEP-309. |                            |         |                   |              |
| REVISIONS                                                                                         | NO.                             | DATE | BY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DESCRIPTION                | CHECKED | CHECKED           | APPROVED     |
|                                                                                                   | 3                               |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | INCORPORATED INTO SAEP-309 |         |                   |              |
|                                                                                                   |                                 |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                            |         |                   |              |
| Ops. Insp. Supr.                                                                                  |                                 |      | Ops. Insp. Supt.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                            |         | Chief Insp. Engr. |              |
| EQUIPMENT INSPECTION SCHEDULE                                                                     |                                 |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | PLANT NO.                  | INDEX   | DRAWING NO.       | SHT. NO.     |
| CIVIL/STRUCTURAL INSPECTION OF COMMUNITY AND<br>OPERATIONS SUPPORT FACILITIES<br><br>SAUDI ARABIA |                                 |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ALL                        | A       | DE-069699         | 1<br>OF<br>2 |
|                                                                                                   |                                 |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | J.O.                       |         | B.I.              | 0            |

## Attachment II (Con't)

| SAUDI ARABIAN OIL COMPANY                                                                         |     |                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |                   |             |              |          |
|---------------------------------------------------------------------------------------------------|-----|---------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|-------------|--------------|----------|
| EQUIPMENT                                                                                         |     | INSPECTION<br>INTERVAL – MONTHS |                  | INSPECTION PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |             |              |          |
|                                                                                                   |     | OSI                             | T&I              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |                   |             |              |          |
| 2.0 STRUCTURAL<br>STEEL<br>STRUCTURES                                                             |     | NR                              | 60               | INSPECT for:<br><br>Review drawings and specifications<br>In-place steel is plumb and level<br>Steel distortion<br>Bolted connections<br>Material<br>Type<br>Size<br>Quantity<br>Tension<br>Welded connections<br>Corrosion<br>Cracking<br>Repairs<br>Corrosion<br>Type of corrosion<br>Any loss of metal, to what extent<br>Coatings<br>Coating required<br>Correct application<br>Acceptable/Not Acceptable<br>Fireproofing<br>Fireproofing required<br>Correct application<br>Acceptable / Not Acceptable<br>Ladders and Walkways<br>Plumb and Level<br>Connections<br>Grating secured<br>Grounding Connections Secure |           |                   |             |              |          |
| REVISIONS                                                                                         | NO. | DATE                            | BY               | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |           | CHECKED           | CHECKED     | APPROVED     |          |
|                                                                                                   | 3   |                                 |                  | INCORPORATED INTO SAEP-309                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                   |             |              |          |
|                                                                                                   |     |                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |                   |             |              |          |
|                                                                                                   |     |                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |                   |             |              |          |
| Ops. Insp. Supr.                                                                                  |     |                                 | Ops. Insp. Supt. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           | Chief Insp. Engr. |             |              |          |
| EQUIPMENT INSPECTION SCHEDULE                                                                     |     |                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | PLANT NO. | INDEX             | DRAWING NO. | SHT. NO.     | REV. NO. |
| CIVIL/STRUCTURAL INSPECTION OF COMMUNITY AND<br>OPERATIONS SUPPORT FACILITIES<br><br>SAUDI ARABIA |     |                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ALL       | A                 | DE-069699   | 2<br>OF<br>2 | 0        |
|                                                                                                   |     |                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | J.O.      |                   | B.I.        |              |          |

### Attachment III – Reinforced Concrete Classification System

| <u>Classification Code</u> | <u>Inspection Status</u>                                                                                                                                                                                                                              |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            | <b>Concrete</b>                                                                                                                                                                                                                                       |
| 0                          | Appears to be in good condition.<br>Foundation is serviceable.                                                                                                                                                                                        |
| 1                          | Hairline cracking.<br>Small, random cracking is visible. No evidence of concrete delamination.                                                                                                                                                        |
| 2                          | Vertical/horizontal cracks with signs of internal corrosion.<br>Small cracks are visible and cracks form a pattern outlining the reinforcing steel beneath the concrete surface. No evidence of concrete delamination.                                |
| 3                          | Significant cracking with internal corrosion.<br>Cracks are visible and are beginning to open and gain width. Distinctive cracking pattern is present. Evidence of some delamination may be present.                                                  |
| 4                          | Severe cracking and extensive corrosion.<br>Cracks are large, continuous, and numerous. Large areas of the concrete surface show delamination. Removal of delaminated sections expose heavily corroded rebar. Breaking and spalling may be occurring. |
| 5                          | Failure.<br>Concrete show deterioration to the extreme that it no longer serves as designed. It is unsafe. Large sections may be cracking, breaking and separating.                                                                                   |
|                            | <b>Grout</b>                                                                                                                                                                                                                                          |
| 6                          | Appears to be in good condition.<br>No damage.                                                                                                                                                                                                        |
| 7                          | Grout cap cracking.<br>Grout shows numerous cracks and the cracks have a degree of width.                                                                                                                                                             |
| 8                          | Grout cap separation.<br>The grout cap is no longer bonded to the concrete.                                                                                                                                                                           |
| 9                          | Grout cap breaking/spalling.<br>Grout cap sections have broken loose and fallen away from the concrete.<br>The concrete surface is exposed.                                                                                                           |
| 10                         | No grout present.                                                                                                                                                                                                                                     |

### Attachment IV – Plumbing Inspection Schedule Of Community & Operations Support Facilities

| SAUDI ARABIAN OIL COMPANY                                                                 |                                 |      |                                                                                                                                                                                                                                                                        |                            |           |                   |             |              |          |
|-------------------------------------------------------------------------------------------|---------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------|-------------------|-------------|--------------|----------|
| EQUIPMENT                                                                                 | INSPECTION<br>INTERVAL – MONTHS |      | INSPECTION PROCEDURE                                                                                                                                                                                                                                                   |                            |           |                   |             |              |          |
|                                                                                           | OSI                             | T&I  |                                                                                                                                                                                                                                                                        |                            |           |                   |             |              |          |
| PLUMBING<br>INSPECTIONS                                                                   | NR                              | 24   | INSPECT for:<br><br>Piping, Fittings<br>Corrosion<br>Leaks<br>Supports<br>Correct Material Applications<br><br>Pumps, Filters, Water Heaters<br>Corrosion<br>Leaks<br>Functional Test<br><br>Cross Connections<br>Do any exist<br>Back flow prevention devices present |                            |           |                   |             |              |          |
| REVISIONS                                                                                 | NO.                             | DATE | BY                                                                                                                                                                                                                                                                     | DESCRIPTION                | CHECKED   | CHECKED           | APPROVED    |              |          |
|                                                                                           | 3                               |      |                                                                                                                                                                                                                                                                        | INCORPORATED INTO SAEP-309 |           |                   |             |              |          |
|                                                                                           |                                 |      |                                                                                                                                                                                                                                                                        |                            |           |                   |             |              |          |
|                                                                                           |                                 |      |                                                                                                                                                                                                                                                                        |                            |           |                   |             |              |          |
| Ops. Insp. Supr.                                                                          |                                 |      | Ops. Insp. Supt.                                                                                                                                                                                                                                                       |                            |           | Chief Insp. Engr. |             |              |          |
| EQUIPMENT INSPECTION SCHEDULE                                                             |                                 |      |                                                                                                                                                                                                                                                                        |                            | PLANT NO. | INDEX             | DRAWING NO. | SHT. NO.     | REV. NO. |
| PLUMBING INSPECTION OF COMMUNITY AND OPERATIONS<br>SUPPORT FACILITIES<br><br>SAUDI ARABIA |                                 |      |                                                                                                                                                                                                                                                                        |                            | ALL       | A                 | DE-069700   | 1<br>OF<br>1 | 0        |
|                                                                                           |                                 |      |                                                                                                                                                                                                                                                                        |                            | J.O.      |                   | B.I.        |              |          |