

PART 3: SCOPE OF WORK

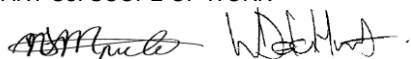
| Document reference | Title | No of pages |
|--------------------|---|-------------|
| | This cover page | 1 |
| C3.1 | <i>Employer's</i> Service Information | |
| C3.2 | <i>Contractor's</i> Service Information | |
| | Total number of pages | |

~~W. M. G. W. M. G.~~ W. M. G. W. M. G.

C3.1: EMPLOYER'S SERVICE INFORMATION

Contents

| | |
|--|-----------|
| Part 3: Scope of Work | 1 |
| C3.1: Employer's service Information | 2 |
| 1 Description of the service..... | 4 |
| 1.1 Executive overview | 4 |
| 1.2 <i>Employer's</i> requirements for the <i>service</i> | 4 |
| 1.3 Interpretation and terminology | 17 |
| 2 Management strategy and start up. | 18 |
| 2.1 The <i>Contractor's</i> plan for the <i>service</i> | 18 |
| 2.2 Management meetings | 18 |
| 2.3 <i>Contractor's</i> management, supervision and key people | 18 |
| 2.4 Provision of bonds and guarantees | 19 |
| 2.5 Documentation control..... | 19 |
| 2.6 Invoicing and payment..... | 19 |
| 2.7 Contract change management | 19 |
| 2.8 Records of Defined Cost to be kept by the <i>Contractor</i> | 20 |
| 2.9 Insurance provided by the <i>Employer</i> | 20 |
| 2.10 Training workshops and technology transfer..... | 20 |
| 2.11 Design and supply of Equipment..... | 20 |
| 2.12 Things provided at the end of the <i>service period</i> for the <i>Employer's</i> use | 20 |
| 2.12.1 Equipment..... | 20 |
| 2.12.2 Information and other things | 20 |
| 2.13 Management of work done by Task Order | 20 |
| 3 Health and safety, the environment and quality assurance | 21 |
| 3.1 Health and safety risk management | 21 |
| 3.2 Environmental constraints and management | 22 |
| 3.3 Quality assurance requirements | 23 |
| 4 Procurement | 23 |
| 4.1 People..... | 23 |
| 4.1.1 Minimum requirements of people employed | 23 |
| 4.1.2 BBBEE and preferencing scheme | 24 |
| 4.1.3 Accelerated Shared Growth Initiative – South Africa (ASGI-SA)..... | 24 |
| 4.2 Subcontracting | 24 |
| 4.2.1 Preferred subcontractors | 24 |
| 4.2.2 Subcontract documentation, and assessment of subcontract tenders | 24 |



| | | |
|----------|---|-----------|
| 4.2.3 | Limitations on subcontracting | 24 |
| 4.2.4 | Attendance on subcontractors | 24 |
| 4.3 | Plant and Materials | 24 |
| 4.3.1 | Specifications | 24 |
| 4.3.2 | Correction of defects | 25 |
| 4.3.3 | <i>Contractor's</i> procurement of Plant and Materials | 25 |
| 4.3.4 | Tests and inspections before delivery | 25 |
| 4.3.5 | Plant & Materials provided "free issue" by the <i>Employer</i> | 25 |
| 5 | Working on the Affected Property..... | 25 |
| 5.1 | <i>Employer's</i> site entry and security control, permits, and site regulations..... | 25 |
| 5.2 | People restrictions, hours of work, conduct and records..... | 26 |
| 5.3 | Health and safety facilities on the Affected Property | 26 |
| 5.4 | Environmental controls, fauna & flora..... | 26 |
| 5.5 | Cooperating with and obtaining acceptance of Others..... | 26 |
| 5.6 | Records of <i>Contractor's</i> Equipment..... | 27 |
| 5.7 | Equipment provided by the <i>Employer</i> | 27 |
| 5.8 | Site services and facilities..... | 27 |
| 5.8.1 | Provided by the <i>Employer</i> | 27 |
| 5.8.2 | Provided by the <i>Contractor</i> | 27 |
| 5.9 | Control of noise, dust, water and waste | 27 |
| 5.10 | Hook ups to existing works | 27 |
| 5.11 | Tests and inspections | 27 |
| 5.11.1 | Description of tests and inspections | 27 |
| 5.11.2 | Materials facilities and samples for tests and inspections | 28 |
| 6 | List of drawings..... | 29 |
| 6.1 | Drawings issued by the <i>Employer</i> | 29 |

1 Description of the service

1.1 Executive overview

The *Contractor* does inspections, maintenance and repairs on the PF piping and PF burner systems during GO's, Interim and Emergencies on an "as when required" basis. Repair spares that are required during outages.

1.2 Employer's requirements for the service

Section A

1.2.1 Inspection 38" PF pipe from mill outlet flange to first riffle-box

The information of the condition of these pipes is needed as soon as possible and the inspection should be done as and when required.

The aim of this inspection is to do a full thickness survey of the piping that can be entered from the inside. A total of 160 thickness measurements must be taken per mill. The position of measurements will be indicated by the Employer for the specific mill piping. The results of the measurements must be tabled as per numbering system as agreed.

Additionally the type and condition of the aerofoil on that piping should be recorded. Record whether the aerofoil is made of metal or ceramic and if ceramic whether there are any tiles missing. The general condition of the aerofoil is to be described.

Remove riffle-box internals

The cover plates of the riffle-boxes to be marked with the same numbering as the associated riffle-boxes. Remove all the riffle box covers and ensure it is stored safely. All the internal plates of the riffle-boxes are to be removed and taken to the scrap bins provided. This is condition dependant and needs to be agreed upon with the *Employer* before being thrown away.

A safe work procedure should be available on site to ensure safe handling of the internal plates. Re-tap all the cover plate securing bolt holes. The following three activities are for the removal of the three different sizes of riffle-box internals:

- Large riffle-box internals to be removed
- Medium riffle-box internals to be removed
- Small riffle-box internals to be remove

Remove of Johnson couplings

All the Johnson couplings are to be removed. Before any coupling is loosened the associated pipe work should be adequately secured. The following activities are for the removal of the different sizes of Johnson couplings:

- Remove 38" Johnson coupling
- Remove 20" Johnson coupling
- Remove 14" Johnson coupling

Remove of bends or bend sections where needed

Bends are a high wear area and are all lined with ceramic tiles. Remove different bends and bend sections for the inspection and assess the condition of the bends. The Contractor is responsible for the rigging of the bend and to ensure the pipe-work remaining is adequately supported before the bend section is loosened. The following activities are for the removal of the different bend or bend sections:

- Remove 38" bend
- Remove 20" bend
- Remove 14" bend

Inspection of 20" and 14" PF pipe work above 45' level

The cladding and lagging of the total 14" PF pipe work will be removed by another contractor. After all the parts of the PF piping is removed as part of the other activities in this contract a full thickness survey is to be done on all the PF pipe work above 45' level. A thousand positions over the entire length of the system are



to be surveyed. A measurement in 8 different directions around the circumference at each of the points along the length of the pipes is to be taken. Thus a total of 8000 thickness measurements are to be taken on the PF pipe work above 45° level. Each measurement is to be tabled as agreed with the *Employer*. Most of the measurements on the 20" pipe work are to be done from the inside. This is a confined space and necessary safety precautions to be taken during this inspection.

A visual inspection of all the tiled bends and riffle boxes to be done to determine the conditions of the tiles.

Remove riffle-boxes where needed

If needed riffle-boxes is to be removed for repair work. The pipe work connected to the riffle-boxes is to be secured before the riffle-boxes are loosened. The following activities are for the removal of the different size of riffle-boxes:

- Large riffle-box to be removed
- Medium riffle-box to be removed
- Small riffle-box to be removed

Repairs to bend deflector plates

Worn sections bend of deflector to be repaired by a window patch of the worn area. The tiles in this worn area need to be removed for the repair. This activity includes the removing of the tiles, cutting of the window, cutting of the piece of plate and welding in of the window. It excludes the retiling of the area.

Repairs to riffle boxes

Worn sections of riffle boxes to be repaired by a window patch of the worn area. The tiles in this worn area need to be removed for the repair. This activity included the removing of the tiles, cutting of the window and welding cutting of the piece of plate and welding in of the window. It excluded the retiling of the area.

Replace sections of PF pipe as indicated by *Employer*

If needed sections of piping is to be replaced. The joint type should remain as is and if there are flanges on the current pipe these flanges should be removed and installed on the new pipe. This activity includes for the removal of the old pipe, cutting of the new pipe, welding in flanges where applicable and for the installation of the new pipe section. The piping should be adequately supported before any flange or coupling is loosened. After the removal of the old pipe the contractor is responsible for recording the length of the original pipe section. Before the new pipe section is cut conformation from the *Employer* to indicate the sizing of the new pipe should be obtained. The flanges from the old pipe are to be removed and welded to the new pipe. The welding of the flanges should be done according to BS EN10025/275. The following activities are for the replacement of the different pipe sections:

- Replacement of a 38" pipe section with Johnson coupling both sides
- Replacement of a 20" pipe section with Johnson coupling both sides
- Replacement of a 14" pipe section with Johnson coupling both sides
- Replacement of a 38" pipe section with one welded flange
- Replacement of a 20" pipe section with one welded flange
- Replacement of a 14" pipe section with one welded flange
- Replacement of a 38" pipe section with two welded flanges
- Replacement of a 20" pipe section with two welded flanges
- Replacement of a 14" pipe section with two welded flanges

Welding in inserts of pipe as indicated by *Employer*

If needed inserts are to be done on sections of piping. This activity includes for cutting out a specific length of the existing piping, cutting the required length from new piping and then welding the new insert onto the old pipe section. Before the new pipe section is cut conformation from the *Employer* to indicate the sizing of the new pipe should be obtained. Inserts due to Aerofoils are seen as a normal insert. The welding to be according to BS EN10025/275. The following activities are for the inserts of the different pipe sizes:

- Insert to a 38" pipe section with one welded end
- Insert to a 20" pipe section with one welded end
- Insert to a 14" pipe section with one welded end
- Insert to a 38" pipe section with two welded ends
- Insert to a 20" pipe section with two welded ends
- Insert to a 14" pipe section with two welded end

Window patches to PF pipes as indicated by *Employer*



If needed window patches is to be done on sections of piping. This activity includes for cutting out a specific window of the existing piping, cutting the required piece of plate metal, rolling the plate section to the required radius and then welding the new rolled plate onto the old pipe section. The welding must be in accordance with BS EN10025/275. The activity cost is per meter of straight welding for the window patch. The following activities are for window patches of the different pipe sizes:

- Window patch to a 38" pipe section per meter weld
- Window patch to a 20" pipe section per meter weld
- Window patch to a 14" pipe section per meter weld

Weld-up of pipe ends as indicated by Employer

If needed the pipe ends are to be welded up with E309 welding rods. The cost of this activity is calculated as the rate per kg welding rods used for this welding.

Reinstall riffle-boxes

Reinstall riffle-boxes that were removed with refurbished riffle-boxes. This is condition dependant and needs to be agreed upon with the *Employer*. The following activities are for the installation of the different sizes of riffle-boxes:

- Installation of Large riffle-box
- Installation of Medium riffle-box
- Installation of Small riffle-box

Reinstall riffle-box internals

Install new riffle-box riffle plates. This is condition dependant and needs to be agreed upon with the *Employer* before installation of new plates.

The following activities are for the installation of the different sizes of riffle-boxes:

- Installation of Large riffle-box riffle plates
- Installation of Medium riffle-box riffle plates
- Installation of Small riffle-box riffle plates

The number of plates is crucial. (There must be 20 plates in total. 10 left hand and 10 right hand for Large riffle boxes, 16 plates in total. 8 left hand and 8 right hand for Medium riffle boxes and 12 plates in total. 6 left hand and 6 right hand for Small riffle boxes). Left hand and right hand plates must be fitted back to back. Proper installation is of paramount importance for PF distribution to the boiler.

Modify riffle plates to fit riffle boxes

In some cases tips of the new riffle boxes needs to be trimmed for the plate to fit in the riffle box. Riffle plates shall be made according to drawing 26.41/36054.

Tiling on the riffle boxes

Where tiles have come off shall be repaired in-situ for the following riffle boxes:

- Large riffle-box riffle
- Medium riffle-box riffle
- Small riffle-box riffle

Material needed for tiling must be supplied by the *Contractor*

Tiling of bends or bend sections where needed

Where tiles have come off shall be repaired in-situ for the following:

- 38" bend
- 20" bend
- 14" bend

Material needed for tiling must be supplied by the Contractor

PF piping hangers

Identify the hanger defects and do a visual inspection on the condition of the pipe hangers. Check the alignment of the pipe hangers and realign where necessary. Reinstall pipe hanger where missing. This is done on the following:

- Adjust 38" pipe hanger
- Adjust 20" pipe hanger
- Adjust 14" pipe hanger



Reinstall Johnson couplings

Reinstall all Johnson couplings. Install new rubbers while installing the couplings. The following activities are for the installation of the different sizes of Johnson couplings:

- Install 38" Johnson coupling
- Install 20" Johnson coupling
- Install 14" Johnson coupling

Install brackets and chains to protect 14", 20" and 38" pipes from falling when Johnson couplings fail

The section of piping between the last two Johnson coupling before the burners are not support due to the high amount of movement during a boiler start-up. There are supported to be safety chains across the Johnson couplings on this pipe section. In some cases there are no brackets and in some cases only the chains are missing. The following activities are for reinstating these safety chains:

- Install 14" safety chain bracket
- Install 14" safety chain
- Install 20" safety chain bracket
- Install 20" safety chain
- Install 38" safety chain bracket
- Install 38" safety chain

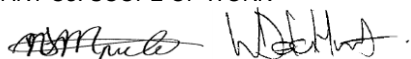
Section B**1. Description of the works during Interim Outages on burners:**

- 1.1 Do the burner tilt operation check test. This includes tilting the burner tilt to position -30° , 0° and $+30^{\circ}$. With the burner tilt in the 0° position and all the oil burner guns removed shine a light from the back of each Oil burner and record the position of the projected light on the opposite wall. The same must be done first in order establish the tilts that are out of range. During the test check the following:
 - i. Burner tilt bearings individually for free operation. Clearance to be 0.5 mm on all the bearings.
- 1.2 Identify the burner banks by marking the top air nozzle and then take pictures right through the bank. All nozzles need to be captured on the pictures and submit to the system engineer for assessment. E.g. in bank 1, mark the top nozzle as B1, then take the photos right through the bank and at the bottom nozzle mark B1 again. Do the same on all banks.
- 1.3 Check the tilt brackets to be in order. They normally break at the supports. If broken, take a sample to be manufactured.
- 1.4 Remove the burner tilt cylinder to C&I workshop for refurbishment and replace thereafter.
- 1.5 On each bank, fit the indication for -30° , 0° and $+30^{\circ}$. Anyone should be able read the physical tilt position.
- 1.6 Remove the burner tilt cylinder to C&I workshop for refurbishment and replace thereafter.
- 1.7 Remove the bends on all the PF burners to inspect the PF burners for any tiles that have come off. PF burners where tiles came off, need to be replaced and be installed back. Or rather install the refurbished or new PF burner feed pipe.
- 1.8 Check if the fourway valves switch to high and low fire. Repair mechanical faults and report to the Employer C&I faults..
- 1.9 Remove the oil burner guns to be removed and transported to the maintenance Oil Burner workshop. Maintenance Boilers shall replace the oil burner guns with the refurbished oil burner guns.
- 1.10 Remove Oil Burner feed block. During commissioning or during start-up check for leaks on the fuel oil flexible pipes from the fourway valve to the oil gun.
- 1.11 Remove the igniters to EMD workshop to clean and repair.
- 1.12 Unblock and clean all fuel oil drip trays and four way valves to the drums at 45 ft level. Replace the overhauled oil burner guns. Oil burner guns installed must be recorded on the data book with their unique numbers. NB: Only the tested and accepted oil guns can be installed back in the plant. Pipework shall be neatly and safely secured.
- 1.13 Remove the secondary air damper actuators from the boiler and transported to the C & I maintenance workshop. This included the flexible hoses connected to the actuators. The cables are to be removed by the *Employer*. The existing couplings are to be kept by the *Contractor* for

- safe keeping until the actuators are reinstalled. Before the actuators are removed the actuator to be marked with a permanent marker to identify its unique position.
- 1.14 Remove the oil burner air damper actuators from the boiler and transported to the C & I maintenance workshop. This includes the flexible hoses connected to the actuators. The cables are to be removed by the *Employer*.
- 1.15 NB: If there are replacements to be done on any nozzle, the faceplates must be removed and stored in for re-use. Repair faceplates that are worn or damaged.
- 1.13 Secondary Air Dampers bearings to be inspected and tested for free operation. Replace any damaged or seized Secondary Air Damper bearings. If the bearing is replaced with a bush, ensure 0.4 mm clearance on bearing. Any damaged or broken main link pins to be replaced.
- 1.14 Inspect the bank windbox hangers. Check the bolts, any signs of damage, cracks etc and issue the report. Do cold and hot survey on the burner box hangers.
- 1.15 If scope for removal/replacement of any nozzles is required or the bank alignment is out, the scope highlighted from 2.16 shall be carried out.
- 1.16 Commissioning to take place in order to ensure operation of the burner tilt, secondary air dampers and identification of oil and propane leaks etc. After the *Employer* completed the C & I work on the burner tilt actuators the *Contractor* assist with commissioning of the dampers and attend to defects. Commissioning shall be as per OICOMM BOI-066 COMMISSIONING OF PLANT AFTER A GENERAL OVERHAUL OIL BURNER SECONDARY AIR DAMPER and OICOMM BOI-065 COMMISSIONING AFTER A GENERAL OVERHAUL OIL BURNERS AND PURGE AIR FANS. Where it is indicated as MMD responsibilities, the *Contractor* carries out those tasks.

2. Description of the works during General Outages on burners:

- 2.1 Do the burner tilt operation check test. This includes tilting the burner tilt to position -30° , 0° and $+30^{\circ}$. With the burner tilt in the 0° position and all the oil burner guns removed shine a light from the back of each Oil burner and record the position of the projected light on the opposite wall. The same must be done first in order establish the tilts that are out of range. During the test check the following:
- Burner tilt bearings individually for free operation. Clearance to be 0.5 mm on all the bearings.
- 2.2 Check the tilt brackets to be in order, they normally break at the supports. If broken, take a sample to be manufactured.
- 2.3 Remove the burner tilt cylinder to C&I workshop for refurbishment and replace thereafter.
- 2.4 On each bank, fit the indication for -30° , 0° and $+30^{\circ}$. Anyone should be able read the physical tilt position.
- 2.5 Remove the bends on all the PF burners to inspect the PF burners for any tiles that have come off. PF burners where tiles came off, need to be replaced and be installed back. Or rather install the refurbished or new PF burner feed pipe.
- 2.6 Remove the fourway valves to be overhauled. Replace the overhauled fourway valves. It is key to include the serial number and position of the fourway valve in the plant. The same to be included on the data book. Commissioning to take place in order to ensure operation of the burner tilt, secondary air dampers and identification of oil and propane leaks etc.
- 2.7 Remove the oil burner guns to be removed and transported to the maintenance Oil Burner workshop. Maintenance Boilers shall replace the oil burner guns with the refurbished oil burner guns.
- 2.8 Remove Oil Burner feed block. During commissioning or during start-up check for leaks on the fuel oil flexible pipes from the fourway valve to the oil gun.
- 2.9 Remove the igniters to EMD workshop to clean and repair.
- 2.10 Unblock and clean all fuel oil drip trays and four way valves to the drums at 45 ft level.
- 2.11 Replace the overhauled oil burner guns. Oil burner guns installed must be recorded on the data book with their unique numbers. NB: Only the tested and accepted oil guns can be installed back in the plant. Pipework shall be neatly and safely secured.
- 2.12 Remove the secondary air damper actuators from the boiler and transported to the C & I maintenance workshop. This included the flexible hoses connected to the actuators. The cables are to be removed by the *Employer*. The existing couplings are to be kept by the *Contractor* for safe keeping until the actuators are reinstalled. Before the actuators are removed the actuator to be marked with a permanent marker to identify its unique position.



- 2.13 Remove the oil burner air damper actuators from the boiler and transported to the C & I maintenance workshop. This includes the flexible hoses connected to the actuators. The cables are to be removed by the *Employer*.
- 2.14 NB: If there are replacements to be done on any nozzle, the faceplates must be removed and stored in for re-use. Repair faceplates that are worn or damaged.
- 2.15 On the outstanding oil burner nozzles, the oil gun slots need to be grinded to allow for clearance of at least 0.5 - 1 mm between the oil gun and the oil burner nozzle.
- 2.16 Remove the nozzle face plate covers where nozzles are to be replaced and store in a safe place for re-use.
- 2.17 Secondary Air Dampers bearings to be inspected and tested for free operation. Replace any damaged or seized Secondary Air Damper bearings. If the bearing is replaced with a bush, ensure 0.4 mm clearance on bearing. Any damaged or broken main link pins to be replaced.
- 2.18 Inspect the bank windbox hangers. Check the bolts, any signs of damage, cracks etc and issue the report.
- 2.18 If scope for removal/replacement of any nozzles is required or the bank alignment is out, the rest of the scope below shall be done.

3. Scope for burner nozzles replacement

3.1 Install parking bolts of burner nozzle and disconnect external tilt arm

Remove the side access cover and store for re-use. Move tilt to 0° position and fix main tilt arm, isolate cylinder and install parking bolt to each PF burner and disconnect the external and internal link from the tilt arm by removing the pins. Note internal link pin is tack welded to tilt link. The pins and washers need to be stored for safekeeping until re-use.

3.2 Disconnect SA and Oil burner nozzle from tilt arm

Move tilt to the fully down position with a chin block, fix the tilt in this position and disconnect tilt external arm by removing the pin connecting the tilt arm to the vertical tilting flat bar. The pins and washers need to be stored for safekeeping until re-use.

3.3 Remove flat bar connecting nozzle to main tilt arm

The flat bar connecting all nozzles to main tilt arm is to be removed and stored for possible later use. Ensure that current bottom tilt stop clevis is retained for re-use.

3.4 Remove square to round including bend connected to burner feed tube

Before this actions starts the *Contractor* supplies a safe work procedure for the rigging of these equipment. The square to round including bend connected to burner feed tube is to be removed and transported to the area indicated by the *Employer* on 45' level.

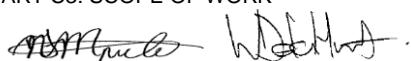
3.5 Remove SA nozzle

Before this action start the *Contractor* supplies a safe work procedure for the rigging of this equipment. Remove internal tilt link pin and internal tilt arm. Note pin is tack welded to tilt link and internal tilt arm is tack welded to tilt bearing shaft. Unbolt tilt bearing and remove bearing assembly. Store bearing and internal arm. Centralising spacer and external pin for re-use.

Supply SA nozzle with chain block, loosen support bracket and take care to retain nozzle retaining plate from the burner box below. If it is a top SA nozzle remove the retaining plate through the inspection door on the side of the PF nozzle. Remove SA nozzle with support bracket. Lower nozzle and move to the dedicated area on 45' level.

3.6 Remove Oil burner nozzle

Remove internal tilt link pin and internal tilt arm. Note pin is tack welded to tilt link and internal tilt arm is tack welded to tilt bearing shaft. Unbolt tilt bearing and remove bearing assembly. Store bearing, internal arm, centralising spacer and external pin for re-use. The tilt shaft with the external arm attached to be given to the Employer for modification. Support Oil burner nozzle with chain block, loosen support bracket and take care to retain nozzle retaining plate from the burner box below. Remove nozzle with support bracket. Lower nozzle and move to dedicated area on 45' level.



3.7 Remove Coal burner with feed pipe

Unbolt the tilt bearing and move bearing assembly until internal tilt arm is pressed on side of burner box. Support the rear of burner feed pipe and loosen burner from burner box back flange. Fit a shackle to feed pipe and pull nozzle assembly from burner box with a chain block while continuously supporting the burner assembly. Lower burner assembly to 45° level and move to dedicated area. Remove internal tilt arm from tilt bearing assembly, remove bearing assembly from the burner box and store for re-use. Note internal tilt arm is welded to bearing shaft.

3.8 Inspect burner box compartments

Inspect each SA Nozzle compartment, PF burner compartment, Oil burner compartment to evaluate the following:

- Ensure the minimum width is 277mm
- The condition of the front edges of the burner box
- The straightness of side panels
- The straightness of base plates

3.9 Replace deformed burner-box side plates

When indicated by the *Employer* deformed burner-box side plates are to be replaced by cutting the side plate out and welding in a new piece of plate. The welding is to be according to BS EN10025/275.

3.10 Replace deformed burner-box base plate

When indicated by the *Employer* deformed burner-box base plate are to be replaced by cutting the base plate out and welding in a new piece of plate. The welding is to be according to BS EN10025/275.

3.11 Remove nozzle retaining plates on wind-box base plates

Some of the nozzle retaining plates is tack welded to the roof of the burner box below. Remove these retaining plates by grinding the tack welds.

3.12 Re-tap all nozzle retaining plates

Where necessary, re-tap all nozzle retaining plates with a M16 tap.

3.13 Manufacture new nozzle retaining plates

If needed manufacture new nozzle retaining plates. Cut a 225mm piece of a 50x10 flat bar. Chamfer the two ends of the flat bar. Drill and tap two holes with a M16 tap.

3.14 Jack burner side channels

Jack burner side channels to achieve the minimum width of 477mm. The following activities are for the different side channels:

- Jack SA nozzle compartment side channels
- Jack PF nozzle compartment side channels
- Jack Oil burner nozzle compartment side channels

3.15 Repair burner box front edges

Repair deformed front edges of burner boxes by cutting out a section of plate and welding in a new piece of plate.

3.16 Repair burner box halve joints

Halfway up the height of each burner box there is a flange joint. If indicated by the *Employer* this joint is to be prepped and seal welded from the inside.

3.17 Re-tap burner box face plate holes

All the threads on the burner box faceplate to be re-tapped with M16 Tap.

3.18 Repair burner box face damage threads

If indicated by the *Employer* the damaged threads on the face plates holes is to be repaired. The damaged threads to be drilled out to 25mm and an insert welded into the hole. The *Contractor* is to supply the inserts. Insert dimensions to be M16 x 24.5mm OD x 25mm thick.

3.19 Remove burner tilt main bearing and inspect bearings

Remove burner tilt main shaft from burner box and inspect bearings for wear ensure main arm shaft and bearings are retained for re-use. The Contractor must ensure a 0.5 mm clearance on all the bearings. The outer main link must be completely removed for this test and replaced afterwards.

3.20 Inspect flange covers

Inspect burner box flange covers for deformation and for blur's on the flange face.

3.21 Repair flange covers

Grind away all high spots on flange covers.

3.22 Manufacture new flange covers

Where needed fabricate new flange covers.

3.23 Full inspections of SA dampers without actuator

With all the actuators removed all the SA dampers is to be inspected for free movement, worn bearings, damaged shafts, worn internal guide washers and damaged damper blades. The condition of the damper open and closed stops is to be recorded.

3.24 Replace worn SA damper shafts

If indicated by the *Employer* worn SA damper shafts are to be replaced the shafts to be supplied by the *Employer*.

3.25 Replace worn or seized SA damper bearing/bushes

When the play on a bearing is excessive the bearing / bush needs to be inspected. The inspection is to indicate if the bush, bearing outer casing or both needs to be replaced. The necessary components are then replaced. The *Employer* supplies the bearing casings or bushes. When the bearing casing is removed to be replaced the *Contractor* is responsible for alignment of the shaft to the actuator position to ensure correct alignment an actuator needs to be installed and then again removed where these bearing casings are replaced.

3.26 Install new guide washers on SA damper shafts

There is supposed to be guide washers welded to the SA damper shafts to centralise the shafts in the burner box. If there are places where there are no washers new washers need to be welded to the shafts when the shafts are in the correct position. The damper blade needs to be removed and reinstalled to be able to install these washers.

3.27 Replace worn guide washers on SA damper shaft

Worn SA shaft guide washers need to be replaced. These washers are welded to the shaft and needs to be cut from the shaft. New washers need to be welded to the shaft when the shaft is in the correct position. The damper blade needs to be removed and reinstalled to be able to install these washers.

3.28 Replace worn SA damper blades

Worn or damaged SA damper blades need to be removed and new blades cut from 5mm mild steel plate. The plate is supplied by the *Employer*. The dimensions of the new blade are supplied by the *Employer*.

3.29 Measure the SA damper blades clearances and trim if necessary

The clearance between the damper blades, the burner box as well as the dimensions of the burner box to be recorded. If the clearances are not on specification the *Employer* indicates and then the *Contractor* shall rectify.

3.30 Inspect for faulty SA damper internal stops and replace if necessary

Worn or broken SA damper stops to be replaced by cutting the existing stop from the burner box and welding a 50mm long 50 x 50 angle iron to the burner box at the correct position. The Contractor is responsible for

cutting the angle iron supplied by the *Employer*. Before the new stops are welded to the burner box the *Contractor* is to ensure the damper is in the correct quadrant. The damper should be closed when turned clockwise as seen from the actuator and must be reset if different.

3.31 Adjustment of links connecting the two outer dampers

The outer link between the two outer dampers per burner needs to be re-adjusted to ensure the two dampers are synchronised.

3.32 Final internal inspection of SA dampers without actuators

When all the work on the dampers is complete a final inspection is to be done ensuring the following:

- Dampers free to turn
- Dampers in the correct quadrant
- Damper clearances as indicated by *Employer*

3.33 Installation of SA dampers actuators

The actuators to be reinstalled complete with couplings. The *Contractor* collects the Actuators from the C & I maintenance workshop. During installations the *Contractor* ensures correct alignment between the damper shaft and the actuator. Each actuator is to be reinstalled in its unique position as indicated by the permanent marking. The piping and cabling is to be installed by the *Employer*.

3.34 Transport new Oil burner nozzle, SA nozzles and Coal nozzles to 45' level and sort all nozzles in the correct order and position for each burner-box

The SA nozzles, Oil burner nozzles and PF nozzles are to be moved from the stores to 45' level (only the quantity to be replaced). The five different types of Air nozzles, Oil burner nozzles and the PF nozzles can all either be used for a LH or RH configuration. It is critical to assemble and install each burner the correct way. To ensure there is no re-work all the nozzles are to be stored on 45' level in the order and direction they are to be installed. During the total assembly and transportation process the position and direction of each nozzle should be clear. It is suggested that tags be installed on each nozzle to indicate the way it is to be installed and the position the link is to be installed. There is a ceramic insert in the PF nozzle and this requires the PF nozzles to be handled with care during the transport and installation process. For loading and of loading the burners onto trolleys there should be lifting equipment to ensure these nozzles do not fall. Ensure that, on each new tilting cola burner assembly, the horizontal connecting links is fixed to the boss on the cola pipe with the parking bolt. This will hold the nozzle horizontally.

3.35 Assembly of Oil burner register onto support bracket

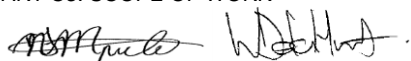
The hand of the old register must be noted to ensure the new register is installed the correct way. Remove old air register from support bracket by removing locating pins. Note locating pins are welded to nozzle. Remove current tilt link from air register. Note locating pin is welded to nozzle. Move old air register to dedicated area close to the *Contractors'* yard. Cut the existing rear oil gun shroud tube to the dimensions as shown on drawing C7071-17-025.

Connect the existing horizontal tilt link onto the new air nozzle with new pin and weld pin as indicated in drawing 26.41/40031 sheet 28. Place the new air nozzle, support bracket and shroud tube into position to insert new pivot pins. Insert the ignite guide tube into the mounting tube on the oil burner swirled assembly. Fix the new air nozzle and oil swirled to the existing support bracket with new pivot pins and tack weld pins as indicated on drawing 26.41/40031 sheet 28. Welding of pins to nozzles to be according to BS EN10025/275. The *Contractor* indicates to the *Employer* the welding consumable to be used for this welding.

3.36 Assembly of SA nozzle registers onto support bracket

Remove old air register from support bracket by removing locating pins. Note locating pins are welded to nozzle. Remove current tilt link from air register. Note locating pin is welded to nozzle. Move old air register to dedicated area close to the *Contractors'* yard.

Tap both sides of support bracket with M16 tap as indicated on drawing C7071-17-030 for the parking bracket installation.



There are five different types of Air nozzles and each of the five nozzles can be used for either LH or RH handed positions. It is critical to install the nozzle the correct way around on the air support bracket and to install the tilt link on the correct position.

Fix tilt link to new register by welding the new pin as indicated on drawings C7071-17-010, C7071-1-011, C7071-17-012, C7071-17-015, and C7071-17-017. Consult drawing no: 26.41/40031 sheet 29 for the correct arrangement of the nozzles.

Fix new nozzle to existing support bracket with new pivot pins and tack weld according to drawings: C7071-17-010, C7071-1-011, C7071-17-012, C17-17-015, C7071-17-017.

Fix the SA nozzle in the horizontal position as indicated on drawing C7071-17-030.

Welding of pins to nozzles to be according to BS EN10025/275. The *Contractor* indicates to the *Employer* the welding consumable to be used for this welding.

3.37 Final inspection of burner box ready for re-installation of burner equipment

Before any burner equipment is reinstalled a final inspection is done in conjunction with the *Employers* representative to ensure the following is correct:

- All flanges of burner box are in a good condition
- All treads are correct
- The burner box side panels are not deformed
- The burner box base plates are not deformed
- The burner box tips are not burned or deformed.
- The minimum width in the burner boxes is 477mm
- The burner box flange covers are in a good condition
- All bearings are in a fair condition
- All the nozzles are assembled correctly and stored in the correct order for installation

3.38 Reinstall main burner tilt arms and bearings

Reinstall main burner tilt arms and tilt bearings. Install new shearing pins. Fix main tilt arm in the 0° position.

3.39 Reinstall burner tilt arms and bearings

Install tilt arms, shafts, centralising spacers and bearings for all the nozzles without fastening the tilt bearings. Tack weld internal and external links in position. Ensure that grab screw are tightened into new dimple hole on tilt shaft. Pull bearing outwards until internal link is touching side of burner box. After each specific nozzle is installed fastened all tilt bearings in position.

3.40 Adjustment of tilt flat bar external stop

With all the tilt arms connected move the main tilt arm upwards until the arm angle representing a negative 30° nozzle angle. Adjust to the bottom tilt flat bar stop to prevent any further movement. Lock the bottom stop in position.

Move the main tilt arm downwards until the arm angle representing a positive 30° nozzle angle. Adjust to the top tilt flat bar stop to prevent any further movement. Lock the top stop in position.

3.41 Install SA nozzle

Before these actions start the *Contractor* supplies a safe work procedure for the rigging of this equipment. Ensure the check sheets for the burner box where nozzles are to be installed are completed and all is acceptable. Lift and transfer the assembly into the compartment. Centralise the nozzle assembly in the compartment and bolt down the air support bracket. If the nozzle does not have a 10mm minimum clearance all round, unbolt the bracket, remove the tack welds on the support bracket washers and fit new washers. Reposition and bolt down. Tack weld the new washers.

3.42 Install Coal Nozzles

Before this actions starts the *Contractor* supplies a safe work procedure for the rigging of these equipment. Ensure the check sheets for the burner box where nozzles are to be installed are completed and all is acceptable.

Apply ladder tape gasket material to the flanges, using impact adhesive to hold in position.

Lift the PF nozzle feed and tube assembly in insert it into its position on the burner box. Care should be taken to ensure the nozzle is not bumped against other equipment.

Check that the side clearance of the outside of the nozzle assembly to the side channels of the burner box are a minimum of 10mm each side. Check that the top and bottom clearances of the bell of the nozzle assembly to the division plates of the burner box are a minimum of 10mm.

Bolt up the fabricated burner coal pipe flange to the wind-box flange and adjacent compartment flanges. Tighten the bolts on the loose flange to the adjacent compartment.

3.43 Install Oil burner nozzles

Before this actions starts the *Contractor* supplies a safe work procedure for the rigging of these equipment. Ensure the check sheets for the burner box where nozzles are to be installed are completed and all is acceptable.

Lift and transfer the oil burner assembly into the oil compartment.

Centralise the nozzle assembly in the compartment and bolt down the air support bracket. If the nozzle does not have a 10mm minimum clearance all round, unbolt the bracket, remove the tack welds on the support bracket washers and fit new washers. Reposition and bolt down. Tack weld washers if needed.

3.44 Manufacture and install new flat bar connecting burner tilts to main burner tilt arm

Cut tow 50mm x 10mm flat bars to 4400mm and 4860mm length respectively. The 4400 is called the bottom flat bar and the 4860mm called the top flat bar. Join these two pieces of flat bar by bolting two 200mm pieces of flat bar on either side of the joint with a total of 4 M20 bolts, two bolts on either side

Mark the flat bars to be by welding the specific burner box number to the flat bar. Weld two 100mm pieces of flat bar that there centres is 1460mm from the bottom of the bottom flat bar. Drill a 30mm hole 1460mm from the bottom of the bottom flat bar.

Connect the bottom flat bar to the main tilting arm and join the two flat bars. With the main burner tilt arm fixed at 0° position ensure that the top SA nozzle tilting arm is perfectly horizontal and mark and drill a 20mm hole for the tilt pin.

Insert the tilt pin on the top SA nozzle tilting lever. Mark and drill the holes for all the tilting levers ensuring each lever is perfectly horizontal. The *Contractor* to indicate to the *Employer* the procedure to ensure the tilting external arms are exactly horizontal when the hole for the pin is marked and drilled.

Install the tilt pins on all the tilting levers. Ensure the correct washers and split pins are used.

Weld the new top tilt stop bracket assembly to the wind-box channel at the top of the box. Fit the new tilt stop rod and clevis to the vertical tilt lever, reconnecting the top compartment external tilt lever with the new longer pin.

Re-install the old bottom stop clevis and rod.

3.45 Connection and alignment of SA nozzle

While the main tilt arm is fixed at the horizontal position reconnect the inner tilt link to the inner tilt arm by adjusting the turn buckle until the pin can be inserted. Tack weld the pin in place as indicated on drawings: 26.41/40031 sheet 17, 26.41/40031 sheet 18, 26.41/40031 sheet 19, 26.41/40031 sheet 26, 26.41/40031 sheet 27. Remove the barking bracket. Lock the turnbuckle with the locking screw. Return he parking brackets the dedicated position at the *Employer* store, connect a chain block on the internal tilt link remove the external tilt arm pin and test that the individual burner can tilt more than positive and negative 30°. The activity will have to be witnessed by the *Employer*. Reinstall the external tilt link pin.

3.46 Connection and alignment of oil burner nozzle

Connect a chain block on the inner tilt link of the oil burner nozzle and test if the nozzle can operate through the positive and negative. Tilt the nozzle to a perfectly horizontal position and adjust the inner turnbuckle until the pin connecting the inner tilt link to the inner tilt arm can be inserted. Tack weld the pin as indicated on drawing 26.41/40031 sheet 28. Lock the turnbuckle in position.

3.47 Connection and alignment of PF nozzle

While the main tilt arm is fixed at the horizontal position reconnect the inner tilt link to the inner tilt arm by adjusting the turn buckle until the pin can be inserted. Tack weld the pin in place as indicted on drawing:

26.41/40031 sheet 16. Remove the parking bolt. Connect a special clamp to the external tilt arm and fix chain block to this clamp. Remove external tilt arm pin. Test that the total angle of movement of the nozzle is more than positive and negative 30°. Move nozzle to the horizontal position and re-connect the external tilt arm.

3.48 Install square to round including bend connected to burner feed tube

Install the square to round including bend connected to burner feed tube. After installation of all these bends check the adjustment of the constant load hanger supporting these bends.

3.49 Final inspection of tilt operation

When all the nozzles on a burner box is installed and connected the *Contractor* with the *Employer* does the final inspection to ensure the installation and operation is correct.

3.50 Re-install oil burner and SA nozzle faceplate covers

After burner final operation inspection apply ladder tape gasket material to the nozzle flanges, using impact adhesive to hold in position. Employer supplies ladder tape and impact adhesive. Fit the compartment faceplate covers.

3.51 Replace faceplate cladding

Manufacture and install new faceplate cladding boxes from 1.6mm plate. The *Employer* supplies the material

3.52 Inspection of propane system

The total propane system including the main station excluding the main isolation valve to be pressure tested for leak detection. For the pressure test to be successful no pressure decay is allowed over a 9hr period. All defects are recorded.

3.53 Commissioning of the PF piping system

During the first start up the mills the *Contractor* search for PF leaks and attends to defects.

4. Repair of the spares

4.1 In-between the IR or GO outages (preferably) or during an outage, re-tile the PF burner feed pipe which are damaged if there is no contract between the Employer and other tile contractor. Refer to 240-56239143 Pulverised Fuel pipework ceramic lined standard for tolerances and installation considerations. The adhesive used shall withstand furnace radiation temperatures of up 1400°C. The tiles shall not come off whilst the PF burner is in operation or stored. Tiles shall be intact for a minimum of 6 years. *It must be noted the Employer is struggling with the tiles coming off inbetween outages, the Contractor is welcome to recommend better adhesives for the application. Book the refurbished PF burner feed pipes back to the Employers stores.*

4.2 Repair the flexible pipes on the oil burner and ignite guide tubes (that's what normally gets damaged). Book the refurbished oil burner and ignite guide tubes back to the Employer's stores.

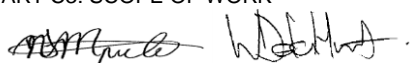
5. Repairs during weekend outages or adhoc basis

5.1 Scope of work during weekend outages depend on defects like stuck oil guns, secondary and core air dampers bearings that have seized, burner tilt alignment, premature worn PF burners, repair of damaged tilt links. The defects shall be repaired as per the Employer's request.

5.2 If requested, conduct the secondary and core air damper tests. Open the manhole at the bank windbox and verify the open and close positions.

5.3 Conduct PF piping works as described in section A when required.

5.4 Removal of the burner tilt cylinder to C&I and replacement thereof if defective.

Handwritten signatures in black ink, appearing to be 'M. M. M. M.' and 'W. D. H. M.'.

1.3 Interpretation and terminology

The following abbreviations are used in this Service Information:

| Abbreviation | Meaning given to the abbreviation |
|--------------|------------------------------------|
| BCEA | Basic Condition of Employment Act |
| C&I | Control and Instrumentation |
| EMD | Electrical Maintenance Department |
| GO | General Overhaul |
| HP | Hold Point |
| IR | Interim |
| LRA | Labour Relations Act |
| MSDS | Material Safety Data Sheet |
| OHSA | Occupational Health and Safety Act |
| PF | Pulverised Fuel |
| PSR | Plant Safety Regulation |
| QCP | Quality Control Plan/Product |
| RA | Risk Assessment |
| WP | Witness Point |
| | |
| | |
| | |
| | |

2 Management strategy and start up.

2.1 The Contractor's plan for the service

- The *Employer* will provide a plan during IR and GO. On emergencies the *Contractor* will develop a plan and submit it to the *Employer* for approval.
- The *Contractor* adheres to programmes submitted by the *Service Manager*.
- The *Contractor* adheres to the Employer's maintenance planning system. The *Contractor* supplies information to the *Service Manager* that allows the *Service Manager* to update the planning system. This information is submitted within the time periods and as agreed with the *Service Manager*.

Outage scheduled:

| Nr | Plan | Unit | Start date – End date |
|----|------|------|-------------------------|
| 1 | IR | 4 | 03/06/2018 – 07/08/2018 |
| 2 | IR | 6 | 17/09/2018 – 26/10/2018 |
| 3 | IR | 2 | 06/01/2019 – 14/02/2019 |
| 4 | IR | 3 | 05/05/2019 – 13/06/2019 |
| 5 | IR | 1 | 09/09/2019 – 06/10/2019 |
| 6 | IR | 5 | 18/05/2020 – 18/05/2020 |

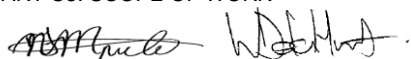
Note: Dates may change due to system demand. The actual working days for the works is 18 days.

2.2 Management meetings

- Meeting will be held as and when required by the *Service Manager* or the *Contractor*.
- Meetings of a specialist nature may be convened as specified elsewhere in this Service Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the *service*. Records of these meetings shall be submitted to the *Service Manager* by the person convening the meeting within five days of the meeting.
- All meetings shall be recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register shall not be used for the purpose of confirming actions or instructions under the contract as these shall be done separately by the person identified in the *conditions of contract* to carry out such actions or instructions.

2.3 Contractor's management, supervision and key people

- The *Contractor* appoints employees with sufficient knowledge in their area of expertise.
- The *Contractor's* employees on site should be able to conduct pre-job brief and RA. The Employer will conduct the RA and pre-job briefs with *Contractor's* Safety Officer. It will be required that the pre-job brief and RA be conducted daily.
- The *Contractor* employs only people who have received sufficient training to ensure that they comply with the Act.
- The *Contractor* appoints a person who liaises with the Employer's designated Safety Officer. The appointed person, on the request of the *Service Manager*.
- undertakes safety audits at the Site and on the *Contractor's* employees.



- refuses any employee, Sub-Contractor or agent of the Contractor access to the Site if such person is found to commit any unlawful act or any unsafe working practice or is found to be not authorised or qualified in terms of the Act.
- issues the *Contractor* with a work stop order should he become aware of any unsafe working procedure or conditions of non-compliance with the Act, Regulations and Procedures by the *Contractor*.

2.4 Provision of bonds and guarantees

N/A

2.5 Documentation control

- The *Contractor* will compile QCP's of work to be done and which will be approved by the *Employer*.
- Any alteration to existing plant needs to be updated on Arnot specification drawing. All drawings to be made available for use and archiving.

2.6 Invoicing and payment

The Z clauses make reference to invoicing procedures stated here in this Service Information. Also include a list of information which is to be shown on an invoice.

Within one week of receiving a payment certificate from the *Service Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice showing the amount due for payment equal to that stated in the *Service Manager's* payment certificate.

The Contractor shall address the tax invoice to:

Cariza Von Molendorf
Finance Department
Eskom Holding SOCLTD
Arnot Power Station
Private Bag X2
Rietkuil
1097

and include on each invoice the following information:

- Name and address of the *Contractor* and the *Service Manager*;
- The contract number and title;
- *Contractor's* VAT registration number;
- The *Employer's* VAT registration number 4740101508;
- Description of service provided for each item invoiced based on the Price List;
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT;
- (add other as required)

Add procedures for invoice submission and payment (e. g. electronic payment instructions)

2.7 Contract change management

N/A

2.8 Records of Defined Cost to be kept by the *Contractor*

N/A

2.9 Insurance provided by the *Employer*

First read TSC3 Core Clause 86.1 and then add anything necessary for the management of insurance related issues such as a cross reference to where procedures for making claims can be found. Also provide contact details for persons capable of being able to answer any insurance related queries the *Contractor* may have, as well as to whom the information required by Marine Insurance (if any) may be addressed.

2.10 Training workshops and technology transfer

N/A

2.11 Design and supply of Equipment

N/A

2.12 Things provided at the end of the *service period* for the *Employer's* use

2.12.1 Equipment

N/A

2.12.2 Information and other things

Reports must be submitted to the *Employer* after each service.

2.13 Management of work done by Task Order

- The *Contractor* performs work in accordance with the prior use of a Task Order from the delegated *Service Manager* or his delegate and completes it within the time period specified in the Task Order.
- Should the *Contractor* be unable to supply the resources required to complete a Task Order within the period specified, he immediately notifies the delegated *Service Manager* to this effect. The notification includes recommendations as to how the work can be completed.
- The Task Order is complete when the content and deliverables called up in the activity listed in the Task Order and any additional requirement have been provided and all work complies with appropriate standards, requisite QCP and sound engineering practice to provide reliable generating plant.
- An emergency work is work required when normal administration cannot be achieved and allows the *Contractor* to start work on a verbal instruction by *Service Manager*. The *Contractor*, without prior

issue of a Task Order, but upon the verbal instruction of the Service *Manager* or *Supervisor*, provides the works in an Emergency. The task Order is confirmed in writing within 24 hours.

3 Health and safety, the environment and quality assurance

3.1 Health and safety risk management

In addition to the requirements of the laws governing health and safety, Eskom may have some additional requirements particular to the *service* and the Affected Property for this contract. The text below provides for these being attached as an Annexure to this Service Information. PLEASE ALSO READ CORE CLAUSE 27.4 TOGETHER WITH Z7 IN THE ADDITIONAL CONDITIONS OF CONTRACT TO MAKE SURE THAT WHATEVER IS INCLUDED IN THE ANNEXURE FOLLOWS ON FROM THOSE CLAUSES.

The Divisional/Regional Safety Risk Manager or his representative having jurisdiction over the *service* must provide the relevant safety, health and environmental (SHE) criteria for incorporation into this Service Information. The SHE specification / scope must be signed off by the Divisional/Regional Safety Risk Manager or his representative confirming that the applicable safety criteria have been taken into account.

The Commodity Manager / Buyer must refer the tender to the Divisional/Regional Safety Risk Manager or his representative in order to evaluate against enquiry-specific safety criteria.

The Divisional Safety Risk Managers who will be responsible for the allocation of resources to assist P&SCM with the above processes are as follows:

- Generation: Roley McIntyre
- Transmission: Tony Patterson
- Distribution: Alex Stramrood
- Enterprises: Jace Naidoo
- Corporate: Kerseri Pather

The *Contractor* shall comply with the health and safety requirements contained in **Annexure A** to this Service Information.

- **COMPLIANCE TO 5 IDENTIFIED CARDINAL RULES:**

RULE 1: OPEN, ISOLATE, TEST, EARTH, BOND, AND/OR INSULATE BEFORE TOUCH

(That is, any plant operating above 1 000 V)

No person may work on any electrical network unless:

he/she is trained and authorised as competent for the task to be done;

a pre-task risk assessment to identify all risks and hazards has been conducted prior to any work commencing;

an equipotential zone is created for each worker on the job site by earthing, bonding, and/or insulating according to approved procedures;

all conducting material is connected together, all staff on site wear electrical safety shoes, and insulating techniques are applied according to standards; and

the authorised person (team leader) has certified and shown all team members that the apparatus is safe to work on.

RULE 2: HOOK UP AT HEIGHTS

Working at height is defined as any work performed above a stable work surface or where a person puts himself/herself in a position where he/she exposes himself/herself to a fall from or into.

No person may work at height where there is a risk of falling unless:

a pre-task risk assessment to identify all risks and hazards has been conducted prior to commencing any work at height;

he/she is appropriately trained;

he/she is appropriately secured during ascending and descending; and

he/she is using an approved fall arrest system where applicable.

RULE 3: BUCKLE UP

No person may drive any vehicle on Eskom business and/or on Eskom premises:

unless the driver and all passengers are wearing seat belts.

RULE 4: BE SOBER

No person is allowed to work under the influence of drugs and alcohol.

"Under the influence" means the use of alcohol, drugs, and/or a controlled substance to the extent that:

the individual's faculties are in any way impaired by the consumption or use of the substances; or

the individual is unable to perform in a safe, productive manner; or

the individual has a level of any such substance in his/her body that corresponds to or exceeds accepted medical/legal standards; or

the individual has a level of alcohol in his/her body that is greater than 0.02% blood alcohol concentration. This includes any level of an illegal substance in the body, irrespective of when the substance was used.

RULE 5: ENSURE THAT YOU HAVE A PERMIT TO WORK

Where an authorisation limitation exists, no person shall work without the required Permit to Work (PTW), which is governed by the Plant Safety Regulations, Operating Regulations for High Voltage Systems (ORHVS) etc.

No plant is to be returned to service without the cancellation of all permits on that plant in accordance with procedure.

NB: in the case of live work, a "live work declaration form" is to be completed by the authorised person who is the person responsible for the safe execution of work according to relevant standards and procedures.

Please ensure that these rules are understood and communicated with the urgency that they deserve. If any of these rules are unclear or the consequences not understood, please do not hesitate to discuss it with Eskom.

We would like to continue our current partnership and therefore urge your support in the implementation and upholding of these rules.

3.2 Environmental constraints and management

- **Environmental requirements**

The *Contractor* ensures that all goods, services or *works* supplied in terms of the Contract conform to all applicable environmental legislation.

The management and staff at Arnot Power Station are committed to generate low cost power without compromising its responsibility towards the natural environment. Arnot Power Station management has decided to implement and align its environmental management system in compliance with SABS ISO



14001:2004 as a means of managing impacts to and ensuring continual improvement of the environment in which it operates.

The *Contractor* need to comply with ISO 14001 on environmental management.

- **The environmental policy for Arnot Power Station is set out below:**

We are committed to sustainable development and will actively work to reduce the impact on the natural environment resulting from the power generation process.

We commit to continual improvement in our performance and aspire to minimum harm to people and the environment

- **Whenever we conduct our business, we will:**

- L : Legal compliance
- I : Improve continuously
- M: Management of natural resources
- P: Prevention of pollution

- **Refuse Disposal**

The *Contractor* is responsible to keep the work area clean of any rubble.

All waste introduced and/or produced on the *Employer's* premises by the *Contractor* for this contract, is handled in accordance with National Management Waste Act No. 59 of 2008 and Waste Management procedure: SHQP ENV 079.

The *Employer* provides colour coded bins for refuse disposal.

The *Employer* empties these bins.

Contractor keeps the work area clean of any rubble, and to places all refuse into the bins provided.

The *Contractor* ensures that all workers under his control strictly adhere to the correct use of refuse bins:

Blue bins: - Scrap metal only

White bins: - Lagging and general household rubbish

Red bins: - Oil contaminated waste

Blue and green drums - Waste grease

The *Contractor* shall comply with the environmental criteria and constraints stated in **Annexure B**.

3.3 Quality assurance requirements

- The *Contractor* complies with the quality procedures and codes relevant for each Task Order. The *Contractor* also advises on the appropriate use of other applicable standard and codes of practice.
- The *Contractor* supplies QCP for the scope one week prior to the work commencing. The QCP will have all the activities to ensure quality of the work to be undertaken.

4 Procurement

There is a cross reference from the core clause 11.2(6) definition of Disallowed Cost to the Service Information regarding procurement procedures. This part of the Service Information MUST include any such procedures to be able to administer Disallowed Cost.

4.1 People

4.1.1 Minimum requirements of people employed

N/A

4.1.2 BBBEE and preferencing scheme

Specify constraints which *Contractor* must comply with after contract award in regard to any Broad Based Black Economic Empowerment (B-BBEE) or preferencing scheme measures.

4.1.3 Accelerated Shared Growth Initiative – South Africa (ASGI-SA)

If the ASGI-SA requirements are to be included in this contract specify constraints which *Contractor* must comply with after contract award in regard to any ASGI-SA requirements. The ASGI-SA Compliance Schedule completed in the returnable tender schedules is reproduced here. If ASGI-SA does not apply, delete this paragraph.

The *Contractor* complies with and fulfils the *Contractor's* obligations in respect of the Accelerated and Shared Growth Initiative - South Africa in accordance with and as provided for in the *Contractor's* ASGI-SA Compliance Schedule stated below

[Insert the agreed ASGI-SA Compliance Schedule here]

The *Contractor* shall keep accurate records and provide the *Service Manager* with reports on the *Contractor's* actual delivery against the above stated ASGI-SA criteria. [Elaborate on access to and format of records and frequency of submission etc.]

The *Contractor's* failure to comply with his ASGI-SA obligations constitutes substantial failure on the part of the *Contractor* to comply with his obligations under this contract.

4.2 Subcontracting

4.2.1 Preferred subcontractors

N/A

4.2.2 Subcontract documentation, and assessment of subcontract tenders

N/A

4.2.3 Limitations on subcontracting

N/A

4.2.4 Attendance on subcontractors

N/A

4.3 Plant and Materials

4.3.1 Specifications

The *Contractor* will comply with all the specifications as stated in the description of the service.

4.3.2 Correction of defects

- Defects are to be corrected by the *Contractor* as soon as it comes to the *Contractor's* attention. Any defect notified by the *Service Manager* to the *Contractor* is to be corrected within 24 hours.

4.3.3 *Contractor's* procurement of Plant and Materials

- Contractor* is to transport and store materials as stated in the description of the service.

4.3.4 Tests and inspections before delivery

N/A

4.3.5 Plant & Materials provided "free issue" by the *Employer*

N/A

5 Working on the Affected Property

5.1 *Employer's* site entry and security control, permits, and site regulations

Security

- All site access is controlled through the designated access gate. The *Contractor* is informed of the access procedure through site regulations and that such procedures may change depending on the prevailing security situation.
- The *Contractor* will be restricted to the working areas associated with his place of work. The *Contractor* is forbidden to enter any other areas, and must ensure that his employees abide by these regulations.
- The chief protective services may with valid cause remove any of the *Contractor's* personnel from the site, either temporarily or permanently. He may deny access to the site to any person whom, in the opinion of the said chief of protective services, constitutes a security risk.
- The *Contractor* book in any tools, cabins, furniture, PC's, etc. at the security office before entering. The copy of the tool list needs to be kept in a safe place, as it will be the only acceptable document allowed to remove the items after contract completion.

Fire Precaution

- Any tampering with the *Employer's* fire equipment is strictly forbidden. All exit doors, fire escape routes, walkways, stairways and stair landing must be kept free of obstruction and not be used for work or storage at any time. Fire fighting equipment must remain accessible at all times.

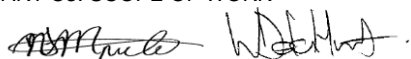
IN CASE OF FIRE: CONTACT CONTROL ROOM AT EXTENSION 5035

Plant Safety and High Voltage Regulations

- On request from the *Contractor*, the *Employer* isolates the required plant from all sources of danger as described in the plant safety and High Voltage Regulations. The *Contractor* conforms to all rules and regulations applicable to plant safety.

Barricading and Screens

- The *Contractor* provides and installs barricades and warning devices to ensure that equipment and persons are not exposed to danger or to prevent access to dangerous areas.



- All welding, flame cutting and grinding work is properly screened to protect persons from arc flashing or eye injuries.
- All gratings are covered with an adequate protective screening when welding of flame cutting in the vicinity is undertaken strictly in accordance with the *Employer's* directive SP SER 003.

Speed Limit

- All vehicles are driven with due consideration for personnel and property. A maximum speed limit of 40km/h is adhered to on the premises at all times.

Reporting of accidents

- The *Employer* follows an accident prevention policy that includes the investigation of all accident involving personnel and property. This is done with the intention of introducing control measures to prevent a recurrence of the same incident. The *Contractor* is expected to co-operate fully to achieve this objective. Risk Management is informed within 24 hours of any injuries or damages to property or equipment.
- This report does not relieve the Contractor of his legal obligation to report certain incident to the department of labour, or to keep records in terms of the Occupational Health and Safety Act and Compensation for Occupational Injuries and Diseases Act.

Site Regulations

- All *Contractors'* employees entering the site are medically fit. A full medical examination is carried out by a registered Occupational Health worker who issues a certificate confirming the medical fitness of the employee. The examination consists of an eye test, heart function, lung function, chest X-Ray, blood pressure, hearing function, previous occupational injuries, epilepsy, allergies, asthma and verification of work in elevated / confined spaces. Basically full examinations are allowed to work on site.

5.2 People restrictions, hours of work, conduct and records

- The Contractor will keep records of all employees. The Service Manager will have access to them at any time.
- In terms of the BCEA and LRA , all employees is afforded a fair minimum wage, including allowances for meals and transport, which has been agreed and set by the relevant bargaining councils and form part of the Act.
- All employees are granted 3 breaks during the course of a 12 hour shift (1x 15 minutes break in the morning; 1x 30 minutes lunch break midday; and 1x 15 minutes break in the afternoon).

5.3 Health and safety facilities on the Affected Property

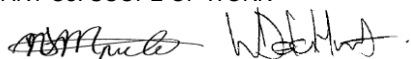
- The *Contractor* to apply safety awareness at all times through continuous training.
- The Contractor to have a daily toolbox talks, periodic site inspections, job observations, risk assessments, safety equipment checks and safety talks with all employees.
- Medical centre facility for first aid will be provided.

5.4 Environmental controls, fauna & flora

N/A

5.5 Cooperating with and obtaining acceptance of Others

The Contractor might encounter other parties also doing work in the Contractor's designated work area. Co-operation and liaison between different parties are expected by the Employer.



5.6 Records of *Contractor's* Equipment

- All equipment, welding panels, compressors, pneumatic tools, electrical equipment complies with a relevant SABS code of practice and all documentation related to this is made available as and when required.

5.7 Equipment provided by the *Employer*

- Scaffolding will be supplied.

5.8 Site services and facilities

5.8.1 Provided by the *Employer*

- Portable water
- Sanitary facilities
- Site office
- Canteen
- Portable water
- Electricity

Requirements regarding the container:

- It will be the *Contractor's* responsibility to maintain the container for the entire contract period.
- The container will be reused for other contracts held with the *Contractor* depending on its condition and decision will be taken upon negotiation.
- The container will remain on Arnot site.

5.8.2 Provided by the *Contractor*

- All equipment needed for the performance of the work is supplied by the *Contractor*, unless specifically stipulated by the contract.

5.9 Control of noise, dust, water and waste

N/A

5.10 Hook ups to existing works

N/A

5.11 Tests and inspections

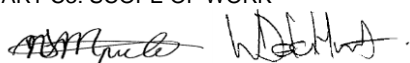
5.11.1 Description of tests and inspections

During the course of the work, the Service Manager will do inspections on the work being conducted. The Site manager is also expected to do inspections during the course of the work. The Supervisor will on a daily

basis do inspections. After the completion of work in the various areas, the Service Manager, Plant Engineer, Site Manager, Quality Controller and Supervisor will do final inspections.

5.11.2 Materials facilities and samples for tests and inspections

N/A

Handwritten signatures in black ink, appearing to be 'M. M. M. M.' and 'W. D. H. M.'.

6 List of drawings

6.1 Drawings issued by the *Employer*

Employer to provide drawings.

| Drawing number | Revision | Title |
|----------------------|----------|--|
| 26.41/40031 sheet 16 | 3 | Arrangement of PF burner compartment |
| 26.41/40031 sheet 17 | 2 | Arrangement of top straight secondary air compartment |
| 26.41/40031 sheet 18 | 3 | Arrangement of offset secondary air (oil) compartment |
| 26.41/40031 sheet 19 | 2 | Arrangement of offset secondary air compartment |
| 26.41/40031 sheet 26 | 2 | Arrangement of straight secondary air (coal) compartment |
| 26.41/40031 sheet 27 | 3 | Arrangement of bottom straight secondary air compartment |
| 26.41/40031 sheet 28 | 4 | Arrangement of oil burner compartment |
| 26.41/40031 sheet 29 | | ARRANGEMENT OF BURNER BOX - ELEVATION |
| 26.41/40031 sheet 32 | 0 | Arrangement of burner box top tilt stop |
| 26.41/40031 sheet 31 | 1 | Key sketch for fitting nozzle assemblies |
| 26.41/36054/001 | 0 | BOILER DEFLECTOR PLATE - UNIT 4 |
| 26.41/36054/002 | 3 | Medium Rifle Plate |
| C7071-17-025 | 0 | Existing oil burner igniter guide tube modification |
| C7071-17-030 | | Layout showing parking bolt bracket for existing Eskom air nozzle tilt lever |
| C7071-17-028 | 0 | Detail of burner box tilt stop bracket |
| C7071-17-029 | 0 | Detail of burner box tilt stop lever assembly |
| 26.41/40031 sheet 31 | 1 | Key sketch for fitting nozzle assemblies |