

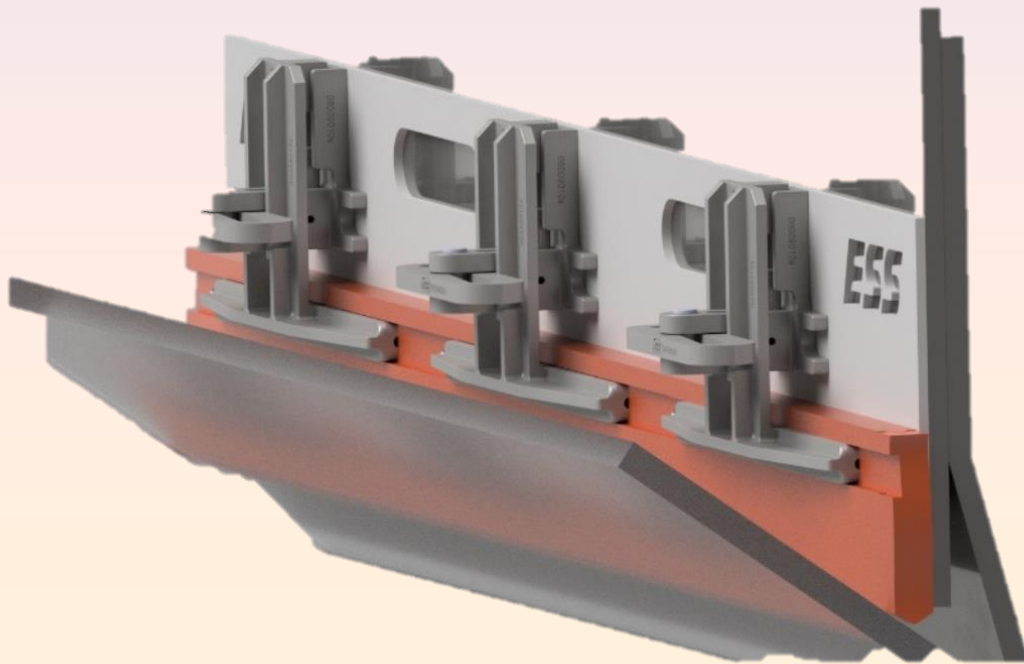


ENGINEERING SERVICES & SUPPLIES PTY LTD

Ph: 1800 074 446 www.esseng.com.au

ESS 3000 Series Skirting System

Installation, Operation & Maintenance Manual





Location	Address	Phone & Email
CURRUMBIN	11 – 13 Traders Way PO Box 121 Currumbin QLD 4223	(07) 5589 2000 esscur@esseng.com.au
GLADSTONE	Shed 2, 4 Helen Street PO Box 1475 Clinton QLD 4680	(07) 4972 3759 essgla@esseng.com.au
KALGOORLIE	Unit 1 / 182 Boulder Road Kalgoorlie WA 6430 PO Box 10471 Kalgoorlie WA 6433	(08) 9021 7991 esskal@esseng.com.au
KARRATHA	26 Midas Road Malaga WA 6090	(08) 9248 4111 esskar@esseng.com.au
MACKAY	1 Progress Street Paget, QLD 4740 PO Box 5755 Mackay Mail Centre QLD 4741	(07) 4952 4600 essmac@esseng.com.au
MAITLAND	Unit 2 Barton Court 6 Johnson Street Maitland NSW 2320	(02) 4932 3544 essmai@esseng.com.au
PERTH	26 Midas Road Malaga WA 6090	(08) 9248 4111 essper@esseng.com.au
TOWNSVILLE	Unit 4/ 585 Ingham Rd Mt St John Townsville QLD 4818	(07) 5589 2032 estow@esseng.com.au
VICTORIA	Unit 4 / 238 Governor Road Braeside VIC 3195	(03) 9587 3979 essvic@esseng.com.au
WOLLONGONG	Unit 1 / 20 Doyle Avenue PO Box 343 Unanderra NSW 2526	(02) 4251 9801 esswol@esseng.com.au
TOLL FREE 1800 074 446 FROM ANYWHERE IN AUSTRALIA VSS TOLL FREE 1800 300 877		



WARRANTY

ESS WARRANTS the **ESS 3000 Series Skirting System** to be free of defects both in materials and workmanship for a period of 12 months from the date of despatch of the product from the **ESS** factory. The warranty given by **ESS** in this regard will extend only to replacing or repairing product shown to be defective.

The warranty also is subject to the following restrictions:

- (a) Installation of the product contrary to the instructions contained in the supplied manual will void such warranty absolutely.
- (b) The warranty will not extend to any liability for injuries incurred and which result from the use of the product contrary to the instructions in the manual.
- (c) Save as prescribed by law, **ESS** will not be liable for any damage sustained by a purchaser or a third party by way of consequential loss arising out of defects in the product.

You are asked to note that **ESS** offers purchasers a service whereby either:

- (a) It will install the product and certify the correctness of such installation, or
- (b) Certify the correctness or otherwise of the installation of the product by third parties.

This certification service is designed to ensure that you obtain the full benefit of the **ESS** warranty hereby provided. If you would like to take advantage of the installation certification service provided, please contact **ESS** regarding the service.

Refer to the Final Checklist at the back of this manual.

Visit the **ESS** website www.esseng.com.au to register your product warranty.

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ESS ENGINEERING SERVICES AND SUPPLIES PTY LTD

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Information contained herein is for use in the operation of **ESS 3000 Series Skirting System**, purchased from **ESS** and cannot be passed on to any other party without express permission, in writing, from **ESS**.



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1.0 SAFETY

The **ESS 3000 Conveyor Belt Skirting System** is designed to be quickly and easily installed and serviced by appropriate personnel.

Under no circumstances should servicing or installation of the ESS 3000 Skirt System be carried out whilst the belt is in operation.

The conveyor must be shut down and locked out before any person enters or reaches into the conveyor enclosure.

Ensure that only suitably qualified and trained personnel install and service this product. Ensure that all site and statutory safety procedures are followed.

All equipment, equipment access and installation/service procedures must comply with AS1755, Conveyors – Safety Requirements.

ESS strongly recommends that a thorough Job Safety Analysis should be undertaken prior to commencement of the installation to identify and manage hazards.



1.1. SAFETY LABELS

Pictograph labels are used to show graphically where potential safety hazards exist around this Air Cannon. These labels do not represent every possible hazard. They are not intended to be a substitute for safe work practices and good judgment. These labels and the technical manuals supplied with the Air Cannon, use specific words to identify the severity of the hazard. They are described below. Take time to read and understand the meaning of these words and symbols.



Danger labels call attention to imminently hazardous situations that will result in serious personal injury or death if not avoided. Injury from these hazards is immediate in nature and has a high probability of resulting in a serious or fatal accident if proper precautions are not followed.



Warning labels call attention to potentially hazardous situations that could result in serious personal injury or death if not avoided. Injury from these hazards is usually serious in nature, and a severe or fatal accident can occur if proper precautions are not followed.



Caution labels call attention to potentially hazardous situations that may result in minor or moderate personal injury if not avoided. Injury from these hazards is normally less serious than those from Danger or Warning hazards. However, there is still the potential for an accident resulting in serious injury if proper precautions are not followed.



2.0 INTRODUCTION

ESS 3000 Series is a conveyor belt skirting and sealing system comprising a rubber or urethane seal and a bolt/weld-on clamp assembly.

ESS 3000 Series attaches to the outside of the conveyor belt load skirts to provide an effective seal and prevent material loss and dust emissions.

Each *ESS 3000 Skirting* assembly comprises a 1200mm long backplate with three captive wedge or cotter assemblies. The backplate may be site cut to 400mm long and used with a single clamp. This enables skirt lengths of any multiple of 400mm to be accommodated using standard components.

For skirt lengths that are not a multiple of 400mm, refer to Section 4.1 for installation details.

The rubber seal is secured in place by the clamp which in turn is held by a captive wedge (or Cotter). This system allows for ease of adjustment or replacement of the rubber seal.



3.0 PREPARATION FOR INSTALLATION

- Check Installation Drawings
- Ensure that you have the correct drawings and equipment for your conveyor(s).
- Assemble the necessary tools & safety equipment required for the installation.

3.1 OBSERVE THE CONVEYOR WHILE RUNNING AND CONVEYING MATERIAL

- Determine loading point.
- Note direction of conveyor belt travel.
- Observe conveyor belt tracking. **Conveyor belt must track centrally.**
- Observe idlers.
- Ensure conveyor belt does not raise from idlers.
- Ensure idlers are spaced correctly so conveyor belt does not sag. If conveyor belt does sag under material loading, additional idlers, or **ESS** GUARDABELT Impact Cradle or GUARDASEAL Belt Support Systems should be installed.
- Observe Material on conveyor belt. Material should be loaded on centre of belt.

3.2 INSPECT WEAR LINERS AND CHUTE WALL

- Ensure wear liners and chute wall are in good condition (no cracks, holes, slits, or grooves).
- Ensure wear liners and chute wall are straight along bottom edge or material will build up between wear liner and the skirting system.
- For ESS 3000 HD locator urethane seal & Snug Fit Rubber Skirt ensure dimension 'A' from conveyor belt to the bottom of the existing steel work is obtainable. See table below and drawing F0157 in section 7.1.

SNUG-FIT SKIRT RUBBER		
BELT THROUGH ANGLE	DIM 'A'	WHICH EDGE DOWN
15°	10 - 15	20°
20°	10 - 15	20°
30°	15	45°
35°	15 - 20	45°
45°	25	45°

Table 1 - Snug-Fit Skirt Rubber

For Square Edge Skirting Rubber ensure 8 – 12mm from conveyor belt to the bottom of the existing steel work is obtainable.

IF ANY OF THE ABOVE PROBLEMS EXIST, CORRECT BEFORE INSTALLATION OR CONTACT ESS. IF PRESENT, REMOVE EXISTING SKIRTING SYSTEM AND MOUNTING HARDWARE.



3.3 UNUSUAL CONDITIONS

CONTACT **ESS ON 1800 074 446** before installation if any of the following conditions exist:

- Concave or convex curves in chute wall or belt.
- Extreme side pressures
- Fast (>4.6 m/sec) conveyor belt
- Temperature extremes - below 7° c or above 65° c
- Corrosive atmosphere



4.0 INSTALLATION

BEFORE PROCEEDING WITH INSTALLATION, ENSURE THAT THE CONVEYOR BELT DRIVE AND ALL ASSOCIATED EQUIPMENT IS FULLY ISOLATED AND LOCKED OUT.

WARNING

CONTACT WITH A MOVING CONVEYOR BELT OR ITS COMPONENTS CAN RESULT IN SERIOUS INJURY OR DEATH.

4.1 INSTALLATION PROCEDURE

1. If the steel skirt plates are greater than dimension A Table 1 (section 3.2) from the belt surface, it may be necessary to extend the plates closer to the belt. A 150x10 flat bar welded to the outside of the chute or skirt side walls is an easy way to achieve this, as long as sufficient freeboard is available outside the skirt line.
2. Take an ESS 3000 Back Plate section and position it such that the bottom edge is uniformly dimension A (Section 3.2) from the belt, and one end is at the required start point of the skirt seal (preferably toward the tail end of the conveyor). The bottom edge of the ESS 3000 must not protrude below the bottom edge of the skirt plate or chute wall – see step 1 above.

Weld the backplate to the skirt / chute wall, using a 4mm x 25 long fillet weld at 150mm centres, also a plug weld in each lower slot. Use an appropriate welding blanket to protect the belt surface.

3. Attach s/s clamp retainer with either a welded or bolted connection to the backing plate. Position the clamp level with the top of the backplate and at 400mm centres as show in the backing plate and clamp assembly weld detail.
4. Repeat step 2 for the full skirt length, simply butting consecutive Backing Plates against each other, maintaining dimension A from the belt. For skirt lengths that are multiples of 400mm, simply cut the backing plate to suit (3 x 400mm sections) and fit the length of Backplate with one Clamp centred at 200mm.

For closing lengths, simply cut the Backing Plate to suit and install as described above, placing a clamping assembly 200mm in from the terminating end. Use the following procedures to complete the installation.

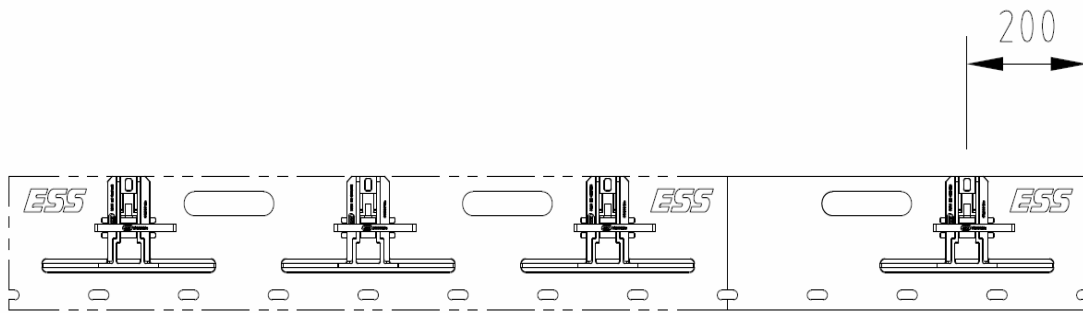


Figure 1 - Backing Plate Installation

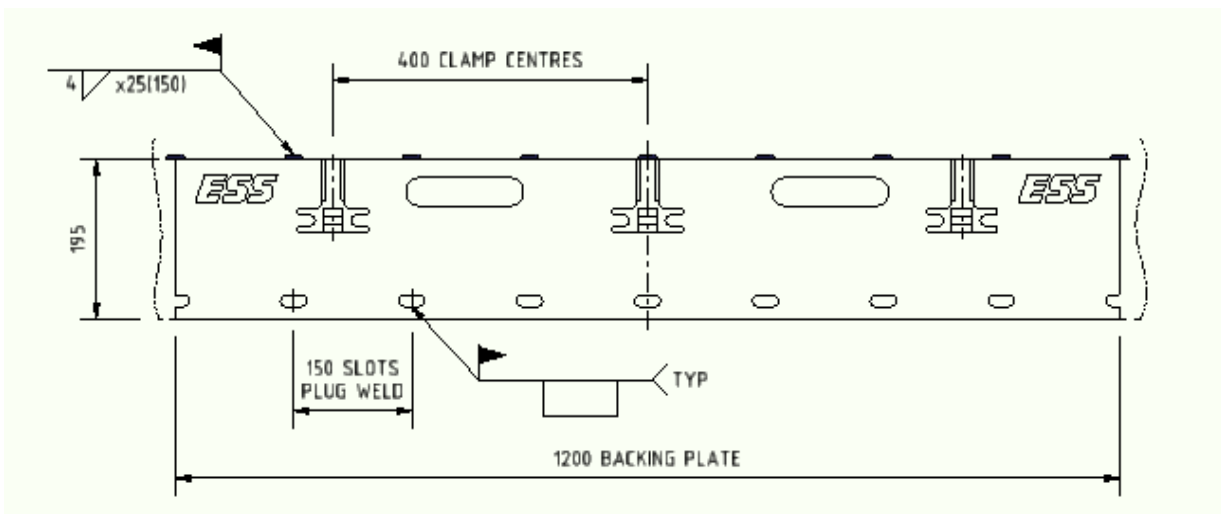


Figure 2 - Backing Plate & Clamp Assembly Weld Detail

5. Grind each plug weld flush with the face of the backing plate if necessary.
6. For all skirting other than ESS300 HD locator urethane seal, Measure the required length of skirting rubber and cut from the roll supplied. **See the cutting procedure following in section 4.2.**
7. Insert the ESS300 HD locator urethane seal skirting rubber from one end, making sure that the correct edge is downward. Secure the rubber by placing the ESS 3000 clamps in position over the captive wedges, and lightly tapping the wedges to hold the rubber.
8. For all skirting other than ESS3000 HD locator urethane seal, place and lightly Clamp skirt in position, using the spacer and split pin as illustrated in the ESS3000 skirting clamp assembly, then push down on the rubber until it lightly but uniformly contacts the conveyor belt, firmly tap wedges tight and repeat the process for consecutive clamp plates. Do not overtighten the rubber against the belt, or the wedge.

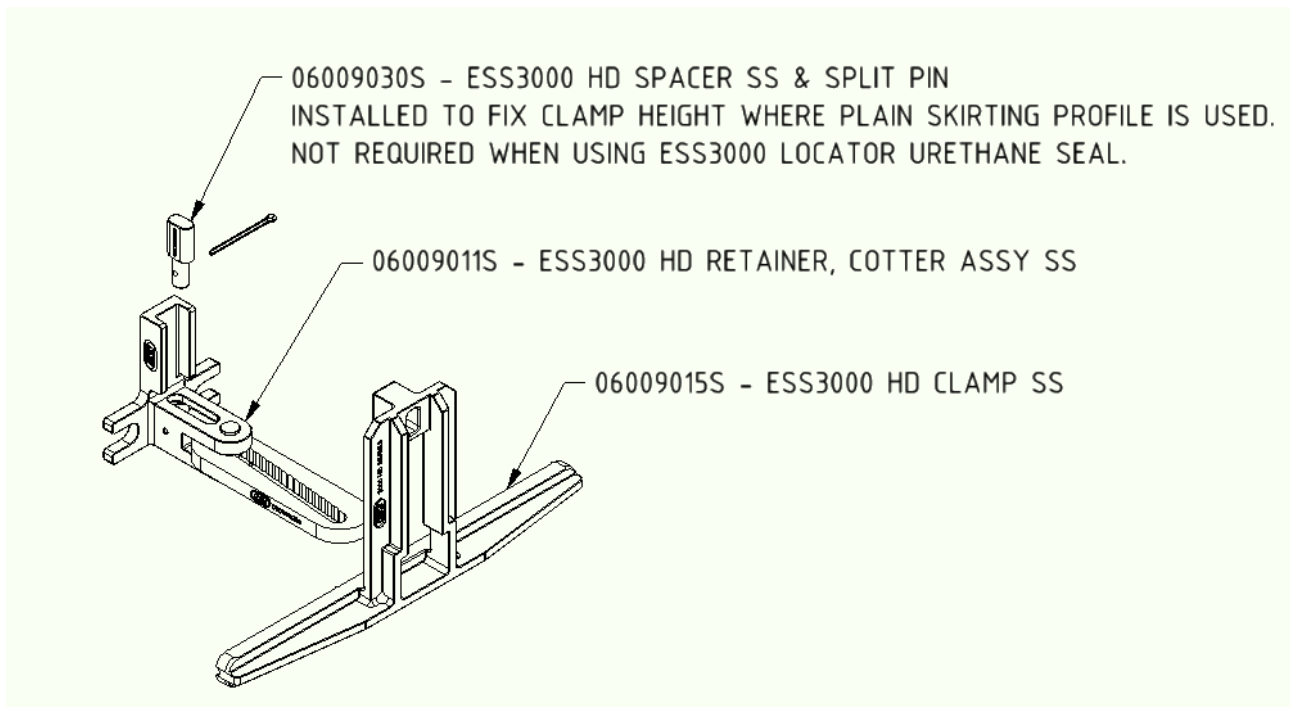


Figure 3 - ESS 3000 Skirting Clamp Assembly

9. Remove the weld blanket, and any installation debris from the conveyor.
10. Remove danger tags and return conveyor to service, following plant procedures.

NOTE: IF YOU HAVE ANY PROBLEMS, OR ARE UNCLEAR ON ANY INSTALLATION STEP, CONTACT ESS ON CUSTOMER SERVICE NUMBER 1800 074 446.



4.2 CUTTING PROCEDURE FOR ESS 3000 RUBBER SKIRT SEALS

CAUTION

Ensure that the following procedure is carried out in a safe position away from the conveyor belt. This procedure is to be undertaken in conjunction with the Safe Working Practices outlined in this Installation Manual.

Any installation of equipment, and any equipment installed must comply with AS 1755-2000 Conveyors – Safety requirements.

The following steps are recommended for the safe cutting of ESS Snug-Fit and Square Edge rubber skirt seals:

Step 1 Measure and mark the required length of ESS 3000 skirt rubber for the job being undertaken. A white paint marker is recommended, and the mark should be perpendicular to the length of the rubber.



Step 2 Place the rubber in a vice, or firmly clamp it to a suitable piece of structure. Position the cut mark so that it is free and accessible for a cut to be made, and that the rubber is free on one side of the mark.

Step 3 Have an assistant grip the free end of the rubber to prevent excessive movement, and to open the cut as it progresses. Using a hacksaw with a fresh blade, slowly begin to cut the rubber from the top of the mark.

A knife or sharp blade is not recommended due to the hazards involved. Ensure that appropriate PPE is worn, including eye protection and suitable gloves.



Step 4 The assistant should hold the cut open by firmly holding the rubber and turning it slightly downward. Do not apply excessive load – this could result in a fall when the final cut releases the rubber.





- Step 5** Continue as above until the cut is completed. Release the end of the rubber from the vice and install as described in the ESS 2000 manual. Store the left-over rubber in a suitable place in line with good house-keeping practice.





5.0 COMMISSIONING

A note on safety:

No additional safety hazards are present with **ESS 3000® Skirting** other than normal conveyor belt dangers.

In particular:

- Beware of moving conveyor belts.
 - Beware of pinch points
 - Do not attempt to install, maintain, or disassemble any part of a conveyor belt without first isolating and tagging the conveyor drive.
1. Following site safety and start-up procedures, start conveyor belt and run under normal conditions for 10 minutes. Observe **ESS 3000® Skirting** and look for material leakage.

WARNING BEFORE PROCEEDING WITH COMMISSIONING, ENSURE THAT THE CONVEYOR BELT DRIVE IS FULLY ISOLATED AND LOCKED OUT.

2. Lockout / tagout all power to conveyor belt and conveyor accessories.
3. Adjust skirting rubber by following step 7 in Section 4.1.
4. Remove danger tags and return conveyor to service, following plant procedures.
5. Start conveyor and run under normal conditions.



6.0 TROUBLESHOOTING

	PROBLEM	SOLUTION
1.	Conveyor belt won't run after installation.	Skirting Rubber is installed too tightly against conveyor belt.
2.	Excessive Skirting Rubber wear.	Skirting Rubber is installed too tightly against conveyor belt.
3.	Product leaking from under skirting.	Skirting rubber is not installed uniformly against the belt.

7.0 INSTALLATION & MOUNTING ARRANGEMENTS

1. F0157 ESS 3000 INSTALLATION AND MOUNTING ARRANGEMENT

WELDING DETAIL OF BACKING PLATE & CLAMP ASSEMBLY
MILD STEEL P/N 05025005
STAINLESS STEEL P/N 05025005S
NOTE: CLAMP ASSEMBLY: 304SS 1316SS - CONTACT ESS!

URETHANE SEAL AVAILABLE

DESCRIPTION	PART No.
ESS3000 HD LOCATOR URETHANE SEAL X3M	06009045
ESS3000 HD LOCATOR URETHANE SEAL X3M FRAS	06009045F
ESS3000 HD LOCATOR URETHANE SEAL X3M YELLOW 2016	06009045Y
ESS3000 HD LOCATOR URETHANE SEAL X12M	06009055
ESS3000 HD LOCATOR URETHANE SEAL X12M FRAS	06009055F
ESS3000 HD LOCATOR URETHANE SEAL X12M YELLOW 2016	06009055Y

FOR CUSTOM URETHANE SEAL LENGTHS - CONTACT ESS

DETAIL SHOWING LOCATING VEE SLOT ON URETHANE SEAL ENDS

BELT TROUGH ANGLE	DIM 'A'
15°	10-15
20°	10-15
30°	15
35°	15-20
45°	25

INDIVIDUAL CLAMP ONLY ASSEMBLY (P/N 05025010S) AVAILABLE FOR WELDING OR BOLTING TO EXISTING STRUCTURE

ESS Customer Service 1 800 074446		Client: _____
ESS3000 SERIES SKIRTING SYSTEM INSTALLATION AND MOUNTING ARRANGEMENT		Location: _____
Drawn: s.davis	Scale: NTS (A3)	Dwg No.: F0157
Child: _____	Appd: CW	Date: 19/05/2017
Job No: EDCR868	Revision: _____	Revision: B



8.0 FINAL CHECKLIST

Site: _____ Number: _____ Date: _____

Site Equipment No./Location: _____ Site Contact: _____

Completed By: _____

(Circle Yes or No Below)

Was equipment to ESS Specification? Yes/No

Drawing No. Ref: _____ Attached? Yes/No

If No, WHY _____

Will this affect performance? Yes/No

If Yes, WHY _____

Was this a standard service inspection installation? Yes/No

If No, WHY _____

Was work carried out as per procedure and JSA? Yes/No

If No, WHY _____

Is equipment fit for commissioning? Yes/No

If No, WHY _____

Was a final inspection carried out while plant was running? Yes/No

If No, WHY _____

Has anything changed from previous service / inspection / installation? Yes/No

If Yes, WHAT _____

Is equipment performance to Client expectations? Yes/No

If No, WHY _____

ESS Signature: _____ Client Signature: _____

