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## TECHNICAL CAPABILITY & SERVICE STANDARDS / PROCEDURES INTRODUCTION:

### *Experience in HVAC maintenance activities & contract*

Industrial Premier Services (IPS) formally known as Stork Caspian LLC have operated within the Caspian Region for 7 years, however at IPS our team of engineers has over 35 years of HVAC and Refrigeration experience working in the Oil & Gas and Maritime industries. IPS HVACR specialist team comprises of a Project Manager, Technical Authorities in both HVAC and Refrigeration and Project Engineers to support contracts and projects. The HVAC/R team works closely with the IPS Instrumentation and Electrical Engineering teams to ensure the most optimum and efficient solutions are identified ensuring our clients have the best possible outcome.

Through our existing subscriptions and professional development IPS HVAC/R team have a strong knowledge of existing legislation and guidance, which enhances capability and experience to carry out maintenance, repairs, installations and quality assurance at any national or international site both onshore and offshore.

- Heating, Ventilation, Air Conditioning & Refrigeration (incl. chiller units) Installation, Commissioning, Testing & Maintenance – IPS perform routine maintenance, installation, commissioning and function testing of platform A/C and Heating Systems inclusive of Ductwork system, Air Handling Units, Heaters, Humidifier Units, Fans, Air Filtration Units and associated auxiliary controls.
- Fire Damper Systems Installation, Commissioning, Testing & Maintenance – Stork Caspian LLC perform routine maintenance, installation, commissioning and function testing of Volume Control Dampers, Fire Dampers and Louvres inclusive of all associated auxiliary controls.
- COSHH Local Exhaust Ventilation (LEV) Examination, Testing & Maintenance – Industrial Premier Services P601 Certified Engineers test and maintain clients local exhaust ventilation (LEV) systems to ensure they are in compliance with regulations relating to the Control of Substances Hazardous to Health (COSHH) or any other relevant regulations and legislative requirements which IPS is required to be in compliance with.
- Smoke & Gas Ingress (SGI) testing including module pressurization and leakage integrity – Industrial Premier Services perform air leakage, quality and permeability testing, inclusive of multi point testing, of buildings and offshore modules in accordance with the legislative requirement of the Prevention of Fire, Explosion and Emergency Response (PFEER) directive.

- Industrial Premier Services (IPS) HVAC/R is currently working with a number of clients to provide a full TR and Module Boundary improvement service, which includes Module Bulkhead Repairs, A & H Rated Door and Airlock Repairs & Replacement, Electrical & Mechanical Transit and Drainage system repairs and remedial works. All work relating to module Integrity can be completed by IPS specialist departments to improve integrity and provide our clients with a single service provider to ensure compliance.
- Refrigeration F-GAS handling and /or ODS Compliance – Industrial Premier Services offer refrigerant leak testing as per EU legislation. As an F-Gas registered company, Industrial Premier Services ensures that all F-Gas classified refrigerants are tracked in the Industrial Premier Services F-Gas register. Refrigerants are, where possible, recycled for future use as this provides our clients with a cost effective and environmentally friendly service.
- Industrial Premier Services HVAC/R multi-skilled engineers and technicians are trained and competent to complete maintenance and repairs on Ex HVAC & Refrigeration Equipment serving and located in hazardous areas. As a minimum Stork ensure our engineers are CompEx modules 1-4 qualified. As part of this service we can offer the utilisation of the Parker Zoom lock tool to minimise the requirement for Naked Flame Hot Work permits when carrying out Refrigeration pipework jointing.
- Fault-finding and defect remediation including vibration monitoring of rotating machinery and root cause analysis using Kelvin Top set method.

Part of the works Industrial Premier Services HVAC/R carry out for various clients is the continued monitoring of site equipment and review of test results to identify any trends that may occur. As well as completing a review of the latest reports against previous we ensure a full debrief is completed with site maintenance personnel to run through their findings and any observations they have made.

By carrying out a full debrief and review of each trip report this ensures we can identify possible trends early and discuss mitigation with the client in a proactive way, rather than having to carry out reactive maintenance after a breakdown or failure.

Industrial Premier Services HVAC/R have also worked with continuous monitoring systems for clients and with access to this data we can use it to look at possible maintenance efficiencies that could be achieved i.e. potentially replacing some site inspections / testing with remote monitoring checks either at the Control Room or remotely onshore. Industrial Premier Services HVACR will look at potential continuous monitoring solutions that may be of benefit to the client taking into account the systems and software currently in place.

Industrial Premier Services HVACR have offered vibration analysis for rotating equipment i.e. fans and motors, to various clients in the UKCS and internationally which looks at the as found vibration levels and assesses these against equipment tolerances.

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By carrying this out we can identify methods to reduce vibration which in turn has the following benefits:

- Reduce fatigue of bearings which in turn maximises running life
- Reduce fatigue in anti-vibration mounts which in turn maximises running life
- Reduce wear on drive shafts reducing potential for balancing issues and maximising running life
- Prevent catastrophic failure due to impellers hitting resonance
- Eliminate transfer of vibration energy to surrounding structure preventing stress fractures in base frame steelwork

Also, we can carry out energy efficiency inspections for air conditioning equipment as per CIBSE Technical Memoranda TM44. Carrying these checks out will improve the operating lifespan of the AC components preventing breakdowns.

- BSRIA Guide BBG49/15 “*Commissioning Air Systems*” 2015 Edition
- CIBSE Technical Memoranda TM23: “*Testing buildings for air leakage*”
- ASHRAE Handbook: “*Fundamentals*” (2017)
- ASHRAE Handbook: “*HVAC applications*” (2019)
- Noise control; Industrial Premier Services monitor, control noise and vibration in line with relevant legislative requirements and regulations relating to HSE requirements for the control of noise at work; Dedicated Personnel Industrial Premier Services HVACR Offshore personnel are trained to monitor noise and vibration levels from HVAC and Refrigeration equipment / systems / areas and onshore project teams design and specify noise and vibration reduction methods in line with legislation and CIBSE guidelines,
- Duct cleaning, air quality monitoring and microbiological testing. The cleaning of accommodation and industrial systems can have a major impact on normal daily duties and production. Industrial Premier Services HVACR work closely with our clients to ensure minimal disruption to the assets operational and habitation capabilities. Industrial Premier Services HVACR supplies traditional and modern duct cleaning systems for both accommodation and industrial HVACR systems. This allows Industrial Premier Services to provide our clients with the most cost effective and time reductive methods available.
- Fully integrated HVAC and Refrigeration system design, installation, procurement and commissioning services; Industrial Premier Services can provide a full or partial package from initial concept Front End Engineering Design through, HVAC system overhaul design removing pre existing system operating design flaws to commissioning and through life maintenance of HVAC, Refrigeration and associated control systems.

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Given the potential difficulties related to carrying out both maintenance and quality assurance checks, Industrial Premier Services have invested significant time and resources to identify the best technology available to be able to carry out work to the highest quality whilst minimising the time and disruption associated with previous methods i.e. smoke testing, brazing etc. To that end, Industrial Premier Services have identified and implemented the use of the following technologies over the last 24 months as part of our ongoing equipment modernisation and innovation programme:

- Zoom lock Refrigeration Pipework Joining Tool
- Porta scanner leakage tester & gas level tester
- Porta level cylinder level checking tool
- Lifa Air Duct Cleaning System

Industrial Premier Services HVACR has been delivering the services detailed in the contract documentation for a number of clients over many years on either a contract or ad-hoc service basis, depending on the client's specific requirements. IPS has delivered these services to the following clients (this list is not exhaustive):

- BP Caspian
- JOCAP
- Caspian Drilling Company (CDC)
- AZFEN
- WOOD
- Worley
- SIEMENS

  

- A large customer who are presently utilising IPS specialist services include:
  - BP Caspian: HVACR maintenance services contract which was awarded in 2015

Industrial Premier Services have now operated in the Azerbaijan, Georgia & Turkey (AGT) region delivering the bp HVAC&R Maintenance and repair contract since October 2015. We provide maintenance, defect repair and Major Project completion across 8 offshore platforms, the Sangachal Oil and Gas Terminal, several pumping stations and 2 oil lines across 2 countries. Our in country work force is now 97% nationalized with our Azerbaijan nationals execute maintenance, defect repair and project scopes on site with the support of our office based engineers and Technical Support.

Campaign Maintenance Service Scopes of work provided but not limited to:

- HVAC / R System Maintenance / Breakdown repair Campaigns
- Duct Cleaning Campaigns

- Local Exhaust Ventilation (LEV) Examinations and Flow Balance Campaigns

The systems installed within bp facilities are as follows, although we are not limited to these systems only.

Offshore assets, Sangachal, Site and including SD2

- York Commercial HVAC units
- DWD (in Substations), package A/C units
- Hires (Produced Water)
- Uniflair (LSR4, 5, 6, 7/LER1A, MSR1A)
- Ida Energy/York (CCB, PSCB, FCB, LSR3), Multi-stage Industrial refrigeration/HVAC package systems
- Ida Energy/York (MSR1, LSR1, LSR2), Industrial package refrigeration/HVAC systems
- Split Type A/C units (V-sat cabin)
- Carrier commercial heat pump systems (Annex building) –Non industrial team
- Emerson split A/C units (Production office server room) –Non industrial team
- North Sea Ventilation units (SCP, HP, LP, Gas Chromatograph, RVP Analyser skid), Ex Rated package system.
- Ferroli (Gym, STEP), commercial units–Non industrial team
- Marc (DRA skids), Ex rated window systems
- Cantek (cold/freezer rooms), new canteen–Non industrial team
- York, new canteen, chiller/heat pump, chilled water systems–Non industrial team
- Ciat (SD Salty MEG) water chiller
- Thermoplant A/C units (Turbines)
- NSV A/C units (Turbines)
- Bartek chilled water (RVP analysers), Ex rated package unit
- Haitec package A/C units (FCB)
- Wozair AHU – MSR3-FOB-LSR9-LSR12 & offshore assets
- CCS refrigeration packages / Plant – MSR3-FOB-LSR9-LSR12
- Emicon HVAC Systems
- Crane - Coleman Roughneck Cabin A/C Units
- Copeland Condensing Units / Scroll & Piston Compressors
- Bitzer Screw & Piston Compressor Packages
- Carlyle Piston Compressor Packages
- Pipe Deck Pipe Handler Air Conditioning Units
- YORK/JCI Rotary Screw Liquid Chiller

PSA2

- Carrier 38RA Commercial HVAC systems
- Profroid Commercial Refrigeration systems
- Marc (DRA skids), Ex rated
- Mitsubishi split A/C systems (Az Block valve LER's)
- Bard A/C units (Turbines)
- Tadiran/Alarko Split A/C units

## Georgia including SCPx

- Carrier 38RA Commercial A/C systems
- Carrier AHU
- Profroid Commercial Refrigeration systems
- Marc (DRA skids), Ex rated window units
- North Sea Ventilation units (MS72, MS80)
- Daikin inverter split A/C units (Geo Block valve LER's)
- Searle (Canteen cold/freezer rooms)
- Daikin (PSG1, PSG2, MS80) accommodation split A/C systems
- Bard A/C units (Turbines)
- Fujitsu split A/C units (PSG1 & PSG2 Laboratories)
- Leibert package HVAC units (EDDF Bakuriani and Water Well PSG2)
- Samsung split A/C units Wozair
- Humber Electrical

### Industrial Premier Services HVAC Maintenance strategy and build support

In delivering the contract, we have been fully engaged at every level and recently provided comprehensive support to completely review and redesign their current HVAC&R Maintenance Strategy. In delivering this major scope, we have used historical failure data, Root Cause Analysis (RCA), OEM and Industry Standards to identify the correct maintenance, at the correct frequency to ensure HVAC&R equipment efficiency and reliability to support onshore and offshore operations whilst driving down maintenance costs for client.

### Industrial Premier Services Material identification / supply / stock

Another aspect of recent contract amendment requests was for Industrial Premier Services to act, as client preferred HVAC&R materials provider on a Vendor managed Inventory (VMI) level. This will involve us fully managing client's inventory of materials through procurement, storage, issue and re-order.

- In addition, Industrial Premier Services are currently working with and completing independent projects for the following clients, again this list is illustrative and not exhaustive:
  - Caspian Drilling Company (CDC): While working on an Ad-hoc service support basis we have provided our services to CDC to both maintain and service / repair their associated platforms HVAC equipment, this support is ongoing and let's hope this continues into the future.
  - AZFEN: We have supported AZFEN both technically and on site installing the new HVAC equipment for the ACE project. Due to our experiences within the HVAC/R industry we were able to highlight to the client our concerns of newly released A2L refrigerants which in turn were not approved within the clients HVAC specifications document, from here we have

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provided additional procedures and guidelines ensuring the save and competent execution of all HVAC scopes of works.

- Worley: We have supported the commissioning phase of the new Laboratory facility that has been constructed on the Sangachal Terminal. Our P601 certified commissioning engineers experience has been vital in identifying system design flaws at an early stage to ensure overspend is kept to an absolute minimum for the client and rectified before system hand over.