

# LEV SYSTEM 局部排气通风系统

## TESTING & UPGRADE 测试和升级改造

### Workscope

A number of ageing assets in the UKCS have not been capable of achieving the required performance levels as stated in the current 'HSG 258 – Controlling Airborne Contaminants at Work' guidelines. This is a guide to Local Exhaust Ventilation (LEV) and COSHH regulations 2004.

Stork deliver LEV testing across a number of assets and have made recommendations and delivered upgrades in order to adhere to industry wide standards and ensure LEV systems are fully operational.

### Solution

All testing on LEV systems is completed by Stork's qualified and experienced engineers holding a P601 - Thorough Examination & Testing of LEV Systems. Our onshore engineering team hold P602 - Basic Design of LEV System competencies to ensure the client has confidence in our testing and design capabilities to support their systems.

All LEV scopes of work are carried out with the safety of all personnel using each system in mind to ensure we design and upgrade taking into account improvements to ergonomics and working positions.

### Results & benefits

Through Stork's expertise and recommendations, LEV system testing & upgrades have been delivered across the North Sea & Caspian Region, providing a number of benefits on assets including:

- Total North Alwyn/Dunbar/Elgin
- PX Group St Fergus Gas Terminal
- Repsol Sinopec Fulmar/Clyde/Auk
- Byford/Blackford Dolphin
- CNR Murchison
- EnQuest Northern Producer
- Odfjell Deep Sea Stavanger / Deep Sea Aberdeen
- Noble Hans Deul / Byron Welliver / NTvL
- BP Caspian Region - various



### Project information

When: 2012 - 2017

Who: BP, Total, Repsol, Dolphin, CNR, EnQuest and Odfjell

Where: UKCS & Caspian

LEV Testing:

- All types of systems

LEV Upgrades:

- Fabrication workshop LEV upgrades
- Laboratory LEV upgrade
- Dirivent LEV fan replacements
- Mud pump & drawworks LEV fan replacement
- Shale shakers LEV system upgrade

Safety:

- No Lost Time Incidents recorded or minor injuries
- All HSEQ requirements achieved effectively
- Workscope delivered on time and within budget

# 暖通系统改造案例：北海项目 CASE STUDY: Major North Sea Operator, UKCS

## AIR HANDLING UNIT REPLACEMENT

### Workscope

Stork's HVACR team were requested by a Major North Sea Operator to replace two obsolete air handling units (AHU) as the manufacturer was no longer in business and spare parts were no longer available. Due to corrosion, poor performance levels and the system not meeting platform specific requirements on the Rough 3B platform, the refrigeration system was also to be replaced.

### Solution

Stork designed the replacement AHU's in conjunction with our preferred AHU manufacturer, AirForce Ventilation Products Ltd. The AHU's were of modular construction to allow ease of installation due to restricted access into the HVAC plant rooms. The AHU's incorporated improved materials which reduced weight and matched dimensions and footprint of the originals.

Stork's choice of fan, motor and filter media increased system performance, covering additional cooling loads which resulted from a number of asset improvements over the years.

The system was installed and commissioned effectively and a bespoke refrigeration skid for each AHU was designed to use R407c F- gas regulation compliant refrigerant. Stork HVACR provided a turn key solution for the client including the installation of replacement control panels, full HVACR onsite construction and cooling water pipework installation.

### Results & benefits

Both systems were installed, commissioned and handed over to the client successfully on time and within budget with no lost time incidents.

A number of benefits were delivered to the client following the system replacements including improved system airflow and cooling capacity performance and improved spares availability.



### Project information

When: June - July 2015

Who: Major North Sea Operator

Where: UKCS

AHU Replacement:

- BD03 AHU Production Control Level.
- BP14 Technical office and workshop Level AHU

Safety:

- No Lost Time Incidents recorded or minor injuries
- All HSEQ requirements achieved effectively
- Workscope delivered on time and within budget

# COOLING DOWN 里海地区 THE CASPIAN REGION 暖通空调制冷项目

Stork has a long history of delivering operational excellence within the Caspian region of Azerbaijan, Georgia and Turkey (AGT).

one specific partnership dates back to October 2015, when Stork was awarded the heating, Ventilation, Air-Conditioning, and refrigeration (HVACR) maintenance contract for all of its client's assets within the AGT region. providing these services is monumentally important to ensuring the safety of the personnel working on the assets. their maintenance services are essential to everyday operations.

## WITHSTANDING THE HEAT

for this particular client, much of the electrical equipment is temperature- and humidity-sensitive. they have an automatic shutdown temperature lower than the heat outside. the critical nature of the HVACR systems on-board means that breakdown and repair actions are closely monitored, leading to additional workload for Stork's HVACR engineering teams.

Stork's dedication to maintaining the HVACR systems has been highly commended. Since the beginning of this relationship with the client, Stork has successfully improved the performance of hSEQ training, cost efficiency, nationalization and localization, which has produced positive outcomes for both the client and Stork.

## MEETING THE CHALLENGE

In October 2017, Stork's HVACR team was commissioned to support the HVACR systems for newly constructed buildings in Georgia. this project was delivered during the summer months, with temperatures reaching in excess of 42° Celsius (107.6°f). this means that the cooling and air conditioning systems for accommodation, the electrical switch room, control and commination compartments were essential for operation and were closely monitored.

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throughout the project, Stork has consistently ensured that all regulations were met, not only to the in-country standards, but to match all European legislation for both operational and hSEQ needs. the client presented the Stork HVACR project team with a commendation for their services and dedication to the project.

Even with the added pressures of trying to maintain the HVACR equipment during the HoTTest months of the year, Stork's HVACR team continuously goes above and beyond to remain professional at all times, working hard to quickly resolve any issues and ensuring client expectations are not only met, but surpassed.

the HVACR solutions that Stork offers range from simple maintenance packages to full design, upgrades and installations. Stork ensures that each system is designed to meet all the latest legal requirements, as stated by both hSE guidelines and Control of Substances hazardous to health (CoShh) regulations.

Stork supplies clients with complete HVACR-tailored packages to suit any application. It also supplies full detailed reports, covering the work completed and all necessary and required certification, documentation and test sheets. this ensures that a complete history of each system is maintained from the date Stork begins participating in any project.

# OFFSHORE FOOD

# STORAGE UPGRADE 海洋平台-食品储存冷冻间升级改造案例 (危险区2)

## CASE STUDY

### Workscope

Stork's Heating, Ventilation, Air Conditioning and Refrigeration (HVACR) team were contracted to carry out a detailed equipment survey and report of a galley walk-in-chill and walk-in-freezer refrigeration plant on a client's South Caspian Sea asset.

Following the issues and environmental impact highlighted within the survey report, Stork was awarded the contract to design, procure and commission a new fully compliant refrigeration plant.

### Solution

The asset was originally installed with Zone 2 hazardous area compliant air cooled refrigeration plant, which operated on HCFC R404A refrigerant.

With the impending phase out of HCFC refrigerants due to high GWP and in line with F-Gas Regulations EN 378, Stork's HVACR department were tasked with designing a compliant refrigeration system with lower GWP refrigerant in mind. The existing refrigeration plant did not have full redundancy capabilities. Therefore Stork's HVACR department designed a fully compliant refrigeration package for the chill and freezer rooms to have full duty / standby - one duty refrigeration system and one standby refrigeration system for both chill and freezer rooms. Bespoke control panels were also designed and manufactured to account for this application.

Due to the asset's space constraints, the air cooled condensing units supplied were fully dressed within 316L stainless steel chassis and, to account for the harsh marine environment, condenser coils were Cu/Cu (copper) were applied with a C5M coating specification.

### Results & Benefits 结果和用户受益

- A full system back-up redundancy was incorporated to be triggered upon a system failure, ensuring no loss of products.
- Option to operate 'standby' a system was installed, to be used whilst loading the chill and freezer rooms, which results in retaining product temperature and freshness.
- Compliant low Global Warming Potential (GWP) refrigerant.
- Extended life expectancy of refrigeration equipment.
- Less downtime resulting in faster installation by use of innovative pipe jointing materials.

### Project information

**Type of Facility:** Fixed offshore installation.

**Industry:** Upstream oil and gas.

**Site Location:** South Caspian Sea.

**Safety:** Zero Lost Time Incidents

**Project Efficiencies:** 30%

