



Contract Nos.	DE/2018/03, DE/2018/04, DC/2018/06, DC/2018/07
Contract Title	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Contract Sum	\$3,396M
Consultant	AECOM Asia Company Limited
Contractors	Kwan Lee- Chun Wo Joint Venture ,The Jardine Engineering Corporation Limited and Bestwise Envirotech Limited
Contract Form	NEC3 ECC Option C

Background

The Shek Wu Hui Effluent Polishing Plant (SWHEPP), at first glance, may seem like merely an ordinary sewage treatment plant. However, it undertook a groundbreaking mission: to supply tertiary-treated effluent to the Water Supplies Department (WSD) for the production of reclaimed water. The construction process was filled with challenges, requiring the team to overcome hurdles related to technical aspects, coordination and operational management. Moreover, it required to maintain seamless operation of the sewage treatment plant, while adhering to stringent discharge requirements. What follows is a story of how the principles of trust and collaboration—advocated by the New Engineering Contract, helped blend vision, teamwork, and determination to overcome these challenges.

Challenges



Complex Interfaces

The project involved four separate contracts and required close collaboration with key stakeholders, including WSD and the Environmental Protection Department (EPD). Each stakeholder had its own priorities, making consensus-building a challenging process.



A Race Against Time

The critical sewage flow diversion had to be completed within a few hours window during the low-flow period at night, leaving no room for delay.



Operational Precision

The diversion process had to be executed in a carefully predefined sequence, as the operation was irreversible. Any deviation could disrupt operations and compromise effluent quality.



Stringent Compliance Requirements

After the diversion, the effluent from both the new and existing treatment systems had to immediately meet the strict discharge license standards, leaving zero margin for error.

Heroes Behind the Success: The Power of NEC Collaboration

DSD (Project Team)

"I am the 'Leader' of the operation, responsible for coordinating four contracts and holding regular inter-departmental meetings to ensure all stakeholders are aligned. Looking back on the preparation for the sewage diversion, we held numerous inter-departmental early warning meetings. Not only did we simulate the diversion process in the meeting room, breaking down each step, but also conduct on-site drills to ensure diversion operation was flawless. This success proves that we are not working alone and embodies the spirit of teamwork in the New Engineering Contract."

DSD (Operation and Maintenance Team)

"We are the 'Goalkeepers' of the operation, responsible for monitoring sewage data to ensure stable operation and effluent quality compliance. Before the diversion, we analyzed effluent quality data in advance to ensure that the diversion was carried out during the low inflow period, in order to minimize risks. We also simulated effluent quality after the diversion and prepared necessary contingency plans. On the day of the diversion, everyone remained highly focused, and closely monitored the data screens. With the utmost care, we ensured that every operation adhered to standards, leaving no room for errors, and strive to be a solid support for the project team!"

Consultants (Project Manager)

"We are the 'Midfielders' of the operation, responsible for providing technical guidance, coordinating tasks, and developing contingency plans to ensure the project is completed efficiently and safely. We recall that when connecting the UV disinfection system, we discovered that following the original plan for Testing and Commissioning (T&C) might prolong the construction period. So, we immediately proposed dividing the T&C into multiple stages and arranged E&M contractors and DSD operators to test together. Although this method took more effort than initially planned, the T&C duration was significantly shortened, and the equipment was connected more stably and seamlessly! We believe that as long as there is good communication and trust between teams, every challenge can be overcome!"

Civil Contractors

"We are the 'Forwards' of the operation, focusing on the frontline construction sites and responsible for pipe installation and connection work. We remember when we found that site area was more congested than expected, which could hinder pipe installation. At that time, we immediately collaborated with the *Project Manager* and worked out an alternative alignment. Although the process was very tight and difficult, we ultimately avoided delays! Also, there was the underwater pipe connection, which was a very risky process within a tight time frame. Therefore, we engaged a professional diving subcontractor and the *Project Manager* early on, to optimize the process and conduct a risk assessment to ensure every detail met safety standards. As the 'Forward', our responsibility is to overcome all difficulties and ensure that every steps can be completed smoothly!"

E&M Contractors

"We are the 'Wingers' of the operation, responsible for the installation and testing of the UV disinfection system and the pre-treatment system. During installation, one of the key component's delivery was delayed due to the pandemic. At that time, everyone was worried that the efforts of the entire engineering team would be in vain, and the project would ultimately fail to be completed on schedule. We immediately contacted the supplier and arranged alternative transportation, enabling us to meet the scheduled construction period, much to the relief of the entire team! In addition, before T&C, we conducted multiple tests to ensure that every component was working properly. As the 'Wingers', our mission is to ensure that the equipment runs smoothly, ensuring that the effluent quality fully meets the standards!"





Critical Works for supplying effluent for Reclaimed Water Production



① Project team regularly collected samples to ensure the effluent quality is up to standard. (DE/2018/03)



② Project team worked diligently to test the pre-treatment system, ensuring every component passes the test to safeguard the normal operation of the entire system. (DE/2018/04)



③ Divers inspected their protective gears while repeatedly confirming each safety. With the equipment check completed, they are ready to begin! (DC/2018/07)



④ Workers meticulously tightened every screws and repeatedly inspected connection points, ensuring every detail is perfectly 'spot on'. (DC/2018/06)

Results



On-Time Completion



Within Budget



Effluent Quality Compliance