JEL INSIDER

Rediscovering, Rekindling & Reconnecting with Mother Nature

Jurong Lake Gardens, an urban "green lung" that is home to woodpeckers, spotted wood owl and more.
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JUN 2023

FEATURED PROJECTS

INSIDER SPECIAL

JEL
RISE TO THE CHALLENGE

JEL Group HSE Conference

2023 is the 10th year in which we have held our JEL Group HSE Conference. On 1 February, the HSE Managers of our subsidiaries visited JEL HQ for this conference. The conference commenced with our CEO/MD, Mr Watanabe, who gave a brief overview of JEL Group's HSE performance last year and commended each member of staff for their effort and commitment in upholding our safety. He went on to emphasize the importance of embracing innovation as a key in enhancing and integrating with existing safety measures to achieve our goal of zero LTI.

The conference continued with each subsidiary who respectively shared notable safety achievements and appraised their performance for the past year. They also updated the Group on their initiatives and programs conducted to encourage safety, highlighted changes in HSE regulations, and their aspiring targets moving forward.

The conference concluded in a surprising turn as Mr Watanabe awarded Ms Rizqika from PT Jurong Engineering Lestari for being the best presenter aligned with JEL Group's branding. Looking ahead, we hope everyone continues to practice impeccable safety standards and work collectively towards a safer work environment. Ultimately, staying safe is not only for yourself but also for your loved ones who you return home to every night.

Annual JEL Group Meeting

On 2 February, we held our Annual JEL Group Meeting. This hybrid meeting was physically attended by JEL senior management, management and finance personnel from subsidiaries, project managers and heads of departments.

Our CEO/MD, Mr Watanabe, set the tone of this meeting by highlighting the successes and pitfalls of 2022. He reminded everyone of our 7 management policies to guide us throughout 2023 and stay on track on our roadmap towards 2030. He stressed the importance of revitalizing the effort towards expanding engineering capacity, expanding scope of work and securing more projects on all fronts – from construction, to EPC, to maintenance. He also expressed his goals for further integration of our subsidiaries with JEL to create a positive synergy.

Our COO, Mr Koh Kew Sek gave a brief speech where he too shared similar sentiments on the integration of our subsidiaries with JEL HQ. He emphasized the importance of leveraging on a positive dynamic between JEL HQ and subsidiaries to safeguard the continued success for JEL Group. He further encouraged everyone to embrace change and remain agile in this competitive environment.

In an informative session, the various subsidiaries and JEL divisions reflected on their performance from the past year and presented their initiatives for this year. 2023 is off to a promising start.

Singapore's Best Employers 2023

For the third year in a row, JEL is recognized as Singapore's Best Employers!

We are proud to announce that we have moved up the ranks and are currently ranked 22nd place out of 250 companies – surpassing our performance from last year's 130th place. Today, JEL places fourth among construction companies in Singapore and has likewise fared significantly better with a score of 8.2 compared to the previous year's 7.29.

We will continue to strive for an inclusive, supportive, and safe work environment for all JEL Group employees!

Town Hall Meeting

> 2022 was a year of opportunities.
> 2023 is our turning point.
>
> – Mr Koichi Watanabe

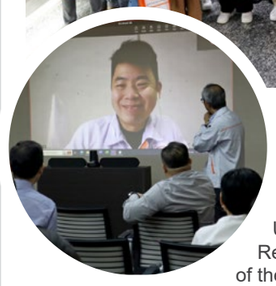
This year's Townhall started with a mini ice-breaker session led by Mr Alan Phang, the emcee for that day. He invited the Management Committee members to attempt songs in languages they cannot speak while the rest of the colleagues guessed the songs they sang. This turned out to be a hilarious session and successfully lifted the spirits of everyone.

With the games behind us, the Townhall officially commenced with our CEO/MD, Mr Koichi Watanabe, who welcomed everyone. In his speech, he looked back to the year 2022 whereby we landed major projects. In his words, "2022 was a year of opportunities. 2023 is our turning point." He stressed the importance of safety and innovation to improve profit margins going forward and was confident that the projects we secured last year shall act as steppingstones to propel us to a greater success.

Following his speech, Mr Osman presented JEL Group's HSE insights for last year, reviewed the pitfalls, and highlighted the vital necessity to strategize and tackle safety issues in our operations from all fronts as one group.

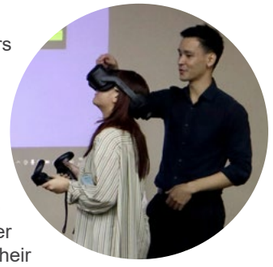
They were followed by our COO, Mr Koh Kew Sek, who highlighted JEL's journey in which we first started out as a construction company and over the years, painstakingly built our EPC knowledge and experience by securing and executing past projects. This arduous journey eventually paid off as we are now a company with strong construction and EPC capabilities. While we saw breakthrough sales in 2022, Mr Koh mentioned the paramount need to remain innovative and agile. To him, JEL Group is like an "octopus" whereby JEL HQ is the brain while the JEL subsidiaries are the tentacles. As a group, it is crucial for us to work in tandem with one another to strengthen JEL Group's positioning as a significant global player within the power industry.

Recruitment Talk 2023



On 27 February, we opened our doors to the aspiring engineers from Nanyang Technology University Singapore and National University of Singapore with our first Recruitment Talk since the emergence of the COVID-19 pandemic.

Our CEO/MD, Mr Watanabe, commenced the session by extending a warm welcome to all students. The talk was attended by our Construction General Manager, Mr Veeramani, and our EPC General Manager, Mr Wong, who introduced JEL's nature of business and the wide range of projects JEL has embarked on since inception. Our HR & Admin General Manager, Mr Phang, acquainted the students with our initiatives and development programs.



Succeeding that, our design engineers were brought on to shed light on their scope of work. During this segment, students had the exciting chance to try out the VR Headset our engineers use to view power plants remotely.

To provide a deeper glimpse into the role of a site engineer, we invited Javier Chew and Zheng Juncen, to share their day-to-day responsibilities and the obstacles they encountered as site engineers. From adapting to a foreign environment, to picking up a new language, and being away from home for long periods of time, these are just some challenges our site engineers face. While this job is admittedly tough, it is not without perks. As a site engineer, you will have the wonderful opportunity to be exposed to different cultures, explore different places, all while contributing towards the meaningful deed of supplying power to homes and generations to come.

Ending off this talk, our COO, Mr Koh, stressed the importance of horizontal and vertical learning. For which he firmly believes engineers must not only focus on deepening their specialized skills but also broadening their field to learn about other aspects of engineering.

The session wrapped up with a scrumptious buffet lunch, during which, the students had the opportunity to connect with our management staff and HODs. We look forward to hosting our next Recruitment Talk!

SCGRP Project
FAT Testing

Ambihaa Sivakumaran
Lead Engineer
Jurong Engineering Limited (JEL)

Meet our lead engineer, **Ambihaa Sivakumaran**, who recently visited Siemens factories for the Sahacogen SPP Renewal (SCGRP) Project's Gas Turbine and Steam Turbine FATs located in Finspang, Sweden. Read on to hear her thoughts on this experience.

JEL Team with Owner Rep and Siemens Rep in front of our Gas Turbine at Finspang Workshop.

Before this year, I never had the chance to see a turbine in-person. Hence, when the opportunity to finally visit a Siemens factory arose, I could not have been more thrilled.

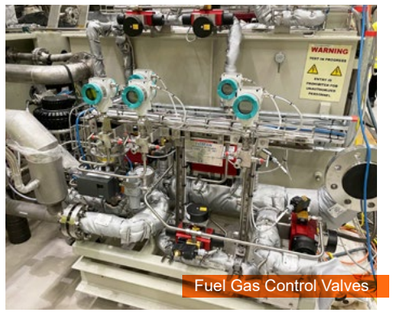
Our team of five is comprised of a Process Lead, Instrument Lead, Project Manager, Project Engineer and me. We flew to Finspang for the Gas Turbine FAT (Factory Acceptance Test) of model SGT-800 for the SCGRP project. We were also joined by a few members belonging to the Owner's team.

Reaching the Siemens Factory, we were first led through a briefing on the commissioning manual and test procedures for the turbine. Thereafter, we were brought to the respective workshops to witness the instrument loop tests, alarm and shutdown signal tests.

Personally, one of my favorite moments of this visit was the chance to view the fuel gas control valve positions. The fuel gas control valves are located behind the GT lube oil tank. While the actuator of the control valves was big, the scale showing the measurement was small. As such, we had to either use a small mirror instrument to read the measurement or lie beneath the gas turbine skid to view the measurement. Being adventurous, I chose the latter as I did not wish to pass on the opportunity to get up close with a turbine.

Factory tour

Another notable experience was when I witnessed the changeover between lubrication oil pump groups. Prior to this, I thought that the main purpose of lubrication oil for turbine bearings is to aid turbine rotation.



Fuel Gas Control Valves

However, after this experience, I learnt that lubrication oil also plays a crucial role in preventing significant turbine damage – whereby there are inbuilt codes to safeguard the turbine from situations such as the accidental stoppage of lubrication oil.

During this visit, Siemens also arranged a factory tour after the FAT where we got to see multiple turbines at various stages of completion. From the cutting machines which cut the turbine blades to the vacuum chamber where the balancing of the rotor was carried out – we were able to better appreciate the intricacies of each component.

In a nutshell, the first-hand experience of going to the factory directly for FAT, instead of online FATs was a valuable experience. Through this trip, I gleaned a better understanding of how each individual component come into play to form a cohesive and harmonious system. I also gained a new-found appreciation for the complexity of these turbines alongside the sheer vastness of an entire assembled product. This trip renewed my conviction to become a more capable engineer and eventually tackle more advanced packages such as STG / GTG packages.

As I enter my fourth year at JEL, I am grateful for such opportunities to both bond with my team and gain new insights!

Project Aurora:
130 MW Combined Cycle Gas Turbine
in Kulim Hi-Tech Park

Kulim Hi-Tech Park (KHTP) located in Kedah, opened in 1996, is Malaysia's first high-tech industrial park focused on electronics and semiconductor industries. Its major tenants include multinational companies such as First Solar, Infineon Technologies, and Intel to name a few. Today, the park is rapidly expanding just as its electrical demand.

The project owner, NUR Generation Sdn Bhd is Malaysia's first and only privately-owned independent power utility company with the exclusive right to sell electricity to industrial and residential customers of KHTP. The firm currently owns, operates, and maintains a 220 MW combined cycle gas turbine plant in a 115-acre zone of KHTP. To meet the high demand from companies, NUR has resorted to importing electricity from national grid provider, TNB. Thus, the owner set a priority to build new generation capacity and invited bids for an expansion project. The project initially opened for bids in 2019 but was suspended in light of the COVID-19 pandemic.

When the bidding resumed in mid-2022, the owner decided to go with two of Siemens pre-built SGT-800 gas turbines to shorten the project duration. EESB and JEL managed to impress the owner with their quick clarifications on technicalities and ability to offer alternatives. Eventually, they were awarded with the project - officially named 130 MW Combined Cycle Gas Turbine in Kulim Hi-Tech Park ("Project Aurora").

On 16 March 2023, JEL and EESB respectively entered a Supply Contract and Construction Contract with NUR Generation Sdn Bhd in a hybrid signing ceremony. This marks the first full-scale combined cycle EPC contract secured by JEL and EESB in Malaysia. JEL's scope entail the plant's engineering and supply of major equipment. EESB's scope include the supply of locally procured items/equipment, complete site civil construction works, complete plant M&E installation work including an extension of 132 kV switchyard and start up testing and commissioning.

Project Aurora will develop into a 130 MW Combined Cycle Gas Turbine Plant with two gas turbines (GTs), two Heat Recovery Steam Generators (HRSGs), a steam turbine (ST) and an air-cooled condenser. The project has two phases. In Phase 1, the installation of simple cycle gas turbines (GT#1 & GT#2) are to be completed within 16.5 months from the contract award date. In Phase 2, the installation of steam turbine including HRSGs are to be delivered in another 11.5 months.

The timeframe of 16.5 months for Simple Cycle Phase 1 completion poses a complex challenge. Having to procure several long lead equipment / systems and secure permits from government agencies to commence onsite execution are formidable tasks. Nonetheless, our team is confident that their vast field of experience and expertise in similar configuration combined cycle plant will be integral to the safe and timely execution of the project.

As of today, site survey and soil investigation have been completed, site office is in the midst of setting up and the piling subcontractor is being finalized. Purchase orders have been issued for the gas turbine generator package, fuel gas compressor and by-pass stack. Finally, techno-commercial clarifications are progressing well with vendors for the 132 kV switch yard, main transformer, and distributed control system.

Congratulations to the JEL and EESB teams who have secured this project. We are positive the synergy between the teams will bring forth the successful delivery of the project!

Successful Completion of the GSPPR Plant

On 19 December 2019, Jurong Engineering Limited (JEL) and Thai Jurong Engineering Limited (TJEL) respectively secured a Supply Contract and a Local Construction Contract for the Glow Phase 2 Replacement Cogeneration Plant (GSPPR) from the Owner, Glow Energy Public Company Limited. This project means to replace the then existing Glow Energy Phase 2 facilities, with two blocks of cogeneration trains – each block consisting of two Siemens SGT800 gas turbines and two HRSGs. On top of generating a total net power of 196 MW, the new facilities will process steam of 460 tons/h supplying to industrial users and Electricity Generating Authority of Thailand's grid.

196 MW
Total Net Power

Over the course of 28 months, the team started with demolition works that entailed the removal and dismantling of power plant equipment (main transformers, STG, EDG, cooling towers, circulation pumps, water treatment plant, oil storage tanks, associated piping, cabling, and instrumentations) and demolition of structures (steam turbine hall, workshop, admin building, underground water storage tank). Complications arose frequently as construction works were done simultaneously with demolition works, which resulted in frequent changes in the design parameters whereby designers had to constantly adapt to the unpredictable site conditions.

Furthermore, the construction period coincided with the peak of the COVID-19 outbreak. As such, various contingencies had to be adopted to mitigate the impacts of the pandemic. At site, the small and narrow geography called for meticulous planning when it came to the mobilization of equipment. In such conditions, it was critical to avoid excess equipment at site to ease the manoeuvring and navigation of larger equipment and vehicles.

At the peak of site demolition, activities were plagued with heavy downfall during the monsoon season which caused a substantial amount of water to accumulate in certain areas at site. To counter this issue, additional pumps were swiftly deployed to dewater these affected areas.

Despite the countless challenges, the teams of JEL and TJEL successfully brought the first block into commercial operation on 5 January 2023 and the second block on 27 January 2023. In an impressive ten months from the time the first gas turbine unit was put on-base in March 2022, all four gas turbine units were put into operation and handed over to the owner.

Thank you to the GSPPR teams for your inspiring strength during this trying time!

Ratch Cogeneration Expansion Project

On March 2021, under the Ratch Cogeneration Expansion project to support increasing demand of existing industrial users, Ratch Cogeneration Co Ltd awarded the consortium comprising of Jurong Engineering Limited (JEL) and Thai Jurong Engineering Limited (TJEL) with an EPC contract. This project consists of four gas engines supplied by Kawasaki Heavy Industries with each gas engine capable of generating 7.8 MW of power – bringing the total capacity of the cogeneration plant to 31.2 MW and total steam generation to 5.7 ton/h.

The main scope of supply and construction include four gas engines with generators, heat recovery steam generator, selective catalytic reduction, balance of plant, total plant electrical and instrumentation system, and civil works.

JEL scope encompassed the engineering and supply of major equipment, all electrical and instrumentation required for plant operation. TJEL scope entailed onshore supply of materials and the construction, testing and commissioning of the plant.

As this project concerned the construction of dewatering and backfilling a portion of the water pond, timeline was particularly tight. Coupled with stringent COVID-19 regulations, the timeline was further aggravated by a one-month mandatory stoppage with the issue of a government order due to the proliferation of COVID-19.

Unphased, the JEL and TJEL teams readily rose to the challenge and pulled through. On 8 October 2022, they attained commercial operation, and the owner subsequently issued a provisional acceptance certificate on 30 December 2022.

Congratulations to the colleagues who have made this project a success!

Commercial Operation of BCC2 Combined Cycle Power Plant

On 5 October 2020, the EPC consortium partners consisting of Jurong Engineering Limited (JEL) and Thai Jurong Engineering Limited (TJEL), successfully clinched the contract for the construction of the BCC2 combined cycle power plant project.

Located at Map Ta Phut Industrial Estate in Rayong province, Thailand, the BCC2 project embarked by Bangkok Cogeneration Co., Ltd intend to replace its existing 113 MW cogeneration power plant. The BCC2 plant encapsulates 2 gas turbines (SGT800 – 62 MW), 2 HRSGs and 1 steam turbine (SST– 400). With a 146 MW net power output, the plant has the ability to supply 100 tph of demineralized water and 90 tph of process steam to industrial users in the vicinity.

Throughout the project execution, the team persevered through various obstacles exacerbated by the COVID-19 pandemic and Russia-Ukraine war, which have resulted in significant cost impacts on raw materials, shipping, labor demand, delay in equipment deliveries etc. Nonetheless, as of 31 March 2023, the team has successfully achieved the plant performance guarantees and the owner has commenced commercial operation.

LINE
Project

Cilegon, Banten
Indonesia

The Lotte Chemical Indonesia New Ethylene (LINE) project is an expansion initiative to develop an Integrated Petrochemical Facility located in Cilegon city, Banten province, Indonesia. This initiative is carried out by Chemical Manufacturer Lotte Chemical Indonesia - a subsidiary of Lotte Chemical Titan Holding (LCT).

As part of this initiative, in a joint venture between the owners LCT and LOTTE Chemical Corporation, they aim to develop a 1 million ton per year naphtha cracker and other related downstream facilities. Through this, they aim to increase the company's production capacity.

In July 2022, HEIN Global Utama awarded PTJEL (PT Jurong Engineering Lestari) with the contract for Underground Piping work. Our work scope is divided into 39,671 DB (diameter inches) for Fabrication and Installation Works, 15,986 DB for Glass Flake Lining, 104 m of Foam Pad Installation for Steam Tracing, 1.08 tons for Support Fabrication and Installation and 1783 m^2 (about four times the area of a basketball court) for Wrapping and Coating for Joints.

Construction started in September last year and over 5 months, the PTJEL team has completed the Sea Water Line comprising 14,000 DB with a maximum pipe size of 90 inches. Unlike other underground pipelines we have completed, this Sea Water Line is applied with a glass flake lining to the interior joints. The glass flake lining is essential in ensuring its longevity to protect against internal corrosion as the pipelines are in contact with sea water – a highly corrosive and humid environment.

In December 2022, HEIN Global Utama also awarded PTJEL with another contract covering the scope of Steel Structure, Mechanical and Piping Erection Works (SMP Pkg-2). The SMP Pkg-2 comprises of 3,966 tons of steel structure work, 11,288 tons of mechanical work, and 119,309 DB of piping work. As the area the team has to work in is rather small, different work scopes will inevitably be carried out simultaneously within the same space.

Package Awarded

3,966 tons
Steel work

11,288 tons
Mechanical work

119,309 DB
Piping work

Today, PTJEL is advancing with the construction of other underground piping lines, starting from lines with a maximum size of 24 inches. On the SMP Pkg-2 front, while there has been some delay in material delivery, the team remains steadfast and will be pushing forward with the steel structure and foundational works.

We look forward to the safe and timely completion of the LINE project and would like to take this moment to thank all staff for their dedication even during festive periods!

Jawa & Matarbari
Site Visit

Earlier this year, JEL CEO/MD, Mr Watanabe, alongside key management staff, Mr Khor and Mr Veeramani, visited the Jawa 9 & 10 and Matarbari project sites.

The **Jawa 9 & 10 is a 2 x 1,000 MW coal fired power plant** that is being built to meet the rapidly growing electricity demand in Cilegon, Indonesia. During their visit on 10 April, they were brought around the site, filled in on the project's progress and updated on the HSE performance.

Projected to be completed in 2025, the Jawa 9 & 10 team have to date successfully installed all Unit #1 STG's (Steam Turbine Generator) critical equipment and BOP (Balance of Plant) equipment and Unit #2 STG's turbine.

Today, the team is on track to have Unit #2 STG's critical equipment (turbines, generator, and condenser) in place.

Matarbari, Bangladesh

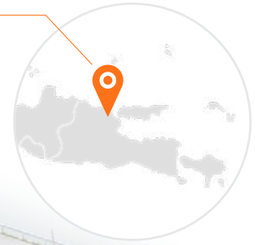
Awarded in March 2020, the **Matarbari project** located in Matarbari, Bangladesh, involves the construction of 2 units of boiler and auxiliaries for IHI – encompassing the power plant's mechanical, electrical, control and instrumentation works, the engineering, procurement and construction of firefighting system and elevator for the 2 boiler units.

Reaching the project site in early May, Mr Watanabe and management were brought up to speed on the status of the project. They attended the Mass Toolbox Meeting and celebrated the achievement of 8 million safe manhours in a ceremony which awarded staff for their commitment in upholding outstanding HSE standards. At a joyous dinner party, Mr Watanabe also shared encouraging words and appreciation to the site staff.

Today, the project is powering ahead of schedule and is over 85% completed. With the boiler hydrotest for both Units #1 and #2 completed and the recent accomplishment of Unit #1 boiler initial oil firing, the team look to attain commercial operation of both units in 2024.

Implementation of RFID
in Manyar Smelter Plant

Manyar, Gresik
Indonesia



Jetty structure erection


RFID tag

Flotation steel structure erection

In May 2022, PT Chiyoda International Indonesia awarded PTJEL a contract entailing the installation of steel structure, piping, and duct for the Manyar Smelter Plant. When completed, the copper smelting plant will boast a capacity of 1500 t/h and a copper concentrate processing facility with the production capability of 2 million tons a year.

Construction commenced in November with the piping work advancing as planned, whereby a total of 21,000 DB (diameter inches) of fabrication has been completed. The structure work which began in January is progressing ahead of schedule with a total of 1,200 tons of steel structures erected. As the project moves along, the metal duct installation is due to start next.

On top of that, this project employs a Radio Frequency Identification (RFID) tagging system. RFID is a form of wireless communication that taps on electromagnetic fields to automatically identify, and track tags attached to objects. Today, the RFID chip is gaining momentum in various industries to track and manage inventory. In the construction context, such a technology is beneficial for identifying and managing a large quantity of fabricated spools starting from fabrication, painting up to installation.

After months of preparation, the PTJEL team has worked out the nuts and bolts for the smooth implementation of the RFID tagging system. In February, they finally received all the necessary components and began installation. To effectively benefit from the RFID system, it is paramount that the layout coordinates are accurately aligned with the actual location of the spools or materials.

Installed, the RFID system will be able to provide real-time information on the location of the materials and spools as they move along their life cycle. This absolves the need to spent time looking for inventory or allocate additional personnel when mix-ups occur. Such benefits cannot be understated especially in large projects that handles a substantial number of materials – for which the optimization of spool and material location and identification will undoubtedly confer time and/or labor savings.

We are glad to witness the adoption of a smart technology to boost productivity. With the project progressing as planned, we are hopeful that PTJEL's new partnership with PT Chiyoda International Indonesia will bear fruits for both sides.

Additional Work Secured for
Thai Oil Clean Fuel Project

Sri Racha, Chonburi
Thailand

30,000 TPD
Refinery plant

In 2020, our subsidiary, Thai Jurong Engineering Limited (TJEL) were first awarded with underground piping fabrication and site erection works on the Thai Oil Clean Fuel project under the consortium comprising of Petrofac, Saipem and Samsung Engineering Corporation. The Thai Oil Clean Fuel project aims to improve production efficiency and bolster refining capacity. When completed, it will host a 30,000 TPD refinery plant, located in Sri Racha, Chonburi province, Thailand.

Satisfied with TJEL's past performance, the client further entrusted them with additional work late last year – a SMP package comprising of steel structure, mechanical equipment, module and piping work. Kicking off in October 2022, TJEL has since made headway in the erection of stainless steel, erection work, piping and painting. The project is progressing swimmingly and is slated for completion by July 2024 as scheduled.

We are glad to continue our symbiotic partnership with Petrofac, Saipem, and Samsung and play a role in strengthening energy security in Thailand.

Improved Efficiency with the **Clamp Method** in Alloy Piping Fit-Up


Spacer Method

In adherence to the ASME Standard for Alloy Steel, projects that use 9 Cr alloy piping materials must be preheated before tacking or welding on metal surfaces. It is also prohibited to apply heat using a gas torch to 9 Cr materials (P-15E) as it may change the material constitution.

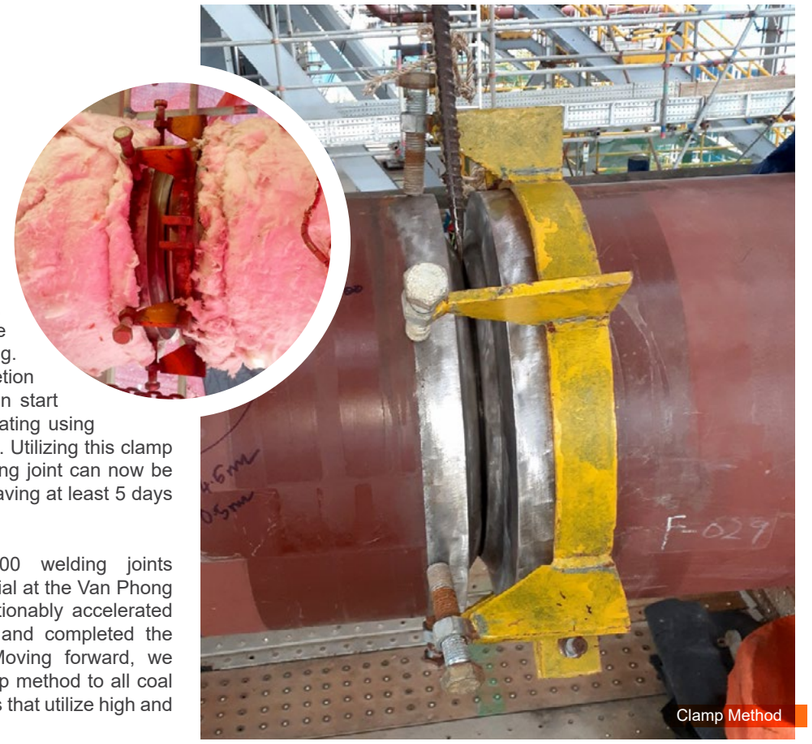
In previous projects for fit-up work concerning 9 Cr pipe, we have heeded the ASME Standard using the **spacer method**. However, this method requires a minimum of 7 days to complete one MSP welding joint and runs the risk of a fit-up delay, especially if preheating is not done properly. This may consequentially result in the development of cracks and thereby may even take longer than 7 days to complete a single welding joint. This method poses a threat when there are hundreds of welding joints concerned, whereby any problems that arise during the fit-up and welding would snowball and set a project back.

2 x 660 MW
Thermal Power Plant

To reduce the risk of potential project delay, we decided to adopt the **clamp method** for all alloy piping in the Van Phong 1 BOT Thermal Power Plant Project, 2 X 660 MW, Vietnam.

With the clamp method, we no longer require spacer and tag welding. Conversely, upon completion of the fit-up, welding can start immediately once preheating using electric coils is executed. Utilizing this clamp method, one MSP welding joint can now be completed in 2 days – saving at least 5 days with this method.

With approximately 400 welding joints composed of 9 Cr material at the Van Phong boiler, we have unquestionably accelerated our project's efficiency and completed the project on schedule. Moving forward, we intend to apply the clamp method to all coal fired power plant projects that utilize high and thick alloy materials.

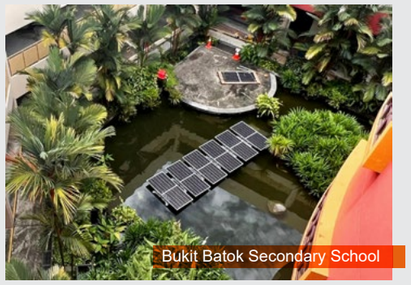

Clamp Method

JEL Maintenance UPDATES


Kim Seng


Kolam Ayer


Kolam Ayer


Bukit Batok Secondary School

Jurong LOBP Expansion

15
Tanks

In September 2022, Wood (Amec Foster Wheeler Asia Pacific Pte Ltd) awarded JEL Maintenance Limited (JML) with a contract entailing EPC tank fabrication and installation works for the Jurong Lube Oil Base Plant Expansion Project based in Singapore, owned by ExxonMobil Asia Pacific Pte Ltd.

JML has been charged with the 15 tanks – the scope encompasses the engineering, procurement, fabrication, installation, testing, painting, insulation of the tanks, construction of spiral staircases, ladders, link bridges and finally delivery to the site jetty where it is then installed at the base. Throughout this project, the unpredictability of the weather has been a bane. Nonetheless, the team remained resolute and readily put in the extra hours to make up for any delayed progress.

As of April, the team has pulled through and all 15 tanks have been hydrotested, inspected and successfully delivered to the client.

As a testament to the JML team's exemplary performance and the client's trust in them, JML was awarded another package that covers the main mechanical works – due to be completed in October.

SolarNova 5

1,154
HDB Blocks

46
Government Sites

60 MW
Solar Energy

The Housing Development Board (HDB) has called for the fifth solar lease tender under the SolarNova programme led jointly with the Singapore Economic Development Board (EDB). The SolarNova programme was launched in 2014 with the aim to promote and aggregate solar demand, leaning into cleaner energy sources to reduce carbon emissions and mitigate the effects of climate change.

For this tender, they target to install solar panels across 1,154 HDB blocks and 46 government sites – reaping an additional 60 MW of solar energy island-wide. In January 2022, JML (JEL Maintenance Pte Ltd) was awarded with the scope of 20 MW under this tender. While the JML team faced some labor crunch during COVID-19 pandemic, we managed to overcome this by accelerating our work in the post-pandemic phase and increasing our productivity wherever possible.

As of March 2023, the team has completed 40.28% of the project and successfully turned on 8.36 MW. They are currently on track to complete the remaining 11.64 MW by this year end.

INSIDER Conversations

Let us hear from **Ms Pornrutai Chuchottaworn,** an Engineering Manager from Thai Jurong Engineering Limited, as she shares her story.

When did you join TJEL as an Engineering Manager?

I first graduated with a bachelor's degree in civil engineering in Thailand and proceeded to pursue my master's degree in the USA. After graduating in 2001, I worked as an engineer in California for 6 years before returning to Thailand and have been in the field of Power and Petrochemical plants ever since. In 2015, I joined Thai Jurong Engineering Limited (TJEL) and never looked back

What do you do at TJEL?

At JEL, my primary role is to supervise and manage TJEL's engineering team to ensure the successful execution of projects. I still remember my first turnkey project – 600 MW Mae Moh Power Plant Central Control Building and Boiler Electrical Building. It was daunting. However, since completing that project, I have gained more confidence.

When TJEL was tasked to support JEL's EPC team in terms of design in 2017, I became responsible for TJEL's design engineering team and the smooth liaison between stakeholders.

With a coworker at the Mae Moh Control Building

Can you share with us your most memorable experience among all the projects you have completed?

The most memorable project I was involved in was the Salton Sea restoration project in California, USA. Back in 2005, I was still a budding field engineer and had to stay in an abandoned Eagle Mountain Mine whereby we lived in a temporary camp for two months to conduct a rock exploration.

It was a ghost-town. We were situated in the middle of nowhere, encompassed by the California desert. Places like the grocery store or even the nearest gas station was 70 miles away, making it difficult to buy necessities. In the day, the weather was unbearably warm and when night falls, it becomes eerily dark. The welcoming grace was that on some nights, our team would gather in the yard for a barbeque, drink beers and relax under the breath-taking Milky Way. Such nights were what motivated me to continue with the project. I was truly glad to have completed the exploration project on time.

What barriers/ challenges have you faced in your career and how did you overcome them?

Time management has always been a challenge. In design engineering, we constantly have to expedite design work as it is one of first activities that needs to be established for the rest of the project to take off. Quality and accuracy in design work are aspects that are equally time-consuming as it is important. Between the high demands of work and family, I often find myself attempting to balance a suitable amount of time for my growing son and myself. While I have been getting better at managing my time, I am still far from perfect. Nonetheless, the most important thing is to persevere and adjust your priorities whenever appropriate.

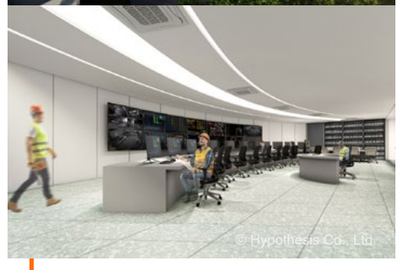
Overlooking West Pit of Eagle Mountain Mine, California, USA. 2005

What were some difficulties you have faced when trying to balance between a building's aesthetics, functionality, and safety?

Well coming from an engineering background, I often prioritized the functionality and safety of a design without giving a second thought to aesthetics. Hence, when I was involved in the BCC2 control building and worked with an architect, our differing perspectives led to conflicts at times. However, I came to understand the finesse of balancing between different perspectives and the significance of communication, comprehension, and compromise (where it allows).

I was personally also intrigued by the architect's perspective on design especially when I too wanted to be an architect growing up! Though, I gave up on that idea when I realised my ability to draw anything other than cartoons were not good enough haha.

Through that project, I came to appreciate an architect's unique perspective, creativity, harmonization and especially designs that confer users' comfort. Likewise, it was after speaking with the architect, that I came to know that he learned to integrate power plant safety into his designs.



Conceptual Design: Control & Administration Building of BCC2 Combined Cycle Power Plant exterior (Top) & interior (bottom), 2021

What are the guiding principles that helped you achieve success in your field?

I strongly believe the indicator of a good manager is closely intertwined with the growth and performance of my team. As a manager, I have made it customary to review the overall outcome of every assignment we complete and look for areas of improvement. Other than that, our company's core values have served me well. Most importantly, as long as I am do what I like, I believe I can do it for a long time.

What is the most important piece of advice you have been given?

Slow is smooth,
smooth is fast.

This is an advice that has been ingrained in me since the first time I heard it. It means there is no shame in taking more time to do the job the right way and carefully. By getting it right the first time, we would not have to work doubly. Hence, it is important to conduct proper checks, plan, observe, and make wise, calculated decisions that give rise to positive outcomes.

What can we learn from the Thai?

In our Thai culture, there is a phrase that would resonate with most Thais and fundamental to our Thai society, that is "**เกรงใจ**" (**Kreng Jai**).

Kreng Jai literally means awe of heart. The concept of Kreng Jai is to be aware of other's feelings. It is to show consideration, respect, and not unnecessarily hassle others. As a result, most Thai people are brought up to be polite and considerate. While that may be the case, we are also friendly with a good sense of humor. :)

With my colleagues

What is the best thing about your job?

I enjoy many things about my job. While challenging, I enjoy doing what I do and overcoming challenges. It is also a great feeling whenever I see a project to completion and conquer new milestones. While TJEL is a diverse workplace with people coming from many different backgrounds, everyone gels along harmoniously. Best part, my team and bosses are all amazing!

How do you typically spend your leisure time or unwind after work?

My perfect remedy after a long day at work is to pick up a book or go to the gym. Other than that, I enjoy spending time with my family and going for activities like playing tennis together or visiting bookstores.

What advice do you have for people who just joined us?

Congratulations and welcome to the team! We look forward to learning and growing together with you. Do not hesitate to share your thoughts, ask for help when needed, and be creative!

TJEL colleagues

Lunar New Year Celebration

The lion dance is an ancient ritual believed to have originated some 1500 years ago popularized during the Northern and Southern Dynasties. Traditionally touted as a dance that wards off evil and brings in luck, the dance is most typically performed during Lunar New Year but also can be seen during festive occasions such as weddings and business openings.

On 2 February, during the auspicious hour, we invited a lion dance troupe to usher in a year of prosperity for JEL. Everyone eagerly gathered by the lobby as we watched the lion dance crew skillfully move to the rhythm of the beating drums and cymbals – the loud banging drums and cymbals are believed to drive malicious spirits away.

Reaching a climatic point, the lion dance troupe performed “採青” pronounced as cai qing, where they climbed up the stilts and plucked the cabbage hung high above the ground in front of our JEL lobby. Thereafter, the lion “chewed” on the lettuce and “spat” the leaves back out as a symbolic blessing of an abundance of wealth.

“採青” is a word play whereby 採 has a similar pronunciation to 财 - which means fortune. In English, this directly translates to “plucking the greens”.

The celebration wrapped up on a spirited note as everyone thoroughly enjoyed the intricate and dynamic performance.

This year’s Staff Party was certainly a long-awaited resumption of large-scale physical events. For the first time in 3 years, we were joined by over 300 staff, including our overseas colleagues, at the renowned and beautiful Capella Hotel immersed in nature.

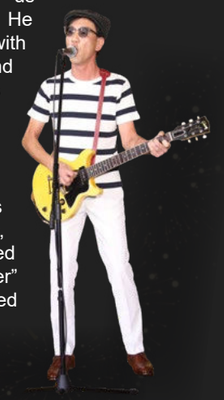
Before the party began, our colleagues were entertained with several activities. Some donned mock tattoos of their choice, some had their caricature drawn on a keychain, while others visited the calligraphy booth where they chose a meaningful wish and had it calligraphed on a fan by a professional calligrapher. At the photo booth, laughter resounded as colleagues posed together with various props.

To officially kick-start the party, our MD, Mr Watanabe, welcomed our Chairman, Mr Bob Tan who was accompanied with a dynamic lion dance performance. Mr Watanabe went on to share his goals for 2023 and expressed his appreciation for all staff and management in his speech.

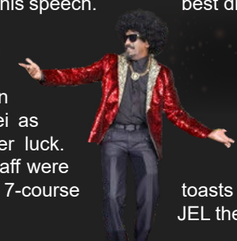
This was followed by a Traditional Prosperity Lo Hei, whereby everyone can be seen tossing the Lo Hei as high as possible for greater luck. With our spirits lifted, our staff were shortly introduced to a 7-course culinary delight.

Amidst the ongoing feast, Mr Watanabe was invited to the stage to present the safety and i-JEL 2022 awards. Shortly after, Mrs Watanabe and Mr Bob Tan were invited to the stage for the Lucky Draw segment. That night, some lucky colleagues including those who joined us virtually, walked away with as much as S$2,000.

The party turned up a notch when Mr Watanabe surprised us with his performance. He played various songs with the ease of veteran and even sang one of his own songs called “Be My Baby” dedicated to JEL!



While everyone was dressed to the nines, some colleagues dazzled – befitting of our “Glitter” theme and were voted best dressed.



Before the night concluded, we were led through the JEL song and a series of toasts as everyone heartily wished JEL the best for 2023.

i-JEL 2022

Last year, in the second i-JEL campaign, we asked our colleagues what their idealized JEL looks like. Over the period of 2 months, we received over 180 ideas! After careful consideration by our judging committee, we narrowed down to 5 winners who were subsequently announced during the Staff Party earlier this year.

Hearty congratulations to Gongjun Li from the Process and Equipment Department who was awarded first place with his in-house engineering tool to check and select flange ratings with precision and updated the piping size calculation tool. These 2 developments have helped improve work efficiency by a staggering 90%.

In second place we have Sandeep Jain from JML who has developed an interactive machine known as “J-Kiosk” which uses recycled desktop monitors that would allow others to easily access data in fabrication shop conditions. The J-Kiosk also has the exciting potential to be further integrated with the J-PPROM, a piping progress monitoring module that will bring about greater possibilities in terms of monitoring and data collection.

In third place we have Hong Weixun and Purupuruthan Rajith from the piping department who came together to make the process of generating pipe stress models more efficient – increasing productivity by over 80%.

In fourth place, 2 colleagues, Sayeerajan Sarveswaran & Sunderrajan Sudharsanan from JML initiated a spool tagging system using QR code which has made the tracking of spools much more seamless.

Lastly, in fifth place, Raymond Thiang from the Finance and Accounting Department came up with an idea to streamline and standardize the payment system. His idea, if realized, will reduce time taken on certain work processes and improve efficiency.

Congratulations to the winners and thank you to all those who participated!

(From left) Gongjun Li, Hong Weixun, Purupuruthan Rajith, Koichi Watanabe, Sandeep Jain

Tree Planting Update

The program to plant 50 trees sparked in light of JEL's 50th anniversary whereby we wanted to contribute to Singapore's green vision. Hence, on 28 September 2019, with the help of fellow JEL employees, we set off to plant 14 trees at East Coast Park.

Today, we visited the same trees we planted 4 years ago! We are glad to say the trees are looking healthy and robust. The stretch of bountiful trees along the road connecting to Marina Bay are certainly a breath of fresh air, offering a seamless immersion in nature.

You can find the other 36 trees planted at Jurong Central Park.

A Visit to Gardens by the Bay

Gardens by the Bay is an ambitious project that took nearly six years of meticulous planning and building before opening its doors in 2012. It encapsulated National Parks Board Singapore's vision of creating a City in a Garden whereby it is home to more than 1.5 million plants and features conservatories, lakes, dining areas and more.

On 6 May, our colleagues visited Gardens by the Bay and explored the attractions. One of them was the Cloud Forest that has been fashioned after the world of Avatar. Reaching the vast Flower Dome, it transported our colleagues to Eastern Turkey with its variety of tulips. As the golden hour faded, the Garden Rhapsody came to life with beautiful opera and an enchanting light show featuring the Supertrees.

What a mesmerizing time!

Fun fact

The Flower Dome currently holds the title in Guinness Book of World Records as the largest greenhouse in the world with a total size of 1.2 hectares – the size of 75 Olympic-sized swimming pools.

Hari Raya Celebration

Festivity was in the air as JEL's lobby was livened up with various Hari Raya decorations.

On 12 May, SRC organized a buffet lunch to celebrate Hari Raya with our fellow Muslim colleagues.

The buffet kicked off with a short performance by a band. As the enticing smell of food wafted in the air, everyone eagerly queued for their turn. The buffet held a wide variety of dishes from juicy satays to refreshing coconut dessert. It was a feast!

We hope everyone enjoyed themselves!

Healthy Lifestyle

Abdul Hameed
Engineering Department
Jurong Engineering Limited (JEL)

Read on to find out how **Abdul Hameed**, a passionate cyclist, has managed to incorporate his favourite hobby with his daily life!

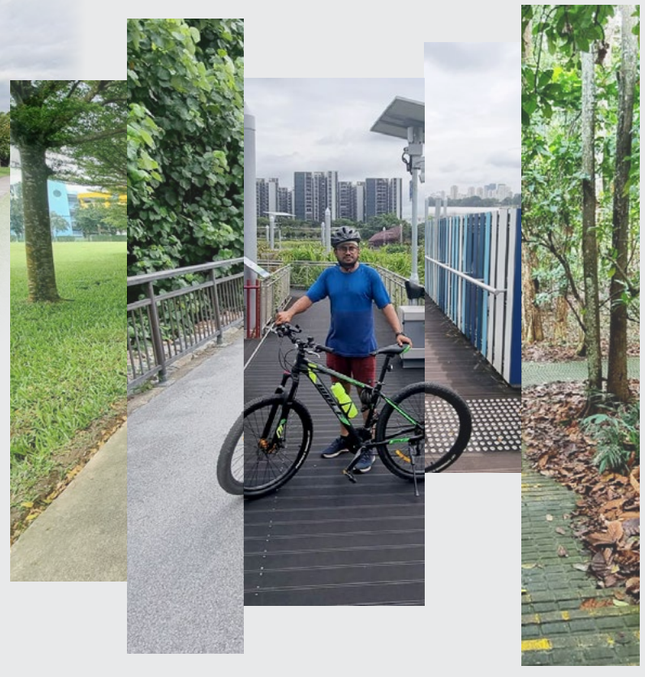
I believe that staying active is an integral component for the maintenance of good health. As such, I have found ways to incorporate physical activities into my daily routine.

On a typical workday, I enjoy kicking off the day with a cycle from Jurong West to work, covering approximately 12 km. I find that doing so energises me for the rest of my day. Over the weekend, to unwind after a long week at work, I would embark on a scenic 22 km cycling route with my friends that takes us from Jurong West to West Coast Park. Reaching West Coast Park, we would typically follow up with some other form of outdoor activities – our personal favourite is beach volleyball. This has been my routine for years now. Today, I feel healthier and stronger than ever.

By engaging in regular physical activities, it brings us a wealth of benefits such as improved cardiovascular health and mental wellbeing. They are also a wonderful way to bond with family, friends, and even meet new people.

As the sage adage goes: Health is wealth.

To those who wishes to become healthier, I would advise to start with physical activities that you enjoy as that would make it easier to be consistent with in the long run. You can also start adopting small, incremental changes in your daily life such as opting for the stairs instead of the lift. By doing these, I believe we can all become healthier!



We Care @ JEL

The Underbelly of Singapore's Homes

On 10 January, our group of 29 colleagues volunteered for the Project HomeWorks Program organized by Habitat for Humanity Singapore. Habitat for Humanity Singapore is a charity organization focused on rehabilitating homes in Singapore.

While homelessness may not seem like an issue in Singapore, behind closed doors, there are still many homes that do not have decent living conditions. Many of these homeowners have health or mobility issues which makes caring for their homes difficult. As a result, their homes may be overly cluttered and unhygienic. By working together with Habitat for Humanity, we were glad that we could go about improving the living conditions of five homeowners.

Through the session, our volunteers had the chance to interact with the homeowners – all of whom were friendly, some humorous and some even offered sage advice.

One of the volunteers who worked on a cluttered home shared:

> Before today, I never knew homes of such living conditions existed in Singapore. Given the homeowner's cheerful personality, if I met them outside, I would never have expected them to be living in such a home. It was an eye-opening experience being able to glimpse the underbelly of Singapore per se. Speaking to the homeowners, I learnt that many of them live in such states not because they do not care about their homes, but rather life gets in the way. While the session was physically demanding, at the end of the day, I am heartened to have been able to help the owner live in a home that is cleaner and more sanitary. The smiles on their faces made the sweat worthwhile.

It was delightful to meet these homeowners and we hope that our effort has helped them attain a home that is safe, sanitary and dignified. Together, we can tackle this invisible issue in our society.

Earth Day Walk

As an act of appreciation and gratitude for Mother Earth, on 15 April 2023, our colleagues trekked along Jurong Lake Gardens while cleaning up its pathways.

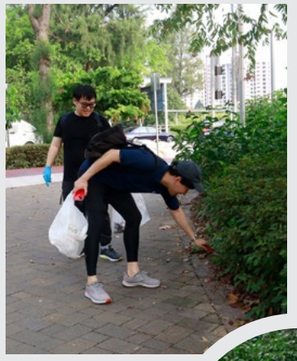
Jurong, to locals back then, used to be a region in Singapore that stretched from what we know today as Tuas all the way to Bukit Timah. It was home to prawn ponds and well-known for its soil which was apt for pottery. The kampongs around were only accessible via one road with two lanes.

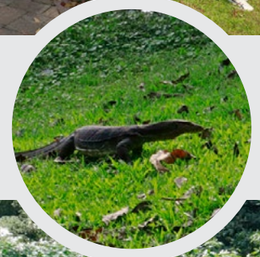
As Jurong went through industrialization, to preserve its natural beauty, a plan to create an urban "green lung" was drawn up. This led to the birth of Jurong Lake Gardens whereby the lake was dammed in 1971, creating an 81-hectare freshwater reservoir (equivalent to 162 football fields). Two additional manmade islands were created that became the Japanese Garden and Chinese Garden. Jurong Lake Gardens subsequently opened in 1975. Today, it is home to many species – from woodpeckers, spotted wood owl and more.

Despite being a scorching day, our colleagues were thoroughly committed to picking up litter. While focused on the task at hand, they did not forget to admire the beautiful flora and fauna. Throughout the walk some spotted a family of otters, squirrels, and a Malayan Water Monitor lazing by the grass.

Through this event, we hope to create greater awareness of Singapore's litter problem. By clearing our communities of litter, it reduces the chance of them entering our seas and posing as potential hazards to marine animals. Furthermore, plastic litter that breaks down into microplastics may enter our soil, air, and water – becoming a potential biohazard. Hence, it is important that we always dispose of our trash properly, reuse what we can and recycle what we cannot. While our impact may seem insignificant, collectively, we can make a difference.

It was a Saturday well-spent!





Green Trivia

Did you know that emails contribute to carbon footprint? The more emails you have in your inbox, the more electricity is required to "store" them. So, if you are reading this, take this as a sign for you to declutter your inbox.

THRIVING ECOSYSTEM within JEL

In this issue, **Purupuruthan Rajith** from the Piping Department and **Rumaizah Bustapa** from the Human Resource & Admin Department – avid fans of nature, excitedly shed light on the wonderful ecosystem existing within JEL. Read on to discover the type of flora and fauna that can be spotted within our compound.

Purupuruthan Rajith
Piping Department
Jurong Engineering Limited (JEL)

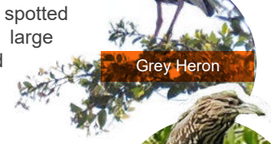
Rumaizah Bustapa
Human Resource & Admin Department
JEL Maintenance Pte Ltd (JML)

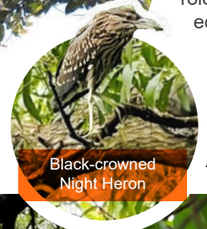
JEL is situated in an area that is blessed with natural beauty. Home to a diverse range of flora and fauna, it paints a vibrant environment for employees and visitors alike. One of our colleagues who has come to savour JEL's offerings of nature is Rajith, who on most days after lunch, would go on a leisurely stroll.

He strongly believes that a brief 20-minute walk post-meal can facilitate digestion, enhance metabolism, and invigorate energy levels. According to him, walking also has the added benefits of reducing stress and elevating mood, making it a perfect way to unwind and declutter the mind following a hectic morning at work.

On his walks, he has sighted a very interesting animal within JEL premises, the black heron. These majestic birds are often seen standing in shallow water under the tree beside our fabrication workshop, waiting patiently for their prey to come within reach before swopping in.

Another bird he has spotted is the milky stork; a large and impressive bird that is known for its distinctive black and white plumage.



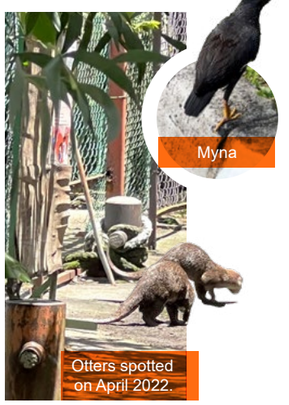


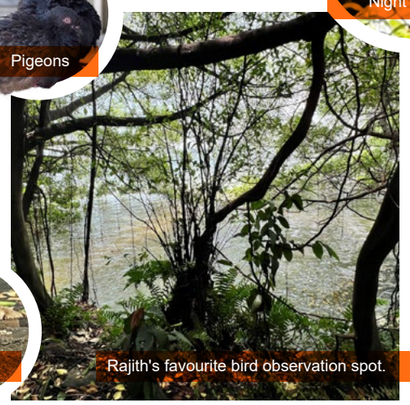
It can be spotted either in mangroves near the laydown area or perched on the trees next to the seaside.

On top of that, pigeons and doves are a common sight in JEL and are often appreciated for their gentle cooing and graceful movements. Pigeons are generally peaceful birds and can often be seen resting on fabrication workshop rooftops. Despite their humble appearance, these birds play an important role in our ecosystems – serving as pollinators and seed dispersers for a wide array of plant species.

Apart from the avian species, JEL is also inhabited by various reptiles, including iguanas and monitor lizards. It is not uncommon to observe these reptiles sunbathing or foraging for food in the fabrication yard. Additionally, otters were once sighted in the streams that run through the premises.

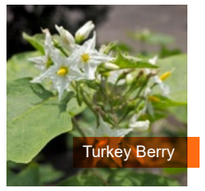
Not forgetting the smaller creatures, a beehive has been spotted at the west seaside of the fabrication yard recently. As pollinators, these bees play a crucial role in the maintenance of our mini ecosystem here.

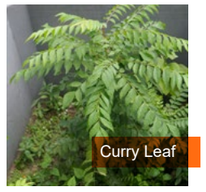


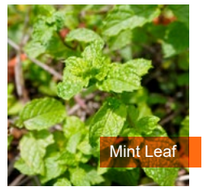


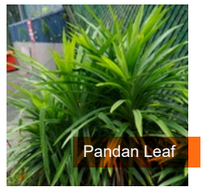
Nestled within JEL, we bear a large variety of plants including coconut, jackfruit, mango, and longan. These fruit-bearing trees both contribute to the overall aesthetic beauty of our premises and serve as a valuable food source for both humans and animals. Plants such as the sacred fig, drumstick, papaya, neem tree, henna plant, and tamarind plant are also growing within JEL.

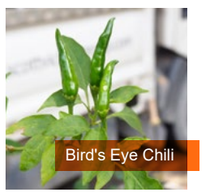
On the topic of flora within JEL, our colleague, Rumaizah also has interesting snippets to share!

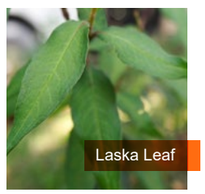












> According to Rumaizah, screw pine, pandan leaf and mint leaf can be used in our daily drinks or cooking.

Today, as human developments continue to encroach on many of our natural spaces, it is more vital than ever to protect and conserve the plants and animals that make up our ecosystems. The diverse flora and fauna thriving within JEL premises are then a testament to the possibility of preserving natural habitats in urban areas. From witnessing majestic herons to harvesting delicious jackfruits, our premises are a true celebration of humans and natural diversity coexisting harmoniously.

Insider Picks

In this issue of Insider Picks, we asked some of our colleauges to share their favourite movies!

Bajrangi Bhaijaan is a moving tale that underscores a subtle "father-daughter" story. The film is also an effective commentary on the India-Pakistan conflict/ relationship that remains relevant today.

Image: Bajrangi Bhaijaan Facebook

This movie portrays the wonderful capacity of humans whereby the main protagonist, Pavan went out of his way to bring Munni, a stranger to him, home. Munni is played by a talented actress whom while mute, manages to convey her feelings through her expressive and poignant eyes. As the bond between Pavan and Munni developed, I was charmed by their chemistry.

Throughout, this movie manages to weave in many life lessons on friendship, love, self-sacrifice, respect and humility. To me, the biggest takeaway is that of gratitude and recognition.

This movie is perfect for days when you are feeling sentimental but still in need of some uplifting.

Norayshah Binti Zulkafli
HR & Admin Officer
Equator Engineering Sdn Bhd

Top Gun: Maverick has everything I love in a movie. From its adrenaline inducing scenes that comprised of thrilling action sequences to low-altitude flybys, and air-to-air dogfights, there was never a dull moment. Watching these manoeuvres is an exhilarating experience that constantly has me at the edge of my seat.

Image: Top Gun Facebook

Impressive visual effects aside, the movie's main protagonist, Pete 'Maverick' Mitchell, is very charismatic. One of my favourite lines from him was:

> *Trust your instincts.*
> *Don't think.*
> *Just do.*

Ultimately, this movie is a Hollywood blockbuster that can be enjoyed light-heartedly. Those who enjoy fast-paced movies laced with action can give this a go!

Yap Wai Kiat
Senior Lead Executive
Jurong Engineering Limited

Deiva Thirumagal is about a man with a mental capacity of a five-year-old who fights for the custody of his 6-year-old daughter. When his father-in-law took his daughter from him, he managed to convince a lawyer to take his case.

At its core, this movie depicts a parental love that transcends boundaries and shines a light on the unfair prejudice faced by those with mental conditions in our current society.

Image: Prime Video

Seeing how the father fights till the end for his daughter, despite having a mental condition which some may deem as an impedance to his ability to care for his daughter, but finally getting his daughter back is heart-warming. This movie also struck a chord in me as it reminded me the importance of parents in bringing up our kids well.

While a tearjerker, this movie is inspiring. Highly recommend!

Priya Viswanathan
Senior Design Engineer
Sinmado Engineering (India) Pvt Ltd

Editorial Notes

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