THAI NIPPON STEEL & SUMIKIN ENGINEERING & CONSTRUCTION CORP., LTD. (TNS) was established in 1987 by Nippon Steel Corporation (a worldwide leader in steel manufacturing and engineering), Nippon Steel Trading, and Italthai Group (a Thai industrial conglomerate).

The core businesses of TNS are Front End Engineering Design (FEED) / Basic Engineering, Detailed Engineering, Fabrication Engineering, Procurement, Fabrication / Construction, Installation, Pre-commissioning and Commissioning of Upstream and Downstream works including offshore facilities, onshore modules and so on.

TNS also provides offshore platform facilities maintenance & modification work services, offshore scaffolding services, offshore painting services and welding engineering services.

Core Business

Engineering & Procurement Services
- FEED, Detailed Engineering and Fabrication Engineering
- Procurement Services

Construction
- Offshore Upstream Oil & Gas Facilities
- Onshore Structures
- Pressure vessel & Tanks
- Onshore Modules and LNG Plant

Offshore Installation

Offshore Services
- Offshore Brown-field Works / Offshore Services
- Hook-up and commissioning
- Maintenance and modification services
Engineering

TNS Engineering office locates at Ample Tower, Bangna-Trad Rd. We support all detailed engineering and fabrication engineering under one roof. The core strength of TNS engineering is a resource pool of personnel having extensive experience in the field of upstream oil and gas sector EPC projects.

TNS offers Conceptual Engineering, Front End Engineering Design and Detail Engineering for wellhead platform, central processing platform, compression module, water injection module, living quarter module and fabrication engineering for generation of fabrication drawing for structural, piping, mechanical, electrical and instrumentation disciplines.

Established engineering disciplines include process, mechanical, piping, instrumentation, electrical, structural, facility design (piping & mechanical), facility design (E&I), and structural design.

It has well equipped engineering office buildings accommodating all the above disciplines with the required modern infrastructure and IT systems / resources. Engineering activities are carried out using the latest available / industry proven software resources including PDMS, TEKLA, ETAP, HYSIS, CAESAR-II.
Procurement

TNS procurement division has experience and expertise to provide the necessary procurement and logistics services from engineering through to commissioning for the projects.

TNS sources materials on a world-wide basis, managing the entire procurement process from vendor assessment and survey, procurement plan, request for quotation, bid evaluation, selection of vendor and issuance of purchase order, expediting, source inspection, vendor document control, logistics and invoice administration.
Construction

Capability
TNS has two large and well equipped fabrication yards at Amara and Bangpakong, both located close to Bangkok.

Amara yard
Location: 30km south of Bangkok at the mouth of the Chao Phraya River
Total Area: 130,000 square meters

Production Capacity:
- Structural (Tons / Year) : 20,000
- Piping (Spools / Year) : 12,000 (approx 120,000 DB)
- 4 Covered fabrication shops for structural, piping and E&I
- 3 Covered blast & paint shops
- Covered storage warehouses

Amara yard can accommodate up to six wellhead platforms (deck & jacket) at one time.

Bangpakong yard
Location: 47km south east of Bangkok at Bangpakong River side
Total Area: 373,000 square meters
(Potential for expansion to 400,000 square meters)

Production Capacity:
- Structural (Tons / Year) : 40,000
- Piping (Spools / Year) : 25,000 (approx 250,000 DB)
- 4 Covered fabrication shops for structural, piping and E&I
- Covered blast & paint shop
- Covered storage warehouses

Bangpakong yard can accommodate several wellhead platforms (deck & jacket) at one time or other type of oil & gas platform including Central Processing Platforms, Compression Module or Platform, Living Quarter Platform, Onshore Modules and LNG Plants

Our fabrication shop is accredited with ASME “U” and “R” stamp.
Facilities

Other facilities at Amara & Bangpakong yards

Dedicated facilities for client offices, first aid rooms, welding schools, open storage areas, open fabrication and assembly areas, painting material storage areas, blasting & painting areas, gas storage, hazardous waste areas, storage for fabricated components, canteens, toilets / worker rooms, car parks, all available at both yards.

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Amara yard</th>
<th>Bangpakong yard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wharf Facilities</td>
<td>3 numbers</td>
<td>4 numbers</td>
</tr>
<tr>
<td>Quayside Draft</td>
<td>6 meters (MSL)</td>
<td>6 &amp; 10 meters (MSL)</td>
</tr>
<tr>
<td>Skid-way</td>
<td>2 Skid-ways</td>
<td>2 Skid-ways</td>
</tr>
<tr>
<td>Load-out capacity</td>
<td>2x2,500 MT for Jacket 5,000 MT for Deck</td>
<td>2x2,500 MT for Jacket (Jetty No. 2 &amp; 3) 7,500 MT for Deck (Jetty No. 1) 20,000 MT (Jetty No. 4)</td>
</tr>
<tr>
<td>Load-out method</td>
<td>SPMT (Self-Propelled Modular Transporter) &amp; Skidding Method (By winches or Strand-Jack) Lifting by crawler crane</td>
<td></td>
</tr>
</tbody>
</table>

Major equipment at Amara & Bangpakong yards

**Heavy Cranes**
- Crawler crane 650 tons
- Crawler crane 300 tons
- Crawler crane 150 tons
- Crawler crane 90 tons
- Gantry crane 20 tons
- Heavy lift crane can be outsourced for high workload

**Fork Lifts and Trucks**
- Forklifts 3-5 tons
- Truck (6 wheel) 10 tons

**Fabrication Set-up**

Each yard has respective structure, piping, mechanical, electrical, instrument, protective coating, quality control, logistics & material control yard facility, maintenance, planning to meet clients’ needs.
Offshore Installation

NIPPON STEEL & SUMIKIN ENGINEERING (NSENGI) our group company in Singapore provides a full range of installation services including:

- Marine Transportation
- Platform Installation
- Pipeline Installation
- Decommissioning of offshore structures

Offshore Services

TNS has a fully-fledged Brownfield Division, which provide full range of offshore activities as follows:

- Construction Work Pack Development
- Green Field Hook-up & Tie-ins works
- Brown Field Works namely
  - Pre-works and modification
  - Retro-fit
  - Rejuvenation works
  - Total revamp
  - Well tie-in works
  - Do-bottlenecking
  - Upgrading works
  - Conversion scheme
  - Pre and Post drilling works
  - Pre-commissioning and Commissioning
- Start-up assistance
Quality Assurance / Quality Control

TNS is committed to implementing and maintaining an effective quality management system which ensures customer quality requirements, including statutory/regulatory requirements.

TNS Quality Management System is applicable to engineering design, procurement, construction, installation, pre-commissioning and commissioning of onshore and offshore oil and gas platform and process facilities and onshore structure. TNS Quality Management System is developed in accordance with ISO 9001:2008.

TNS provides a high level of quality and services that meets and surpasses our customer requirements. TNS performs work with a professional approach to meet quality control procedures. TNS also conducts regular reviews for continual improvement in human resources, facilities, and work environment with a view to enhancing our services and our quality objectives.

- TNS have ample resources of manpower with credentials of international level that possess inspection certificates, such as, CSWIP, PCN, BGAS, ASNT and NACE.
- Inspections are being carried out independent from production and in compliance with the agreed Inspection and Test Plan as agreed with our Customers or Client.
TNS is committed to achieving the highest Health, Safety, and Environment (HSE) Standards across all operations and consistently meets or exceeds the needs and expectations of our clients.

A fully functional Health, Safety, and Environmental Management System (HSEMS) is effective to provide high level of performance related to HSE risks across all operations.

Health, Safety and Environmental Management System covers the following major aspects:

- Safety Inspection and Audit Procedure
- Material Safety Data Sheet (MSDS)
- Confined Space Entry Procedure
- Work permit system
- Potential Risk Alert Procedure
- Safety Emergency Response Training Procedure
- Hygiene condition checking program
- Fire prevention procedure
- Incident & Accident Report Investigation
- Scaffolding Safety Procedure
- Lifting / Rigging and Transportation Safety Procedure
- Safety and Discipline for Offshore works
- Environment Protection Procedure
- Safety Induction
- Electric Safety Procedure

TNS Health, Safety, and Environment Management System (HSEMS) has been established and implemented in accordance to the requirement of OHSAS 18001:2007 and ISO 14001:2004.
Corporate Social Responsibility (CSR)

THAI NIPPON STEEL & SUMIKIN ENGINEERING & CONSTRUCTION CORP., LTD. (TNS), in its ongoing support for and commitment to social awareness, consider CSR a primary policy. TNS is therefore dedicated to benefiting Thai society and to being fully committed to the Kingdom of Thailand and its people. To illustrate its devotion, TNS pledges to contribute to a better society and to protect the environment.

Having certified by Ministry of Industry for Good Environmental Government, TNS is proudly to be environmental cared company.
"Continuous Improvement is our Culture"