Offshore Engineering Services



CCS
CHINA CLASSIFICATION SOCIETY
中国船级社



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Safety, environmental protection and creating value for clients and society



Introduction

Founded in 1956, China Classification Society (CCS) is the specialized organization of China to provide classification services. CCS aims to provide services for the shipping, shipbuilding, offshore exploitation and related manufacturing industries and marine insurance by furnishing reliable classification requirements and providing independent, impartial and integral classification and statutory services to ships and offshore installations, for the promotion and safeguarding of the safety of life and property at sea and for the prevention of pollution to the marine environment.

- Member of the International Association of Classification Society (IACS)
- CCS Class notation is accepted by International Underwriting Association (IUA)
- Recognized by United States Coast Guard (USCG) and the European Union (EU)
- Associate member of the International Association of Dry Cargo Shipowners (INTERCARGO)
- Associate member of International Association of Independent TANKER Owners (INTERTANKO)






Offshore Engineering Services

Since the early 1970s, CCS has been authorized by the Chinese government and governments of other countries/ regions to independently carry out statutory, classification, third-party certification and verification of offshore installations (including equipment and materials) engaging in exploration, exploitation and production in China seas. These installations are scattered in various oil fields along China coast, ranging from Bohai Bay to South China Sea, from shallow waters to deep sea.

CCS always take serving offshore oil and gas development, promoting industry innovation, safeguarding the safety of offshore industry and environment protection as our mission. We continue to improve and maintain related technical rules, guidelines and instructions, enhance the capability of design appraisal, assessment & analysis, survey, project management and information service, build up a team of professionals in this area, with a view to making contributions to the development of ocean oil & gas exploration and exploitation, as well as to the global sustainable energy development.

Milestones



1973

Provided classification and statutory survey for China's first twin-hull oil drilling ship

1972

Provided classification and statutory survey for China's first self-designed and constructed self-elevating drilling unit



1976

Provided classification and statutory survey for China's first semi-submersible drilling unit





1980

CCS provided survey service for Bo Hai Cheng Bei oil field block B development project. cooperated with ABS

1982

The first version of Rules for Construction and Classification of Offshore Drilling Ship was published



1984

The first version of Rules for Construction and Classification of Fixed Offshore Platforms was published

1985

Provided construction survey for Wei Zhou 103 oil field

1986

The first version of Rules for Construction and Classification of Diving Systems and Submersibles was published



1992

The first version of Rules for Classification of Mobile Offshore Units was published

1993

CCS provided certification survey for China's first artificial island

1996

The first version of Rules for Construction and Classification of Offshore Single Point Mooring Units was Published



1998

CCS provided third-party and statutory survey for Zhao Dong oil field development project

2001

CCS provided classification and statuary survey for Bo Hai Ming Zhu Hao





2004

CCS provided classification and statuary survey for 400 feet Jackup

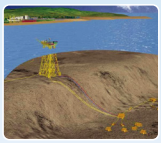
【 Major Clients 】

中国海洋石油总公司 CHINA NATIONAL OFFSHORE OIL CORP.
中国石油
Sinopec
中国国电 CHINA GUODIAN
Husky Energy
中国大唐集团公司 China Datang Corporation
国家电投 SPIC
國家能源集團 CHN ENERGY
CR POWER
三峡新能源
中国华能 CHINA HUANENG
roc
NEWFIELD
noble energy
ConocoPhillips
Agip
CACT OPERATORS GROUP



2007

CCS provided classification and statutory survey for 3000m deep-water drilling unit Hai Yang Shi You 981



2010

CCS provided third-party and statutory survey for deep-sea oil and gas field development project Li Wan 3-1



2014

CCS provided classification and statutory survey for deep-water drilling unit

2016

The first version of Guidelines for Certification of Subsea Production Systems was published



2017

CCS provided classification and statuary survey for the first semi-submersible production platform. CCS also provided certification survey for 1500m deepsea pipeline and subsea production systems.



2019

CCS provided third-party and statutory survey for deep-sea jacket construction project - "Lu feng", the first one with a water depth of 285m.

2021

Provided certification and statutory survey for deep-sea jacket construction project "Liu Hua 11-1/4-1". (Operation Water Depth: 330m)



2023

Provided third-party survey for far-reaching floating offshore wind turbine"Hai You Guan Lan Hao".(Capacity : 7.25 MW/unit)

2005

CCS provided third-party and statutory survey for Wen Chang oil filed, XJ 23-1 oil field development project



2013

CCS provided third-party and statutory survey for Li Wan oil & gas treatment terminals project



2015

CCS won the first oversea project, providing third-party survey for a single point mooring system and subsea pipeline in Brunei



2017

The first version of Guidelines for inspection of offshore drilling units was published

2018

The first version of Guidelines for Survey of Metal Flexible Pipe Used For Subsea Pipelines

CCS provided classification and statuary survey for the PSO"Feng huang zhou", the first oil tanker to be converted into internal turret type FSO project in China.

2020

Provided Third-Party survey for Floating offshore wind turbine"San Xia Yin Ling Hao".(Capacity : 5.5 MW/ unit). Provided Third-Party survey for "San Xia Ru Dong Converter Station". (Capacity: 1.1 million KW)



2022

Provided classification and statutory survey for offshore drilling ship "Da Yang Zuan Tan Chuan".(Operation Water Depth: 2500m)



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Entire Range of Services

Our aim is to provide quality, standardized, efficient and trustworthy survey and evaluation services covering all areas of offshore engineering.

【 Service Scopes 】

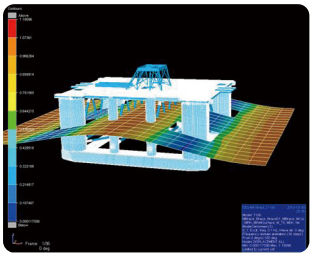
- Mobile Offshore Units
- Fixed Offshore Installations
- Floating Production Storage and Offloading Units (FPSOs)
- Single Point Mooring Systems
- Artificial Islands and Oil & Gas Treatment Terminals
- Equipment and Materials
- New marine economy

【 Service Products 】

- Classification
- Certification
- Statutory Survey
- Rules and Guidelines
- Technology Service
- Risk Assessment
- Ship type approval
- Check and analysis of independent calculation

Whole Life Cycle Services

We are ready to provide first-rate service with unique characteristics upon technology and credibility throughout your asset's full life cycle.

Design	Construction	Operation	Decommissioning
			
Pre-Contract Service Front-End Engineering Design Review Design Review Evaluation Independent verification	Builder Evaluation Construction Survey Towing Survey	In-service Survey Emergency Response Service Asset Maintenance Management	Concept Evaluation Asset Regeneration / Replacement Site Survey



Our Experiences

During the past five years, more than 80% of offshore installations in China seas have been surveyed and certified by CCS. As the national classification society of China, We have improved our services for offshore engineering by closely following up deep-sea energy development trend, accelerating technical development and enhancing technical competence. CCS has undertaken a number of significant deep-water survey projects. We satisfactorily completed the construction survey tasks of "offshore oil 981", "offshore oil 982" and other advanced semi-submersible drilling platforms in the world. We Participate in a number of deep-water energy projects with huge investment and complex technology, such as semi-submersible production and storage platform project "Lingshui 17-2", Lufeng Oilfield Group regional development project, South China Sea Liwan 3-1 oil and gas field development project and so on. We have made major breakthroughs in the deep-water field.In the field of marine new economy, CCS has undertaken the project plan review and on-site survey of more than 40 fish farming projects and leisure tourism facilities. As to the offshore wind power area, Relying on rich experience in marine engineering, combined with wind turbine certification, testing technology and the unique research on offshore wind farms by the Offshore Engineering Center, CCS has completed the certification and survey of the first floating wind turbine, offshore converter station, and offshore booster station in China.

【 Mobile Offshore Units 】

CCS mobile offshore units service capability covers Jackups, Semi-submersibles, Submersible drilling units, Surface-type units, Box on bottom units. Until now, CCS has completed classification and statutory survey for more than 180 mobile units.

Semi-submersibles



- *Classed with CCS*
- *Type of Rig: A5000*
- *Operation Water Depth: 1,500m*

Submersible Drilling Units



- *Classed with CCS*
- *Operation Water Depth: 10m*

Jackups



- *Classed with CCS*
- *Type of Rig: JU2000E*
- *Operation Water Depth: 400 feet*



- *Classed with CCS*
- *Type of Rig: L780*
- *Operation Water Depth: 300 feet*



- *Classed with CCS*
- *1000t Wind Turbine Installation Unit*
- *DP1*

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【 Fixed Offshore Installations 】

Thus far, CCS has carried out statutory and third party certification services for over 400 fixed offshore platforms, 5,000 kilometers subsea pipeline, more than 10 Artificial Islands and Oil & Gas Treatment Terminals, and has accumulated extensive experience of plan approval, site survey, offshore installation and commissioning for fixed offshore installations.

Fixed Platforms



- *8-leg and 16-pile Platform*
- *Water depth: 250m*
- *Topside weight: 32,000T*

Subsea Pipelines



- *Length: 13.5km*
- *Diameter:Φ711 X 17.5 mm*
- *Water Depth: 0-38.5m*
- *Material: API 5L×60*

Artificial Islands and Oil & Gas Treatment Terminals



- *Onshore oil & gas treatment terminal*
- *Design treatment capacity of gas: 8×10^9 m^3/a*



- *Nanpu Oil & Gas Treatment Terminal*



- *EDC Platform*

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【 FPSOs and Single Point Mooring Systems 】

With the development of deep-water oil and gas projects, demand for FPSOs is increasing. CCS provided certification service for floating treatment units began in 1990s. So far, we have carried out classification and statuary survey for several newly built FPSOs and oil tanker revamped FPSOs, undertaken the survey project for FSO "FengHuangZhou" and FPSO "Avant I", and independently completed the survey for several single point projects at home and abroad.

FPSOs Construction and In-services Survey



- 100,000GT
- Mooring Type: ANCHOR CHAIN MOORING



- 195,000GT
- Mooring Type: Inner turret



- 157,500 GT
- Mooring Type: YOKE

FPSOs Conversion Survey



- Target tanker: 59,574 GT



- FPSO Configuration: 714,000 bbls
- 12 Points spread mooring

Single Point Mooring Systems



- Maoming Single Point Mooring Project



- Brunei Single Point Mooring Project

【 Equipment and Materials 】

Service Modes:

- Design approval
- Type approval
- Works approval
- Class Notation Approval Certification

Why choose CCS:

- High Quality Assurance
- Cost / Work Effectiveness
- Global network
- Expert support





• *Skid Equipment Surveyed by CCS*



• *Windlass Surveyed by CCS*



• *Derrick Surveyed by CCS*

Underwater Production System



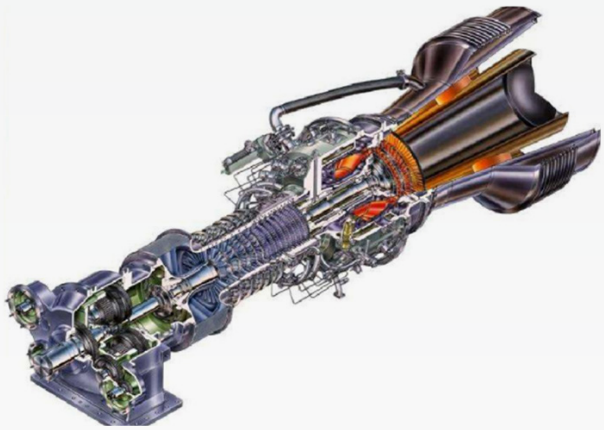
Coiled Pipe of Submarine Pipeline



Offshore Drilling Equipment



Gas Turbine Unit



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【 Marine New Economy 】

China Classification Society is engaged in the rapid development of domestic offshore wind power industry actively, focusing on the whole life cycle safety and risk management of offshore wind power plant facilities, and with the help of its technical advantages and experience in the field of offshore engineering, it provides offshore wind power clients with services such as design certification, construction and installation technical service and facility operation period integrity assessment.

Verification Survey Service for Offshore Wind Farm Facilities

CCS provides verification survey services for offshore wind farms. At present, it has completed the survey of more than 50 offshore wind power facilities in China, including offshore booster stations, offshore converter stations, and offshore floating wind turbines.

- Design Review
- On Site Survey
- Construction And Installation Survey
- In Serve Survey
- Demolition Survey







Technology Service for Offshore Wind Farm Facilities

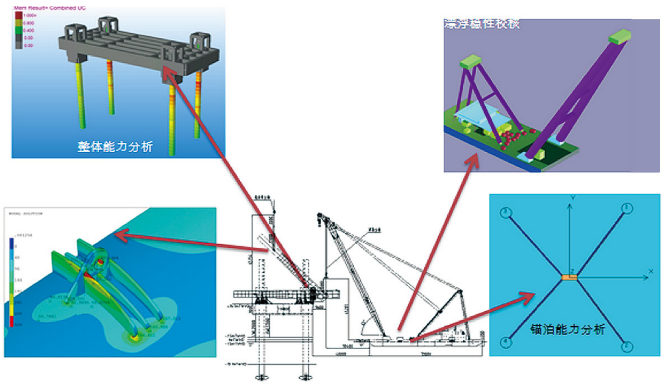
- New design approval / certification of offshore wind power (principle approval)
- Design Review / Verification
- Technical Service for Offshore Installation and Construction

CCS 海洋工程技术中心
CHINA CLASSIFICATION SOCIETY 中国船级社 TECHNOLOGY CENTER OF OFFSHORE ENGINEERING

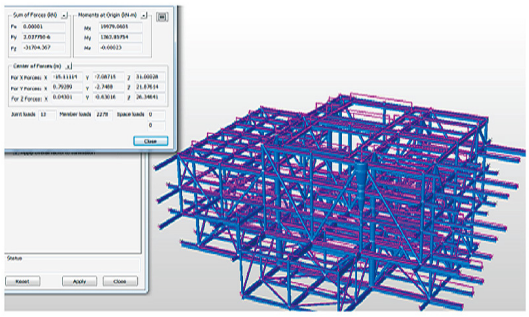
- *Third-party design review services for offshore wind farm development*



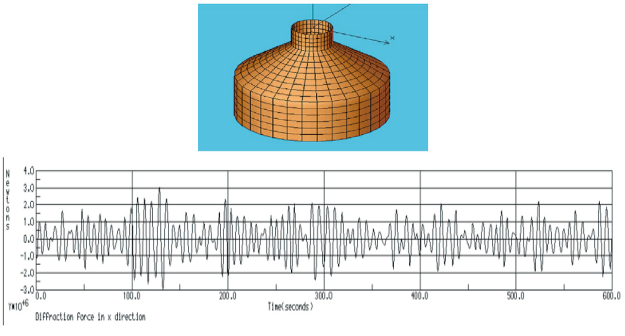
- *Construction Survey*



- *Independent Third Party Technology Service for Offshore Wind Farm Construction and Installation*



- *Verification Survey-Design Review/Independent Review Calculation Service*



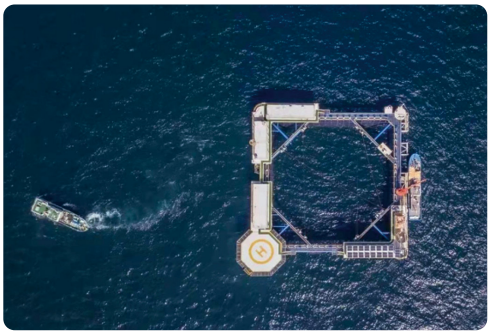
- *Technology Service on Basic Design of New Offshore Wind Turbine*

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Survey Services for Offshore Fish Farming Installations

As the most important force in China's marine engineering inspection, CCS plays a leading role in promoting the development of China's offshore green industry and the standardization of offshore fish farming installations. CCS has successively undertaken the *Survey Rules For Mobile Offshore Units*, *Technical Rules For Mobile Offshore Units* and so on. published *Guideline For Survey Of Offshore Fish Farming Installations*. As of April 2023, it has successively participated more than 60 fish farming and leisure installations drawing review and on-site survey.

- Design Review Services for Offshore Fish Farming Installations
- Third Party Survey and Classification Survey Services for Offshore Fish Farming Installations
- Approval for New Ship Type Development and Design of Offshore Fish Farming Installations (AIP Certification)
- Technology Services on Operational Environmental Conditions of Offshore Fish Farming Installations
- Independent Review computing service of Offshore Fish Farming Installations





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Offshore Engineering Technology Capability

Rules Development

40 years of hard work

For 40 years, China Classification Society has always been committing to offshore engineering services and has developed a large number of offshore engineering rules and guidelines through technical accumulation and research based on the technical services provided to owners of offshore engineering. A complete system of offshore engineering rules has been established.



Rules System

Mobile Offshore Units

- *Rules for Classification of Mobile Offshore Units*
- *Guideline for Offshore Wind Turbine Service Units*
- *Guidelines for Inspection and Repair of Cracks on Jack-Up's Legs*
- *Guidelines for Structural Continuous Assessment and Emergency Response Service of Mobile Offshore Units*
- *Guidelines for Thickness Diminution of Mobile Offshore Units*
- *Guidelines for Lay-up of Mobile Offshore Units*
- *Guidelines for Continuous Machinery Survey of Mobile Offshore Units*

FPSOs

- *Rules for Classification of Offshore Floating Installations*
- *Guidelines for Classification of Tension Leg Platforms*
- *Rules for Construction and Equipment of Ships Serving as Floating Storage and Regasification Units*

Mooring and Positioning Systems

- *Rules for Construction and Classification of Offshore Single Point Mooring Units*
- *Guidelines for the Survey of Offshore Mooring Chain Cable in Use*
- *Guidelines for Inspection of Dynamic Positioning Systems*
- *Guidelines for Analysis of Positioning Mooring Systems*

Subsea Pipeline, Riser and Subsea Production System

- *Rules for Subsea Pipeline Systems*
- *Guidelines for Certification of Subsea Production Systems*
- *Guidelines for Quality Acceptance of Offshore Pipeline Construction*
- *Guidelines for Survey of Metal Flexible Pipe Used For Subsea Pipeline*
- *Guidelines for Inspection of In-service Subsea Pipeline*
- *Guidelines for the Structural Assessment of Subsea Pipeline*
- *Guidelines for Riser Systems*

Fixed Offshore Installations

- *Rules for Construction and Survey of Fixed Platforms in Shallow Water*
- *Rules for Construction and Classification of Fixed Offshore Platforms*
- *Guidelines for Structure Inspection of In-service Fixed Platforms*
- *Guidelines for Survey of Offshore Wind Farm Facilities*
- *Guidelines for Quality Acceptance of JACKET Construction*
- *Guidelines for Reliability Analysis and Application of Fixed Jacket Structure*
- *Guideline for Analysis of Ice-induced Vibration and Fatigue of Fixed Offshore Steel Structures*
- *Guideline for Certification of Oil Treatment Terminal Guidelines for Vibration Testing and Structural Safety Assessment of Fixed Offshore Platforms*
- *Guidelines for Survey of High-Voltage Power System of Fixed Offshore Facilities*

New marine economic facilities

- *Guidelines for Survey of Marine Fisheries Facilities*
- *Guidelines for Survey of Offshore Wind Farm Facilities*
- *Guidelines for Survey of Offshore Wind Farm Facilities' Installation*
- *Guidelines for Offshore Substations*

Diving systems and Submersibles

- *Rules for Construction and Classification of Diving Systems and Submersibles*

Basic Offshore Technologies

- *Rules for Materials and Welding*
- *Guidelines for Assessment of Offshore Platforms*
- *Guidelines for Survey of Offshore Drilling Plants*
- *Guidelines for Fatigue Strength Assessment of Offshore Structures*
- *Guidelines for Buckling Strength Assessment of Offshore Structures*
- *Rules for Offshore Oil and Gas Treatment System*
- *Rules for Lifting Appliances of Ships and Offshore Installations*
- *Guidelines for Certification of Fixed Offshore Installations and Subsea Pipelines*
- *Rules for green and Intelligent Ships*
- *Rules for Intelligent Ships*
- *Rules for Certification of Ship Security System*
- *Rules for Certification of Safety Management System for Safe Operation of Ships and Pollution Prevention*
- *Guidelines for Survey of Offshore Drilling Plants*
- *Guidelines for Analysis of Transportation of Large Offshore Structures and Floating Installation*
- *Guidelines for Technical Service of Engineering Critical Assessment*
- *Guidelines for Application of Failure Mode & Effects Analysis*
- *Guidelines for Application of Survey of Drones*
- *Guidelines for Survey of Automatic Identification System (AIS)*
- *Guidelines for Application of Automated Ultrasonic Testing (AUT) Techniques*
- *Guidelines for Survey and Certification of Ballast Water Management of ships*
- *Guidelines for Implementation of the Ballast Water Convention*
- *Guidelines for Qualification and Certification of Non-Destructive Testing Personnel*
- *Guidelines for Application of Survey of Drones*
- *Guidelines for Towage Survey at Sea*
- *Guidelines for Approval of the Suppliers and Personnel Qualification Management for Survey of Marine Products*
- *Guidelines for Thickness Measurement of Ship Structure*
- *Guidelines for Ship Remote Surveys*
- *Guidelines for Type Approval of Ship's Ballast Water Management Systems*

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Research

Participate in national key projects, master the core technologies

By following closely the national energy development strategy, CCS accelerates technical research on deep-sea floating production system, deep-sea subsea pipeline, deep-sea subsea production system and other national key projects. CCS has independently carried out more than 20 core research projects for the Ministry of Science and Technology, the Ministry of Industry and Information, Emergency Management Department. CCS has mastered core technologies of the general arrangement of offshore installations and units, performance calculations, sloshing load calculation, motion suppression, global strength calculation, dynamic positioning and position mooring calculation.



● Research on the basic and common technology	
1	Special innovation for numerical pool(phase I)
2	Evaluation of safe reliability for deep sea structure in full life cycle and research and application on integrity diagnosis technology Subject 5:research on the system of integrity diagnosis for deep sea structure,subject 6:technology verification and engineering demonstration
3	Development of ten-thousand-meter ARV body and integration of overall system design
4	Core parts of offshore engineering and construction of platform for service of material testing and evaluation
5	Research on the key technology for offshore transportation and floating attachment installation of large equipment
6	Research on application of engineering criticality evaluation technology for offshore facilities
● Mobile Units	
7	Ship for ocean exploration
8	Special innovation for 7th generation of ultra-deep water drilling platform(ship) subject 5:research on the design of safety risk and control technology
9	Development for 7th generation of ultra-deep water semi-submersible drilling platform
10	Development for 7th generation of ultra-deep water drilling ship
11	Development for 7th generation of ultra-deep water drilling ship(storage for oil)
12	Development and application demonstration for central control system of jack up platform
13	Brand engineering for jack up rig(type III)
14	Brand engineering for jack up rig(type II)

15	Brand engineering for jack up operation-support platform
16	Development for the prototype of DP-3 dynamic positioning system
17	Revision and study for norms of offshore mobile platforms
18	Upgrade and modification of full life cycle management system (MSER)for mobile platform structure
19	*Survey Rules For Mobile Offshore Units*
20	*Technical Rules For Mobile Offshore Units*
● Floating Installations	
21	Development for FPSO failure database and risk assessment system
22	Engineering for floating guarantee platform (phase II) subject 9:study of design and guiding document of building technology for floating guarantee platform in South China Sea Subject 10:drawing-censoring for the platform of safeguarding legitimate rights and interests and law enforcement in deep and far-reaching sea Subject 11:drawing-censoring of overall guarantee platform for the development of fishing resource in deep and far-reaching sea Subject 12:censoring of basic design for guarantee platform in deep and far-reaching sea Subject 13:Platform for scientific experiment
23	Development and engineering demonstration for production platform of deep-water semi-submersible storage and offloading
24	Research and development for deep-water semi-submersible support platform. Subject 1: development for high ending deep-water semi-submersible support platform ,Subject 2:development for the system of scalable boarding trestle bridge
25	Engineering development for deep-water universal FPSO
26	Integrated system software for engineering design of marine floating platform
27	Revision for *classification and building norms for offshore single point mooring device*
28	Revision and study of norms for the offshore floating device
29	*Survey Rules For Floating Offshore Installations*
30	*Technical Rules For Floating Offshore Installations*
● Fixed platforms	
31	First draft for *rules of statutory inspection technology for the offshore fixed platform*
32	*Survey Rules For Fixed Offshore Installations*
33	*Technical Rules For Fixed Offshore Installations*
● Subsea production system	
34	Development for the engineering of subsea security system
35	Research and development for subsea control system and key equipment
36	Development for the subsea vertical Christmas tree
37	Development for subsea two-phase wet gas flow metering
38	Special project of testing for subsea production system
39	Development for the subsea wet quick connector



40	Research on the technology of overall design for the demonstration and application engineering of subsea oil-gas production system	
41	Development for subsea connection system and key equipment	
42	Research on the technology of design verification on the deep-water center manifold, subsea PLET and Jumper	
● Submarine pipelines		
43	Revision for rule of submarine pipeline system	
44	Collaborative innovation and engineering application demonstration of industrial chain laying of subsea pipelines in kilometer-level water depth	
● Marine risers		
45	Guidelines for survey of marine riser system	
● New marine economic facilities		
Energy	46	Platform for SPAR thermoelectric power generation
	47	Development for offshore floating wind power equipment
	48	Research on the installation technology and codes & standards for offshore wind power facilities
	49	Research on the key technology and norms for the design of offshore booster station
	50	Safety management status and study of risk countermeasures for offshore wind power device
Fishery	51	Engineering for semi-submersible fishing aquiculture platform
	52	Project for the guide of offshore fishing aquiculture platform
Tourism	53	Research on the design technology of floating synthesis for large offshore tourism

Software Configuration

Software developed independently

◎ Offshore Fixed Installations Management Information System (OEMIS): It is applied to CCS project management, design review, construction survey, in-service survey, engineering calculation and etc. for offshore facilities.

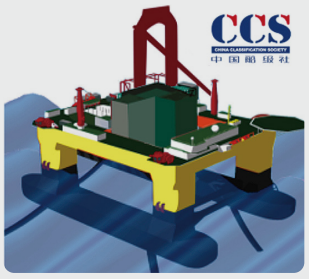


◎ Whole Life Cycle Structure Management System For Mobile Offshore Units（MSER）：It is applied to structural strength analysis, emergency response analysis, well location operation capability analysis, safety assessment analysis of aging platform, rapid structural strength analysis during in-service survey and site survey technical support, etc. for Mobile Offshore Units.

◎ Structural Integrity Management System of Offshore Fixed Platform (FSER)：Analysis and management based on risk of offshore fixed platform structure.

◎ Ocean Environmental Data Query And Analysis System in China Seas (OSMOSIS): It can be used for long-term and short-term analysis and extreme value analysis of extreme sea conditions and installation sea conditions, so as to provide accurate marine environment data for the design of offshore facilities.

◎ Wave Load Calculation System（WALCS+CRA）：Hydrodynamic analysis and mooring analysis software.



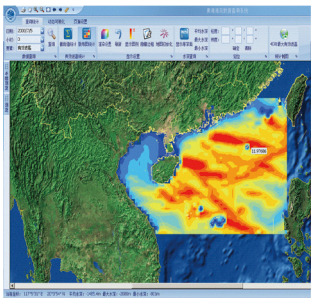
◎ Three-dimensional hydroelasticity analysis software：Three-dimensional hydroelasticity frequency and time domain analysis.



Introduce well-known offshore engineering software

To provide offshore engineering approval calculation and analysis service to our customers.

- Hydrodynamic loads and Mooring system analysis software, AQWA
- Structure analysis software: SACS, ANSYS, Patran / Nastran
- Offshore pipeline analysis software: ORCAFLEX, OFFPIPE, AUTOPIPE, SHEAR7
- Floating vessel motion analysis software: HARP
- Stability analysis software: MOSES
- ECA analysis software: CRACKWISE
- Risk analysis software for offshore vessel and process pipe: Synergi RBI Plant
- Fire and explosion analysis software for oil and gas: PHAST
- Power system simulation analysis software: ETAP



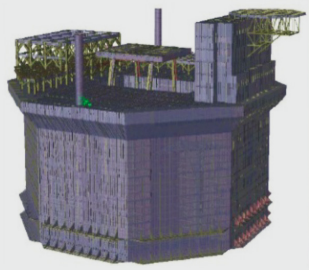
Contacts

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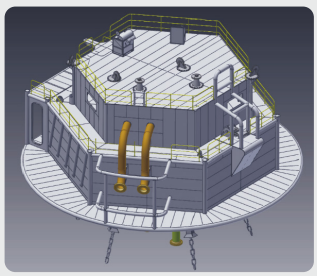
Offshore technical services

New ship type development and design approval of offshore engineering equipment

CCS conducts design approval review according to the requirements of design specifications and / or new R & D specifications to solve the certification problem of new offshore engineering equipment or scientific research achievements.



Octagonal FDPSO



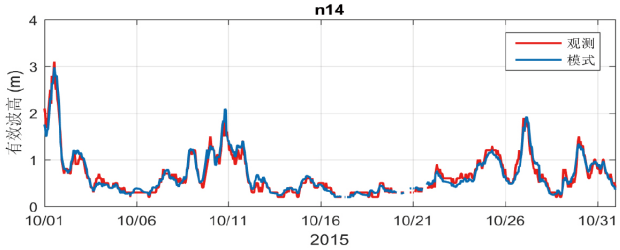
Floating Single Point



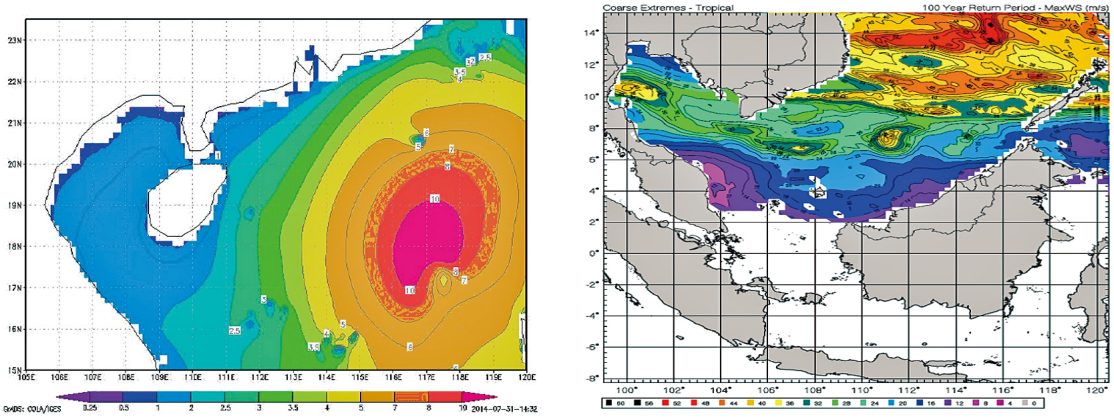
Multi Pontoon Large Marine Support Platform

Technology service for marine environmental parameters

We can provide clients with all kinds of offshore engineering equipment, navigation ships and new marine economic facilities with the required wind, wave and current environmental conditions by using CCS marine environment data analysis and query platform.



Practical Observation Curve of Wave Height

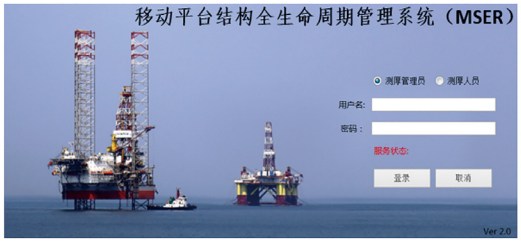


Wave Height Distribution

Safety assessment and Technology service for traditional oil and gas offshore facilities and equipment

CCS adopts the current international advanced structural integrity management concept, and develops the mobile platform structural full life cycle management system (MSER), Structural Integrity Management System of Offshore Fixed Platform (FSIM) and offshore oil and gas device risk-based inspection and evaluation software system.

◎ Mobile Platform Structural Full Life Cycle Management System (MSER)



It can provide :

◎ Structural strength evaluation of platform in service
◎ Longevity assessment of aging platform
◎ Upper system and equipment integrity assessment
◎ Safety assessment of operation in the target sea area
◎ Floating stability analysis of mobile platform
◎ Hydrodynamic load, motion and air gap analysis of semi-submersible platform
◎ Emergency response technical support and other services

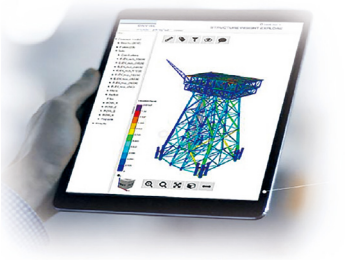
◎ Structural Integrity Management System of Offshore Fixed Platform(FSIM)

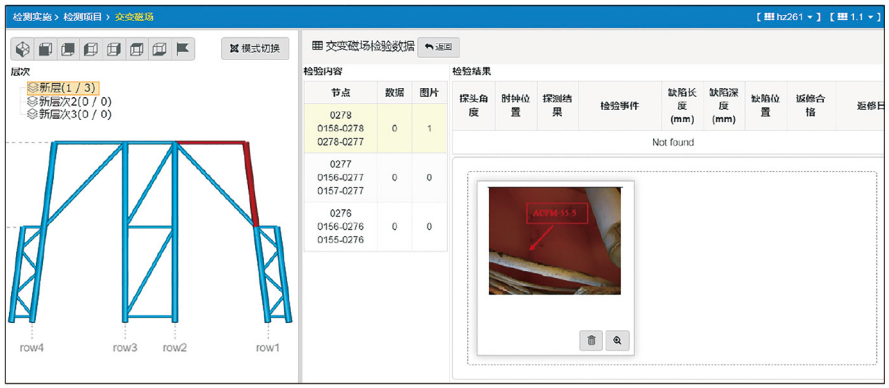
FSIM software system consists of four primary elements: data, evaluation, strategy and program.

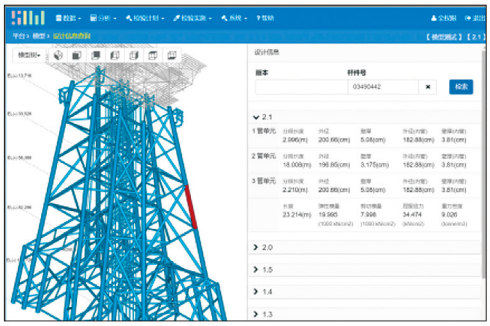
It can provide :

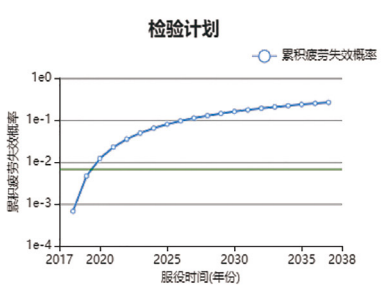
- ◎ Data management and query, including efficient data management, seamless connection between inspection data and finite element models, and automatic document generation
- ◎ Structural assessment, including static analysis, dynamic analysis, seismic analysis, fatigue analysis and push-over analysis
- ◎ Risk based inspection, including semi-quantitative and full-quantitative RBI analysis Inspection data input, including fourteen inspection techniques
- ◎ Complete user rights management
- ◎ Developed based on WEB3D,supports all kinds of operating systems







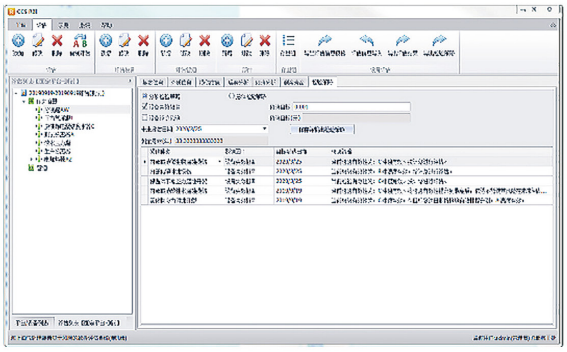


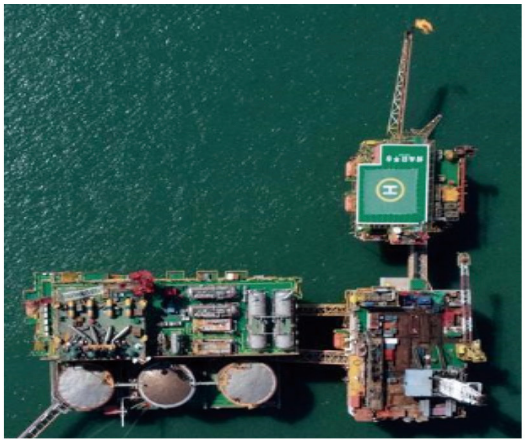


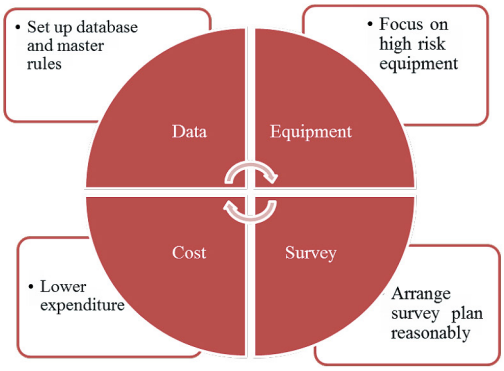
◎ Offshore Oil and Gas Device Risk-Based Inspection and Evaluation Software System

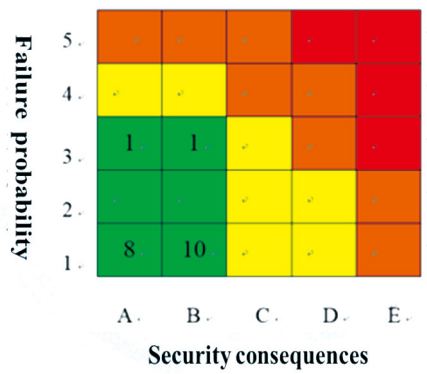
Based on years of experience in the integrity assessment of offshore oil and gas facilities, China Classification Society has independently developed the this software system for offshore oil and gas installations, which can provide the owner with the integrity assessment services for pressure vessels and pressure pipelines.

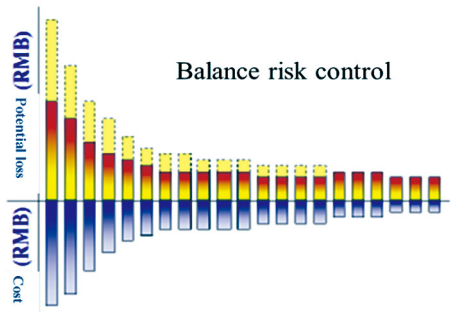








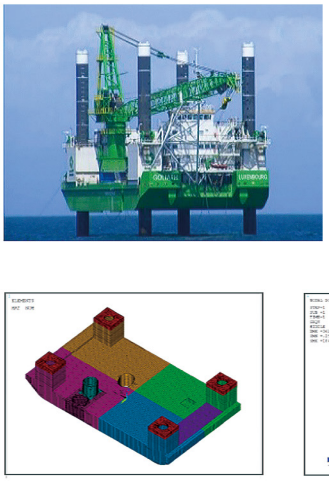


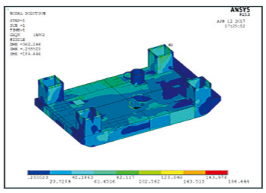


● *Special Assessment and Review of Platform Transformation Safety in Chengbei Oilfield*

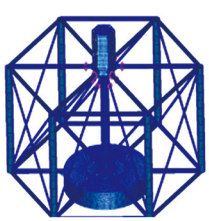
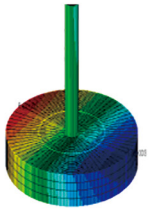
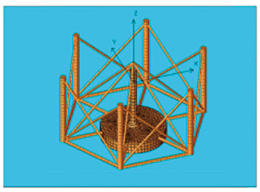
Safety assessment and Technology service for facilities and equipment of new marine economy

CCS can provide clients with technical services such as design review, strength assessment and third-party review calculation in the field of offshore wind power and marine fishery.



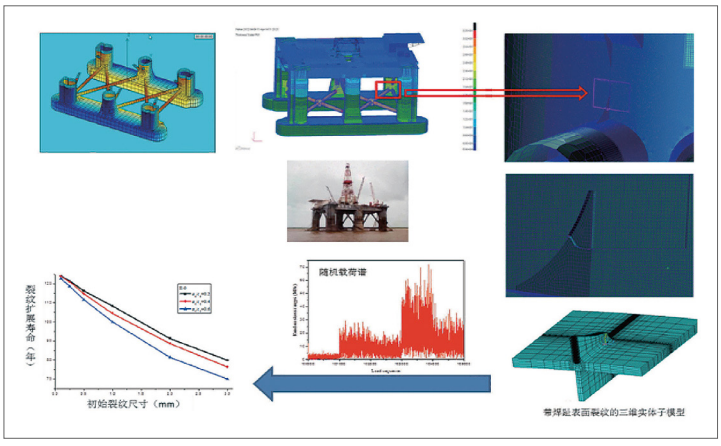
- *Strength evaluation of offshore wind power installation platform*

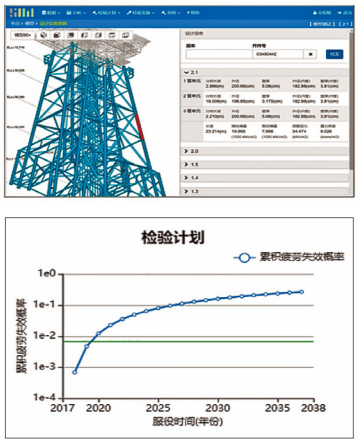

- *Total strength evaluation of column stable fishery platform*

Application of new marine technology

After years of technical research and development, CCS has developed the frontier technologies of risk-based inspection (RBI) and engineering critical assessment (ECA), providing advanced technical support for the inspection of offshore structures.



- *ECA analysis of cracks in "exploration 3" semi-submersible drilling platform*



- *Develop risk based inspection plan (RBI)*

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Digital Technology

Regulations

- *Guidelines for Safety and Reliability Assessment of Marine Software*
- *Guidelines for Verification of Ships and Offshore Installations Digital Systems*
- *Guidelines for Assessment of Ship Data Quality*
- *Guidelines for Ship Network System Requirements and Security Assessment*

Service Items:

In 2022, CCS issued a certification certificate for the status monitoring and intelligent early warning diagnosis system certification service for semi submersible reciprocating compressors.

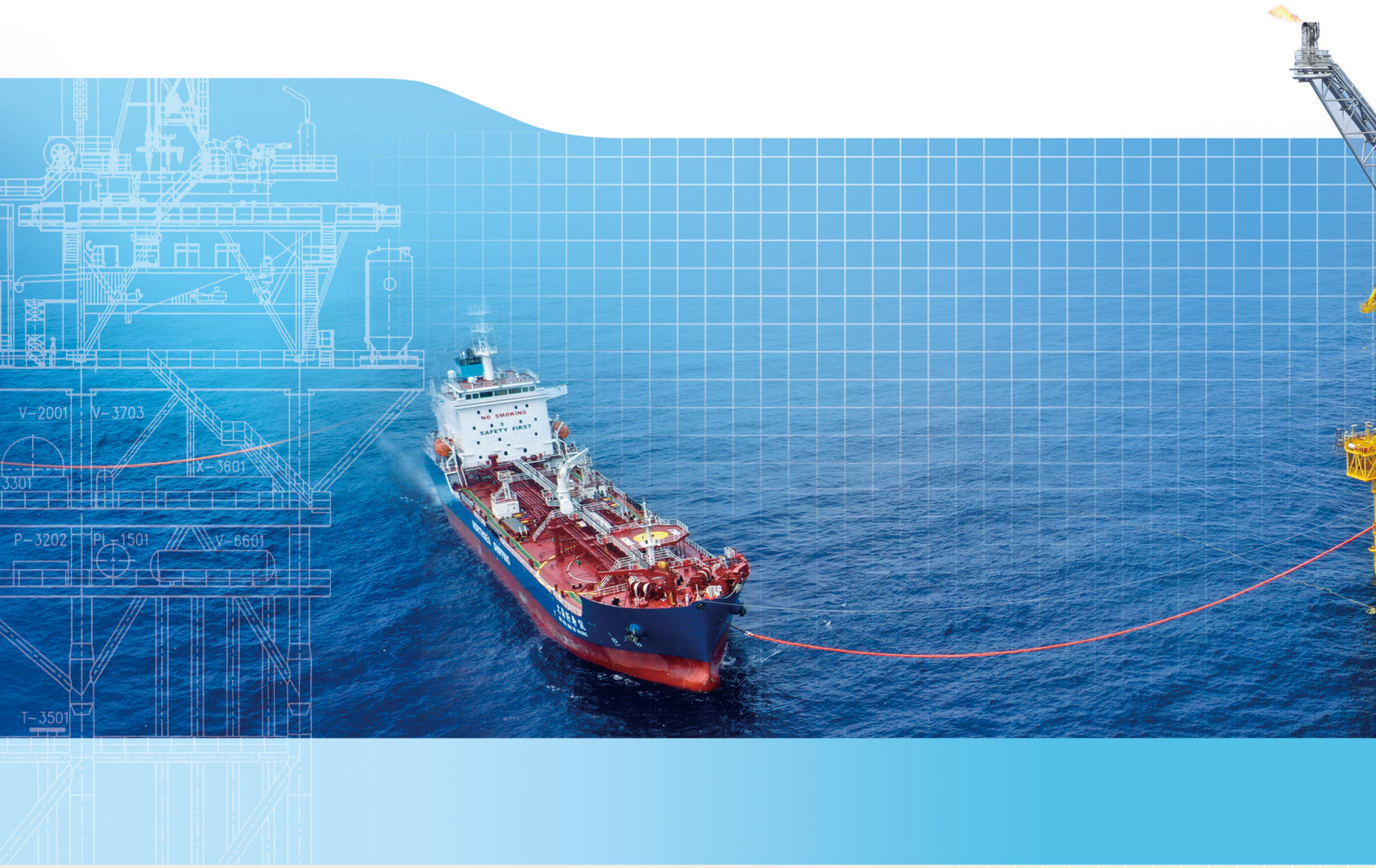
In 2022, CCS completed the digital twinning system certification of Lufeng 15-1DPP deepwater jacket platform

Service Network



To meet the demand of our customers, we have set up branches and offices in major port cities in China as well as in Asia, Europe, America, Middle East, Australia and many other countries or regions worldwide, forming a global survey network.

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