Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

Health, Safety and Environmental Policy

Health, Safety and Environment MATERIALITY

Our Policy

Our Health, Safety and Environmental Policy (HSE Policy) ensures the safety and health of our employees, contractors, project partners, local community members, and all other stakeholders while minimizing any adverse impacts on the environment. To firmly implement this policy, the corporate HSE Unit—comprising the HSEMS Group, Health & Safety Group, Process Safety Group, Security & Crisis Management Group and Environment Group—promotes HSE management through a robust HSE Management System.

We strive to further enhance our HSE management practices by giving priority to the following commitments based on INPEX Vision @2022:

- Demonstration of HSE leadership by our senior executives
- Contributing to carbon-reducing projects through HSE management
- Thoroughly conducting risk management
- Strengthening incident prevention efforts
- Preventing leaks from facility processes
- Preparing for emerging threats[1]
- Helping to address global environmental challenges and creating environmental value
- Reinforcing infection control measures

[1] Geopolitical risks, cyberterrorism, large-scale natural disasters, etc.

Message from Director in Charge

Takahiko Ikeda
Director, Senior Executive Vice President
Senior Vice President, Technical Headquarters and in charge of HSE

To realize the sustainable energy development we advocate as part of our mission, we are required to conform to high ethical standards as a member of society and foster a corporate culture that prioritizes safety and environmental protection. In order to maintain a stable energy supply, we need to conduct our business internationally in search of natural resources. In this pursuit, while we continue to comply with international norms and standards, we must also continue to nurture a corporate culture that will be widely accepted by the international community.

Accordingly, we have established the group-wide INPEX HSE Policy to ensure our operations are aligned with our HSE Management System (HSEMS), which is based on international standards.

In line with the Long-term Strategy and Medium-term Business Plan (INPEX Vision @2022) issued in February 2022, we will strive to serve domestic energy demand and enhance our internal platforms to support the realization of a net zero carbon society. HSE will be a core element of this endeavor. Specifically, we will strive to completely prevent major accidents by ensuring thorough implementation of safety rules, including monitoring compliance with Life-Saving Rules for high-risk operations, and by strengthening process safety management for prevention of hazardous leaks from plants. We will also use the process safety management insights gained from our oil and natural gas operations to properly manage facility safety in the five net zero businesses. Moreover, we will continue to expand HSE technical support across our oil, natural gas and five net zero businesses, through such means as HSE-related documentation, training, auditing, and reviews.

Going forward, our relentless pursuit of HSE excellence will better enable us to contribute to society with the stable supply of diverse and clean energy.

* Major accident: fatality incident, leakage, serious injury

Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

Operating Management System Framework for controlling risk and delivering high performance in the oil and gas industry

HSE Management System (HSEMS)

Our Policy

To ensure the successful implementation of the HSE Policy across the organization, we developed the HSEMS Manual in FY2007, referencing standards such as ISO 9001 and ISO 14001. This manual was revised in FY2017 based on the international standards OMS510❷ issued by IOGP. OMS510 is dependent on the operation of an HSEMS whose fundamentals are leadership, risk management, continuous improvement, and the implementation of these, as illustrated in the figure below. We continuously improve and implement various plans based on the HSEMS through the use of the PDCA methodology. Our efforts focus on: the preparation and revision of key HSE documents such as corporate manuals, standards and guidelines; establishment of HSE organizations; HSE technical support for project divisions; HSE education and training; periodical HSE audits and reviews; and HSE communication activities.

In addition, Nagaoka Field Office, our largest field office in Japan, obtained and has been maintaining ISO 14001 certification since FY2003.

HSEMS structural diagram

❷ OMS510
IOGP Report 510 "Operating Management System Framework for controlling risk and delivering high performance in the oil and gas industry"

HSE Leadership

We believe that our management must lead the way in our efforts to improve the HSE-mindedness of our employees. Accordingly, our management spearheads our proactive implementation of HSE activities. At our Annual HSE Meeting for FY2021, the President & CEO, Corporate HSE Committee members, heads of divisions and organizations in Japan and overseas, and labor union representatives discussed minor incident reduction, GHG emissions management and mental health management, and identified action items that need to be pursued.

To reinforce the INPEX Value of "Safety Number One", we also conduct HSE management site visits to enable management to visibly demonstrate its commitment to HSE while observing field operations firsthand to better understand the risks involved. The President & CEO and other executives were able to make six site visits in FY2021 amidst the ongoing disruption to business travel by COVID-19. Scheduling their trips to avoid resurgences of the pandemic, the leaders visited: a dormitory construction site in Tokyo's Setagaya Ward in July; a gas pipeline construction office in Saitama Prefecture and the first-stage construction site of the Ryomo Line double tracking project in Tochigi Prefecture in October; and Sakata Natural Gas Co., Ltd. in Yamagata Prefecture, and Keiyo Pipeline Co., Ltd. and Chiba Field Office in Chiba Prefecture in November.

The dormitory construction site visit included an examination of actions taken in consideration of local residents, and measures for preventing heat exhaustion and coronavirus infection. The tour of the Ryomo Line project and construction office involved checking whether corporate rules and guidelines were being presented in an easy-to-follow format in the training for site personnel. Senior Executive Vice President Takahiko Ikeda inspected the progress in HSEMS rollout during his visit to Sakata Natural Gas, and stressed the importance of conducting emergency response exercises. President & CEO, Takayuki Ueda, visited Keiyo Pipeline and the Chiba Field Office, where he reviewed disaster countermeasures implemented based on insights drawn from past typhoon damage. All visits

Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

provided the opportunity for management and local staff to frankly exchange opinions on HSE initiatives and challenges.

We also regularly hold HSE-related meetings between Corporate and operator project representatives. These enable participants to share information on the HSE activities at each project, discuss measures, and acquire information from Corporate.

Management site visit to Keiyo Pipeline

Management site visit to Chiba Field Office

HSE Objectives and HSE Programs

To ensure the continuous improvement of our HSEMS, we set annual HSE objectives, and formulate and execute HSE programs to manage our progress to achieving those objectives.

In FY2021, we revised our HSEMS and formulated new HSE guidelines based on the OMS510 framework. In addition to promoting HSE management in operator projects, we are also stepping up HSE engagement in non-operator projects and businesses for greater efficiency and consistency in HSE activities.

HSE Risk Management Process

HSE risk management is the systematic application of processes for identifying, analyzing, evaluating and responding to HSE risks to minimize negative impacts to INPEX's business activities and operations. HSE risk management procedures are established for operator projects in line with the requirements of HSE risk management guidelines based on ISO31000 and ISO17776. To seek to completely prevent major accidents—as committed in INPEX Vision @2022—we will work to comply with Life-Saving Rules and process safety management.

As part of group-wide efforts to promote HSE risk management, an integrated computer program at headquarters receives quarterly reports on MAE❸ associated risks and the other Top 10 Risks at all operator projects. We confirm the reported risks are being managed to ALARP❹ level and provide the findings to our Executive Committee.

❸ MAEs: Major accident events, referring to events that cause fatalities, injuries, and other serious harm to people and property in the surrounding area. Representative examples include fires, explosions, and toxic gas clouds resulting from major leakages.

❹ ALARP: As low as reasonably practicable

HSE Education and Training

In FY2021, we conducted 3,748 man-hours of HSE education and training via workshops, training sessions and e-learning programs. In addition, we continued to provide young engineers in Japan and overseas with other on-the-job training (OJT) opportunities to enable them to acquire practical skills in occupational safety management and process safety engineering.

Health, Safety and Environment

Our Policy 63
HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits
Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control
Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance
Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident
Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

In February 2021, we revised the Corporate HSE Standard on HSE Competence and Training to identify necessary HSE training for each level and role.

Going forward, we will develop job competency profiles by field for our HSE experts and encourage them to further develop their HSE competencies through OJT opportunities or participation in training sessions offered by organizations specializing in HSE. We will continue to focus on developing and implementing effective education and training programs in FY2022.

HSE Communication

We schedule monthly HSE reports for our Executive Committee and Board of Directors meetings, hold Corporate HSE Committee meetings, and internally share 'Learning from Incidents' information from incident investigations. In these and other ways, we actively pursue HSE communication directed not only at management, but all our employees.

For the purpose of motivating and raising HSE awareness in organizations and individuals, and to improve group-wide HSE performance, we also bestow annual Corporate HSE Awards. In FY2021, eleven awards in total were presented, with the HSE Excellence Award given to one group, HSE Activity Awards to four groups and five individuals, and a HSE Special Award to one group.

Fostering HSE Culture

As part of ongoing efforts to foster a strong HSE culture, we have developed our HSEMS, provide HSE education and training, share 'Learning from Incidents' information and engage in other initiatives under the Corporate HSE Third Phase Mid-term Plan. Aiming to take these efforts to the next level, we have conducted a survey to gauge the state of HSE culture group-wide and at each operating site, and use the feedback to inform the development of specific measures to be taken in the future. The survey was conducted from October 2020 and targeted all operational sites around the world—including our headquarters—with responses received from more than 2,400 employees. Analysis of the feedback enabled us to ascertain the strengths and weaknesses of each operating site. Utilizing the results of this analysis, we will share throughout the company the strengths of both domestic and overseas sites as best practices, while creating an action plan and engaging in activities on points that should be strengthened company-wide. These activities are a continuation of our efforts to reinforce our HSE culture.

HSE Audits

We periodically conduct HSE audits and reviews to evaluate HSEMS compliance at our operator projects, with the aim of strengthening HSE assurance and governance. In FY2021, we conducted risk-based Corporate HSE audits[5] for two domestic and two overseas operator projects. The results were used to formulate corrective actions where necessary, based on mutual agreement, with progress in the implementation of those actions tracked. When necessary, Corporate provided HSE support. In addition, headquarters representatives participated in HSE reviews for overseas operator projects, domestic gas pipeline construction projects, hydrogen/ammonia projects, and so on.

[5] Risk-based Corporate HSE audits: A methodology for narrowing audit focus to areas with greater risk by considering risks inherent in the organization

Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

Management of Health and Safety

Our Policy

The overarching goal of our management of health and safety is to ensure that all personnel at our worksites return home each day, free from injury and illness. We recognize that our employees' physical and mental well-being is the foundation of our company, and accordingly, we strive to provide them with a safe work environment and carry out initiatives aimed at keeping them in good health. We regard the safety of employees and contractors involved in our operations as our most important concern, and manage occupational health and safety risks through our HSEMS.

In the course of our operations, we must never allow the occurrence of major accidents such as fatalities, major leaks and life-threatening injuries. For this reason, we make the complete prevention of serious incidents one of our management goals and have subsequently set common safety goals for all our employees.

As a way of quantitatively measuring our safety performance, we monitor two KPIs of injury-causing accidents: the lost time injury rate (LTIR)[6] and the total recordable injury rate (TRIR)[7]. Our LTIR and TRIR for FY2021 were 0.38 and 2.90 respectively, both of which had increased from the preceding year. This can be attributed to a slight increase in the frequency of minor injuries that occurred from large-scale repair work and other non-routine tasks at overseas operator projects, and from insufficient management of pandemic-related fatigue.

Our ongoing initiatives for incident prevention include promptly distributing incident bulletins across our organization, increasing publication of 'Learning from Incidents' materials, as well as analyzing trends in serious/injurious incident and continuously sharing the insights gained. We also monitor two leading safety KPIs related to incident management—implementation of incident investigations and implementation of high-priority corrective actions—and are strengthening our ability to promptly conduct incident investigations and take remedial action. Further activities to prevent serious accidents include firmly embedding Life-Saving Rules to ensure the safe performance of tasks with a high risk for fatal incident.

[6] LTIR: Rate of injuries resulting in fatalities or lost time per million hours worked
[7] TRIR: Rate of injuries resulting in fatalities or lost time, not entailing lost work time, or requiring medical treatment per million hours worked

Accident Prevention Initiatives

YEAR 2021

FAR

Fatal Accident Rate

0

Target	0

LTIR

Lost Time Injury Frequency

0.38

Target	0.12

TRIR

Total Recordable Injury Frequency

2.90

Target	0.7

Process Safety Event

Tier 1		Tier 2	
0		**7**	
Target	0	Target	0

* Tier 1 and 2 Process Safety Events are unexpected releases or leakages of any material, including flammable liquids. In line with IOGP reporting requirements, we classify such events as Tier 1 or Tier 2 depending on the degree of consequence (personal harm, direct cost to the company, type and quantity of material released, etc).

Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

Life-Saving Rules

Life-Saving Rules are rules intended to protect the lives of those engaged in high-risk work activities that may cause fatality. They prescribe behaviors that should be practiced to prevent such incidents. The Life-Saving Rules we follow have been set out in a simple, accessible format, focusing on nine highly hazardous tasks (see figure on the right).

All INPEX employees and contractors engaged in our business operations are required to comply with the Life-Saving Rules. Anyone who witnesses noncompliant behavior is obligated to intervene.

By encouraging everyone at work sites to abide by these rules, we seek to foster a safety culture that promotes active engagement and intervention against unsafe practices and conditions, and thus prevent occupational incident across our entire organization.

INPEX

LIFE-SAVING RULES

Bypassing Safety Controls
Obtain authorisation before overriding or disabling safety controls
- I understand and use safety-critical equipment and procedures which apply to my task
- I obtain authorisation before:
  - disabling or overriding safety equipment
  - deviating from procedures
  - crossing a barrier

Confined Space
Obtain authorisation before entering a confined space
- I confirm energy sources are isolated
- I confirm the atmosphere has been tested and is monitored
- I check and use my breathing apparatus when required
- I confirm there is an attendant standing by
- I confirm a rescue plan is in place
- I obtain authorisation to enter

Driving
Follow safe driving rules
- I always wear a seatbelt
- I do not exceed the speed limit, and reduce my speed for road conditions
- I do not use phones or operate devices while driving
- I am fit, rested and fully alert while driving
- I follow journey management requirements

Energy Isolation
Verify isolation and zero energy before work begins
- I have identified all energy sources
- I confirm that hazardous energy sources have been isolated, locked, and tagged
- I have checked there is zero energy and tested for residual or stored energy

Hot Work
Control flammables and ignition sources
- I identify and control ignition sources
- Before starting any hot work:
  - I confirm flammable material has been removed or isolated
  - I obtain authorisation
- Before starting hot work in a hazardous area I confirm:
  - a gas test has been completed
  - gas will be monitored continually

Line of Fire
Keep yourself and others out of the line of fire
- I position myself to avoid:
  - moving objects
  - vehicles
  - pressure releases
  - dropped objects
- I establish and obey barriers and exclusion zones
- I take action to secure loose objects and report potential dropped objects

Safe Mechanical Lifting
Plan lifting operations and control the area
- I confirm that the equipment and load have been inspected and are fit for purpose
- I only operate equipment that I am qualified to use
- I establish and obey barriers and exclusion zones
- I never walk under a suspended load

Work Authorisation
Work with a valid permit when required
- I have confirmed if a permit is required
- I am authorised to perform the work
- I understand the permit
- I have confirmed that hazards are controlled and it is safe to start
- I stop and reassess if conditions change

Working at Height
Protect yourself against a fall when working at height
- I inspect my fall protection equipment before use
- I secure tools and work materials to prevent dropped objects
- I tie off 100% to approved anchor points while outside a protected area

Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

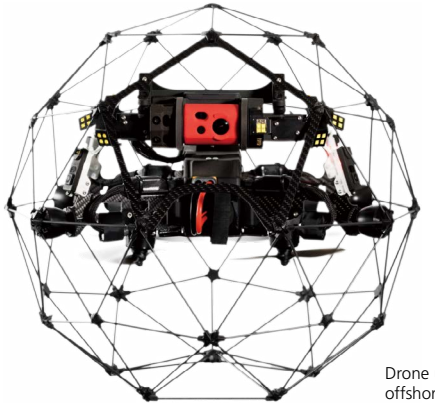
Using Drones to Inspect Equipment at Ichthys LNG

Ichthys LNG's onshore terminal in Darwin underwent its first major periodic inspection in FY2021. To comply with the Life-Saving Rule "Confined Spaces", drones were used to inspect the interior of the equipment, thus eliminating the HSE risks of having human inspectors enter confined spaces.

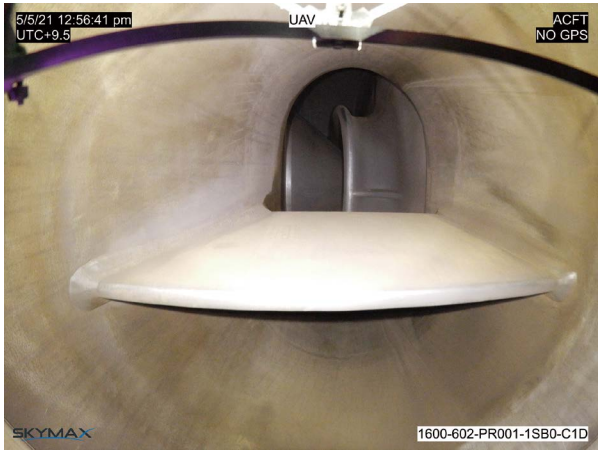
As part of the inspection, the interiors of gas pipes were carefully examined for contamination or damage, and the position and condition of thermocouples inside heat exchangers were checked.

Enclosed spaces such as inside drums and pipes carry risks including low oxygen concentration, residual flammable substances, and the incursion of solid or liquid substances. The use of drones kept the inspectors safe from exposure to such hazards. Drones are relatively simple to operate and eliminate the time-consuming task of setting up and taking down the scaffolding required for direct visual examination.

Drones are being used at Ichthys LNG to perform various other inspections, including pre-assembly damage assessments for scaffolding, checking for gas leaks from elevated tanks, and examining offshore flare stacks. Trials are underway to expand drone inspection to other structures, including the offshore floating production, storage and offloading (FPSO) facility's hull and turret.



Drone used to inspect Ichthys LNG's offshore facilities



Drone images of the equipment interiors inspected

Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

HSE Forum (Safety and Health Session)

Since FY2016, we have held an annual INPEX HSE Forum to enable employees to share HSE best practices, insights and experiences, with the goal of enhancing our HSE performance across the entire group, including at operator projects in Japan and overseas.

The forum's Health and Safety Session has served as an opportunity for participants to discuss a broad range of topics, such as how to foster HSE leadership and culture, incident analysis, lessons learned from construction projects, contractors' HSE management, improvement of communication, KPI setting, and HSE management for dealing with COVID-19.

The FY2021 conference was attended by 61 HSE managers and other representatives from around the world. The discussions focused on three topics: Health Management, Incident Management and HSEMS.

Operator project representatives reported on the HSE activities of their organizations, challenges that need to be resolved, and plans for the future. The session also included an all-hands workshop in which participants identified issues requiring a group-wide response, prioritized those issues, discussed strategies for tackling them, and proposed specific action plans. The products of the forum were discussed at the Annual HSE Meeting in November 2021 and are being applied to further improve HSE performance across INPEX.

Strengthening Employee Health Management and Infection Control

In response to the COVID-19 pandemic that has persisted since 2020, we stepped up our efforts in FY2021 to protect the physical and mental health of each employee and control the spread of infection. These efforts have included continuing with basic preventive actions such as having employees check their body temperature before going to work, regularly disinfecting shared facilities and desks, and ventilating rooms. We have instituted hot desking at our headquarters to deal with health risks associated with the 'new normal', and support flexible workstyles to physically reduce the risk of infection. We worked to safeguard the mental health of teleworking employees by regularly monitoring their stress levels and offering professional counseling. Moreover, efforts have been made to explore ideas for strengthening mental health support for everyone in our group, including senior management, and to disseminate best practices.

We also established three coronavirus vaccination centers at work sites in Japan to enable our personnel, their families, and employees of partner companies to have quick and reliable access to the vaccine.

The Corporate Health Management Standard—which comprehensively covers fundamental health management activities across our organization— was revised to more reliably reduce health risks and promote better employee health outcomes. Informed by best practices from overseas, the revision sets out the minimum requirements that we must fulfill as a company committed to protecting the physical and mental well-being of its employees, including the identification and resolution of health risks at each workplace, managing fatigue and mental health, and implementing infection control measures.

In FY2022, we will take steps to further enhance health management and infection control. This will include firmly embedding Corporate-led health management to improve health management at each worksite, and formulating infectious disease guidelines based on our experiences in dealing with COVID-19.

Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

Process Safety Management

Our Policy

Process Safety Management (PSM) is the framework of systems and processes for the robust design, engineering, operating and maintenance practices needed to prevent the leakage of flammable liquids or other hazardous substances, or the occurrence of MAEs, such as fires and explosions that may occur from such leakages.

By thoroughly managing process safety, we will endeavor to prevent leakages from the processes of our facilities.

Comprehensive Process Safety Management

As shown in the figure below, INPEX Process Safety Management consists of four focus areas and 20 elements. Each element has a detailed set of expectations to which operator projects must adhere. Within the PSM framework, we have voluntarily adopted a Safety Case regime at INPEX-operated assets, which documents our implementation of sufficient measures to prevent process leakage-related MAEs through systematic identification and assessment of risks, and for minimizing the impact of MAEs that do occur. We also conduct Asset Integrity/ Process Safety (AIPS) assurance reviews for all operator projects to ensure risks are maintained to ALARP levels.

Process Safety Management Framework

Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

Process Safety KPIs

We collect and report Tier 1 and Tier 2 Process Safety Events (PSEs)[8] in line with IOGP requirements. In FY2021, there were seven Tier 2 PSEs but none for Tier 1. We also set and monitor Tier 3 and 4 leading indicators for operator projects to help further prevent process leakages. It is our goal to improve the reliability of operations by collecting and analyzing data on process safety KPIs, drawing lessons from past leakages to prevent recurrences, pinpointing trends in incident-causing factors, and—as a leading indicator—monitoring the implementation rate of actions that help to prevent leakages. At the same time, we share information on our process safety performance with stakeholders to avoid complacency and raise awareness of the importance of MAE prevention.

[8] Process Safety KPIs: Tier 1 and 2 Process Safety Events are unexpected releases or leakages of any material, including flammable liquids. In line with IOGP reporting requirements, we classify such events as Tier 1 or Tier 2 depending on the degree of consequence (personal harm, direct cost to the company, type and quantity of material released, etc). We have also adopted Tier 3 and 4 classifications as leading indicators, referring to internationally accepted guidelines.

Asset Integrity Assurance

Asset Integrity/Process Safety (AIPS) assurance review is a systematic series of reviews conducted by an independent team at appropriate points during each phase of a project. Specifically, this process assesses the actions implemented at a site to fulfill the expectations embodied in the 20 elements of Process Safety Management. Benefits that can be expected from an AIPS assurance review include:

- providing assurance to management and stakeholders that asset value (equipment) is being adequately protected;
- confirming our AIPS management requirements are being addressed; and
- sharing good AIPS practices and lessons learned from project to project.

In addition, we conduct other reviews at each phase of the project, including reviews ahead of facility launch and operational readiness assessments.
By tracking progress in the implementation of recommendations generated from these various reviews and providing feedback on areas for improvement, we endeavor to enhance the integrity of our assets.

Health, Safety and Environment

Our Policy 63
HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits
Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control
Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance
Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident
Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

Security and Crisis Management

Our Policy

In response to the growing uncertainties of the global security environment in recent years, we are continuously reinforcing our overseas security management. We also develop emergency response plans and carry out training exercises to strengthen our readiness to respond to various incidents, such as fires, explosions and oil spills.

Enhancement of Security Management

The Middle East is one of our key regions of operation. In recent years, this region has seen developments that compel us to rethink our traditional position on security, such as rising tensions between Iran and the United States, the change in government in Afghanistan, and missile and drone attacks on the UAE associated with the civil war in Yemen, among others.

Recognizing these changes as security threats, we are stepping up our preparedness for geopolitical risks, including by strengthening our capabilities for analyzing security situations and formulating emergency response plans. In FY2020, we developed an emergency response plan for dealing with security contingencies, and conducted exercises with our overseas offices based on that plan. During the unstable political situation in Kazakhstan in January 2022, we worked to ensure the safety of local employees by utilizing the insights and resources produced by our security-enhancing efforts and by effectively coordinating actions with our local offices.

In addition, we continuously gather and analyze security information on the regions where our employees work, and share that information internally. We also evaluate the threat level of each region and use those assessments as a guide for the issuance of alerts and formulation of policies for employees stationed or traveling to the region. Information on security-related incidents such as rioting, abductions, or political unrest is posted on our intranet to raise awareness of potential threats. In-house seminars and exercises are held to enhance employee understanding and readiness.

Security experts at our headquarters periodically visit the regions where we operate to conduct security reviews. These inspections help us to develop better security policies by providing us with a clearer understanding of each region as a whole, the local operating sites, the routes of travel and accommodation used by employees, and other pertinent information.

We develop security contingency plans and regularly conduct exercises to test the effectiveness of each plan and familiarize employees with its protocols.

Emergency and Crisis Response System

We have developed a system that enables Corporate teams and operator project organizations to cooperate in responding to emergencies. Through opportunities such as emergency response training, we regularly update our crisis response documents and maintain and expand the Crisis Management Team's facilities and equipment. We are also developing a provisional crisis management team that will take command if the headquarters' functions are partially disrupted, and strengthening its coordination capacity.

Launched in FY2020 in response to COVID-19, the Corporate Crisis Management Team continued to collaborate with relevant functions in FY2021 to develop actions necessary for preventing infection, sustaining operations through teleworking and other measures, and ensuring the continuity of our critical businesses.

Emergency Response Exercises

Our organizations in Japan and overseas with operational sites conduct emergency training and exercises based on annual HSE plans—both independently and together with our headquarters—in order to continuously improve emergency response capabilities.

As part of this endeavor, we hold proactive joint exercises with teams at newly established businesses and projects to ensure effective, well-coordinated responses to major incidents. In FY2021, joint crisis response exercises were conducted with personnel at a new onshore drilling operation in Abu Dhabi, and at the newly launched Eagle Ford shale oil project in the United States. These trainings provided valuable lessons in emergency responsiveness.

In addition to reinforcing our capabilities to respond to the threat of novel infectious diseases like COVID-19, we have been working to improve our readiness for dealing with other threats that have emerged in recent years,

Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

such as the increased severity of natural disasters—as seen in the damage to our gas pipelines caused by Typhoon Hagibis in FY2019—and cyberattacks against the energy industry that might suspend its operations—such as the Colonial Pipeline ransomware attack in 2021.

We have been responding to the intensification of natural disasters by making improvements based on reviews of past typhoon damage, and by realigning our action plans with the latest government guidelines. We also continue to recognize the persistent threat of a major earthquake occurring in the Tokyo metropolitan area where our headquarters are located, and annually implement crisis response drills to prepare for that contingency and identify areas for improvement.

As part of our response to the growing risk of cyberattacks, fueled in part by rising international tensions, we conducted an emergency response exercise in March 2022 that simulated a cyberattack against an Ichthys LNG operating site. This drill provided lessons for enhancing our responsiveness to such attacks.

Going forward, we will continue to use the lessons learned from such exercises to guide improvements to existing manuals and strengthen our crisis responsiveness through various measures, including the deployment of new resources and equipment.

Response to Blowouts and Oil Spill Incident

We need to be prepared not only for large-scale blowouts and oil spills at oil and gas development sites, but also for frequent small-scale spills from tanks and pipelines at production facilities, which may affect the local community's safety, health, and businesses.

Taking lessons from incidents experienced by other companies, we are enhancing incident management systems for our wells, pipelines, plants and other assets in all aspects of incident prevention, containment, and response. We have developed rules and procedures for consistent management aimed at preventing incidents. To prepare against the malfunctioning of a subsea blowout preventer in offshore drilling, we maintain a contract with Wild Well Control, Inc., a supplier of capping equipment. We also have a contract with Oil Spill Response Limited (OSRL)—the world's largest provider of oil spill response services—to establish a system for responding to a large-scale oil spill, and to constantly acquire new knowledge of oil spill response technologies.

Health, Safety and Environment

Our Policy 63
HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits
Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control
Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance
Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident
Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

Environmental Management

Our Policy

Our Health, Safety and Environmental Policy (HSE Policy)[9] articulates environmental management and GHG management commitments across our entire organization. Our INPEX Vision @2022[10] outlines further commitments to improve our environmental management with the goal of tackling global environmental issues and creating environmental value.

In our business activities, we not only comply with the laws and regulations of the country where the project is implemented, but also promote the avoidance and reduction of environmental impacts on the atmosphere, water quality, soil, etc, as well as the proper management of waste. Together with our efforts to minimize our impact on biodiversity and water resources, we are working to promote efforts that contribute to the creation of new environmental value.

[9] Health, Safety and Environmental Policy (HSE Policy)
[10] INPEX Vision @2022

Corporate Environmental Management Plan

To respond to environmental issues that apply company-wide, we have set five 'corporate environmental targets' based on the status of our business activities, HSE Policy and important INPEX Key Tasks[11]. We are planning and implementing activities and programs to achieve these targets, and monitor their achievement by way of 10 environmental KPIs.

Since FY2018, we have summarized environmental management activities under our group-wide Corporate Environmental Management Plan with the aim of coordinating environmental management activities—including GHG management—at our headquarters and all operating sites.

The Corporate Environmental Management Plan details the aforementioned corporate environmental targets and environmental KPIs, and the specific activities to achieve them. We apply a PDCA cycle-driven approach to environmental management for projects in all our businesses.

[11] INPEX Key Tasks

Environmental Target 1	Low-carbonization in operations
Environmental Target 2	Environmental pollution prevention
Environmental Target 3	Appropriate waste disposal and recycling
Environmental Target 4	Biodiversity conservation
Environmental Target 5	Effective utilization of water resources

In FY2022, we will continue advancing environmental management across our entire organization through the PDCA cycle of formulating, steadily implementing, reviewing, and revising the Corporate Environmental Management Plan set in FY2018.

Environmental Management Working Group and HSE Forum (Environmental Session)

The Environmental Management Working Group—consisting of managers and others in charge of the environmental management of projects in Japan and overseas—held meetings in February, May, September, and December 2021. In addition, an Environmental Session was held at the annual INPEX HSE Forum in September 2021. The working group discussed the following subjects in FY2021:

- Groundwork for formulating a statement of corporate environmental management commitments
- Progress against the environmental KPIs.

The Environmental Session was held online via Microsoft Teams with a total of 40 participants. Operations managers and environmental managers of domestic/overseas projects, as well as representatives from relevant headquarters functions, took part in two days of productive discussions. The main focuses were: (1) internal plans and initiatives for reducing GHG emissions; and (2) drafting of a statement of corporate policies/commitments on water management, biodiversity conservation, waste management and social impact management.

Going forward, we will continue using these opportunities to share good practices of domestic/overseas environmental management with each other, and discuss environmental concerns from various aspects, as part of our pursuit of group-wide environmental management.

Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

Environmental Pollution Prevention

In addition to complying with local environmental laws and regulations, we identify and assess environmental risks associated with each project, voluntarily take measures to address those risks, and track the effectiveness of our actions. Our environmental management measures at the project level aim to prevent pollution at each operating site.

Environmental Compliance

We comply with the environmental laws and regulations of the countries in which we operate. For every project, we make a list of all applicable legal requirements to identify compliance obligations, in line with our HSE Legal and Other Requirements Standard. We also make a legal requirements list for each operator project in Japan and overseas, annually update it to reflect new enactments and changes to laws and regulations, and confirm our compliance with them.
In FY2020, meetings on management of HSE legal and other requirements were held with representatives of Corporate divisions in charge of non-operator projects to ascertain the status of related efforts and discuss forthcoming actions.

Furthermore, since FY2019, we have held a services agreement with Enhesa NV—a company which constantly checks/provides the latest information about laws and regulations and comprehensively supports HSE legal compliance—and have been using this service to manage compliance at each operational site. We are developing a system to supervise the status of legal compliance managed by the operational sites from Corporate HSE. As of FY2021, there were no serious violations of environmental laws or regulations.

Preventing Air Pollution

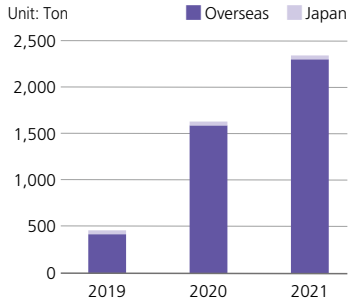
With the aim of preventing impacts to air quality, we monitor and manage NOx, SOx and VOC (volatile organic compounds) emissions from our operational sites in Japan and overseas, in compliance with relevant laws and regulations of the countries in which we operate and with reference to international regulatory trends.

At our operator projects in Japan and overseas, we manage emissions by identifying the sources—such as production processes, fuel combustion facilities, venting of natural gas, crude oil storage tanks, LNG tanks, and shipment by trucks and tankers—and determining the amount of emissions they release.

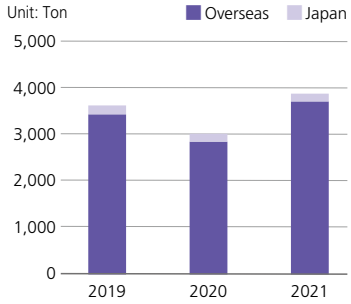
Our group-wide SOx emissions increased by around 46% to 2,322 tons in FY2021 compared to FY2020. This was largely due to a change in the composition and volume of gas combusted during emissions treatment in the acid gas removal units at Ichthys LNG and the Eagle Ford shale project.

In FY2021, NOx emissions were 3,984 tons and remained the same as the previous fiscal year. Non-methane VOC (NMVOC) emissions in FY2021 were 5,867 tons, down approximately 37% from the previous fiscal year. This decrease was due to the reduction in flaring activities at Ichthys LNG, whose gas contains high concentrations of NMVOC.

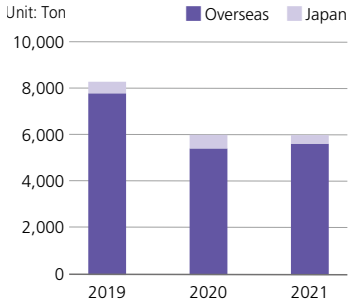
Annual SOx emissions in Japan & overseas



Annual NOx emissions in Japan & overseas



Annual NMVOC emissions in Japan & overseas



Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

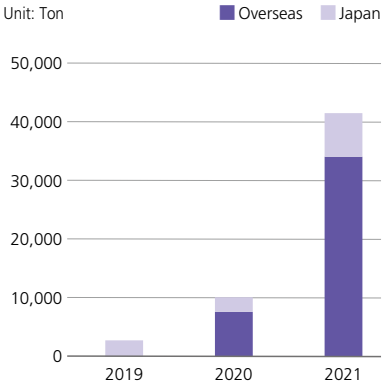
Proper Waste Disposal and Recycling

We actively practice the 3Rs—reduce, reuse, and recycle—in our waste management so that we can minimize the use of natural resources and thereby reduce our environmental impact. When we are unable to viably reuse waste generated by our operations, we properly dispose of it via licensed waste service providers. Overseas projects follow a waste management plan established prior to project or operational start-up, which incorporates regulatory requirements, risk management, and audits. For operator projects in Japan and overseas, we conduct annual inspections of waste service providers to monitor their waste treatment and disposal activities to ensure our waste is being properly disposed of. In FY2021, we conformed with COVID-19 safety restrictions by replacing on-site visits with virtual monitoring conducted mainly through remote interviews by telephone or other means.

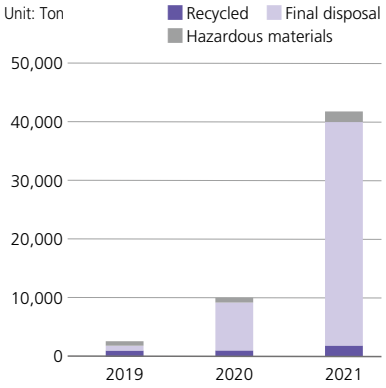
Inspections of waste disposal services
((n) shows the number of inspections conducted through remote interviews.)

	2020	2021
Overseas	19 (8)	20 (11)
Japan	23 (13)	22 (4)

Annual waste output in Japan & overseas



Annual waste output types



The amount of waste generated by our entire organization in FY2021 was approximately 42,000 tons. Of the 7,500 tons produced in Japan, around 2,200 tons, or thirty percent, was recycled. The amount generated overseas was approximately 34,500 tons. The amount of waste generated is influenced by business operations. The increase in waste volume in FY2021 is due to excavation work, as well as the production and flowback water (discharged water generated during fracturing work), at the US Eagle Ford shale oil project.

Our "Akasaka ECO Office" carries out activities to promote waste reduction and boost awareness among our headquarters staff.

Activities for FY2021 included the following:

- Sharing information on the amount of waste produced by each floor of our headquarters as a way to encourage greater waste reduction
- Training to raise awareness of the purpose, methods, and rules for sorting waste
- The production and distribution of reusable mugs to reduce use of paper cups and plastic bottles at our headquarters.

A reusable mug distributed at our headquarters

Biodiversity Conservation

Biodiversity conservation is a significant global environmental issue and identified as of INPEX's Key Tasks. We recognize that the degree of impact of our business on ecosystems or biodiversity differs depending on the phase, scale or location of each project—and accordingly, the biodiversity conservation efforts for each project must differ. Therefore, we apply a mitigation hierarchy[12] in the development of biodiversity conservation plans for each project, to avoid and

Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

mitigate the impact of our business activities on environmentally sensitive areas—e.g. protected areas, critical habitats of threatened species, mangrove forests, coral reefs, wetlands, etc—and to prevent deforestation.

⑫ Mitigation hierarchy is defined as i) Avoidance, ii) Minimization, iii) Rehabilitation/Restoration, iv) Offset.

Leadership Organization

We discuss biodiversity conservation initiatives in Environmental Management Working Group meetings and at our annual HSE Forum and the results of these discussions are reported to and deliberated by the Corporate HSE Committee.

In FY2021, based on our current efforts and international trends, we identified the following as company-wide issues related to biodiversity conservation, and considered formulating our policies and commitments regarding the identified issues:

- Avoid and mitigate the impact to protected areas
- Promote a net positive approach
- Promote biodiversity conservation initiatives.

We continue our discussions on the formulation of Corporate biodiversity policies and commitments in FY2022.

Protected Areas

Since FY2019, in the geographical information system for each operator project, we have compiled information on protected areas obtained from the World Database on Protected Areas (WDPA)⑬, and animal and plant species that fall under the IUCN Red List categories. Information is annually updated for the following purposes:

- Confirmation if our projects operate in any Protected Area
- Initial screening of potential impacts of new projects to Protected Areas
- Planning for biodiversity conservation in existing projects.

As of December 31, 2021, INPEX confirms that it is not operating any projects in the Protected Areas.

⑬ Developed jointly by the following associations:
- United Nations Environment Programme (UNEP) – a major agency within the United Nations established in 1972 in the environmental field
- International Union for Conservation of Nature (IUCN) – an international nature conservation network comprising nations, government agencies and non-government organizations that was established in 1948 under global cooperation

"Net Positive" Approach

INPEX-operated Ichthys LNG identifies negative risks and impacts on biodiversity through environmental and social impact assessments, and formulates and implements impact avoidance, mitigation, and compensation measures based on the mitigation hierarchy. On the other hand, for existing projects that have been operating for many years—such as the ones in Japan—we plan and implement conservation activities and initiatives that will positively impact biodiversity.

In FY2021, INPEX conducted a study to identify the current status and any issues for our "net positive" approach.

In FY2022, based on international trends such as TNFD⑭, we will continue to consider the introduction of an approach that creates a net positive environmental impact, in addition to avoiding or minimizing any negative impacts on biodiversity.

⑭ Taskforce for Nature-related Financial Disclosure

Overseas Activities to Conserve Biodiversity

The Ichthys LNG onshore processing plant is located in Darwin Harbour, where extensive mangrove forests along the coast provide breeding and feeding grounds for fish and sea turtles. To protect the rich biodiversity, Ichthys LNG has continued to comprehensively monitor effluent, seawater quality, and growing conditions for mangrove forests and other natural vegetation.
We further contribute to biodiversity conservation around the plant by providing grants to marine research projects such as long-term dolphin and dugong studies in the Northern Territory.

Link to the report by Cardno (page 98)

Environmental monitoring programs are conducted at/around the Ichthys LNG onshore processing plant site

Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

Wild bird surveys at the Onshore Block 4 Project

INPEX has been exploring Onshore Block 4 in the UAE since being awarded exploration rights in 2019. The block is in a central coastal area of the country that encompasses Abu Dhabi.

Balghelam and Umm Al Barak, two islands roughly 20 kilometers northeast of Abu Dhabi that are drilling sites for this project, are noted as resting and roosting places for migratory birds. Several times a year, JODCO Exploration Limited commissions a survey of birds inhabiting the islands in order to examine their situation and gather information for developing strategies to mitigate potential project impacts on these birds.

In the surveys in FY2020 and FY2021, ornithologists collected data on the types of birds observed in each area of the islands, their population sizes, and behaviors such as roosting, feeding, and breeding. The findings were used to identify impacts and formulate mitigation strategies for implementation. One of the actions taken was to restrict project personnel and vehicles from going off-road or entering roosting areas.

Activities to Conserve Biodiversity in Japan

Biodiversity conservation activities at our longstanding projects in Japan have proactively contributed to the monitoring and management of the environment in which we operate.

At the Naoetsu LNG Terminal these activities include:

- continuous monitoring of seawater temperature at the intake/discharge points;
- continuous monitoring of water quality of cooling water/discharge; and
- marine biological survey of the surrounding waters.

During the terminal's planning stage, we made forecasts on potential environmental impacts of cooling water discharge. Due to the significant level of uncertainty in those forecasts, we conducted two follow-up marine biological surveys: the first, a year after operations began (FY2015-2016); and a second in FY2018-2019. Seawater quality/temperature and marine life (such as benthos, plankton, fish eggs, juvenile fish, and intertidal biota) were monitored once each calendar season to understand the state of the marine environment. The results of the follow-up surveys showed no significant changes from the results of the baseline survey conducted before the start of operations (FY2012-2013).

Activities conducted in Japan include:

- raising internal awareness of invasive alien plant species and ways to exterminate them (FY2019);
- held a biodiversity lecture with an external expert (FY2019);
- educational activities on biodiversity in environmental newsletters (FY2019);
- internal preparation of basic biodiversity knowledge, implemented in e-learning (FY2020); and
- desktop reviews of ecosystems around domestic project sites (rivers, fishing grounds/farms, forests, biodiversity conservation areas, cultural properties, critical habitats of threatened species).

Health, Safety and Environment

Our Policy 63

HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits

Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control

Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance

Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident

Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

“Kitsunedaira Donguri-no-mori” Ecosystem Survey

As part of an ongoing forestation support program launched by Niigata Prefecture in 2010, the Kitsunedaira Donguri-no-mori (Acorn Forest) project is being run in Nagaoka City’s Fudosawa district, adjacent to the Koshijihara Plant at Nagaoka Field Office.

- Planting trees and caring for the forest

Twice a year, our employees work with local residents on forest maintenance, tree planting activities, and holding nature observation meetings for children.

- Ecosystem survey

In FY2019, we conducted a simple survey before winter to examine the state of Donguri-no-mori’s ecosystem. We observed several species of mammals at the site and several species of birds in the area and the sky above. Based on these findings, we were able to confirm that Donguri-no-mori’s ecosystem had improved within those ten years since the initial tree planting.

In FY2022, we will reconduct a survey to investigate seasonal changes in the ecosystem and species of the acorn forest.

Planting trees as part of the Donguri-no-Mori project

Effective Use of Freshwater Resources

Water resource management and water risk management[15] are internationally-recognized issues and we have accordingly designated “proper water management” as one of our Key Tasks[16]. We have been working to reduce our impact on water resources by managing the water footprint of our operator projects in Japan and overseas, and their discharge of produced water arising from oil and natural gas production. Since FY2015, we have been involved in IPIECA’s Water Working Group to stay abreast of international trends in water management and good practices for the oil and gas industry.

[15] Water risks: water risks such as securing water for current and future business continuity, and the increasing rate of flooding from extreme weather associated with climate change.
[16] INPEX Key Tasks

Identification of High Water Stress Areas

We confirm if our operational sites are located in high water stress[17] areas using Aqueduct, a water risk mapping tool developed by the WRI[18]. The tool is used to assess and investigate water availability prior to the commencement of a project. As of December 31, 2021 we have no projects operating in high water stress areas.

[17] The amount of water resources available per person, used as an index for assessing the scarcity of water supply versus demand.
[18] World Resources Institute

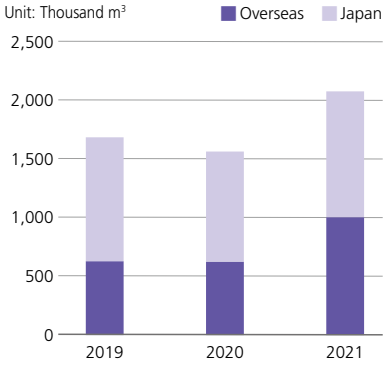
Health, Safety and Environment
Our Policy 63
HSE Management System (HSEMS) 64
Our Policy
HSE Leadership
HSE Objectives and HSE Programs
HSE Risk Management Process
HSE Education and Training
HSE Communication
Fostering HSE Culture
HSE Audits
Management of Health and Safety 67
Our Policy
Accident Prevention Initiatives
Using Drones to Inspect Equipment at Ichthys LNG
HSE Forum (Safety and Health Session)
Strengthening Employee Health Management and Infection Control
Process Safety Management 71
Our Policy
Comprehensive Process Safety Management
Process Safety KPIs
Asset Integrity Assurance
Security and Crisis Management 73
Our Policy
Enhancement of Security Management
Emergency and Crisis Response System
Emergency Response Exercises
Response to Blowouts and Oil Spill Incident
Environmental Management 75
Our Policy
Corporate Environmental Management Plan
Environmental Pollution Prevention
Proper Waste Disposal and Recycling
Biodiversity Conservation
Effective Use of Freshwater Resources

Efficient Use of Freshwater Resources

Our project sites in Japan and overseas use tap water, industrial water, and groundwater as coolants. In FY2021, the volume of freshwater used across our entire organization totalled 2,211 thousand cubic meters.

Groundwater is also used in Japan for cooling in power generation and for melting snow. We are taking action to reduce our water consumption, including by adopting a circulating system for cooling water, and equipping snow-melting systems with sensor-activated automatic shutoff.

Annual freshwater intake in Japan and overseas



At our Ichthys LNG onshore processing plant, we conduct investigations into freshwater use with the aim of reducing consumption. The findings of these investigations are being used to study the feasibility of cost-effective approaches for reducing freshwater consumption by reusing water, such as treated wastewater from processing as well as wastewater and condensed steam from power generation facilities.

Use of Seawater

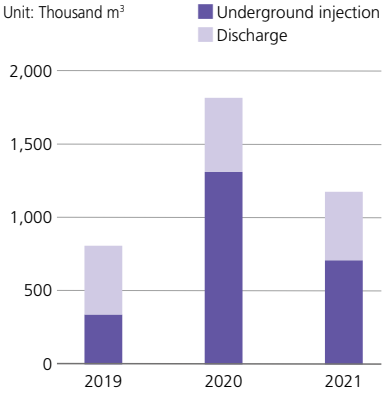
Ichthys LNG offshore production facilities use seawater for cooling, and the Naoetsu LNG Terminal uses it for heat exchange in the vaporizer.

Mandatory checks of seawater temperature and residual chlorine levels ensure that the marine environment will not be harmed, and that relevant laws and international guidelines are met before the used seawater is discharged back into the sea.

Wastewater Management

Produced water is reinjected underground or discharged into public water sources such as rivers or seas only after it has been treated and confirmed to comply with the relevant effluent standards. We comply with the relevant effluent standards of each country in which we operate, or with international guidelines in the absence of adequate standards at each of our operational sites. In FY2021, 60% of the total produced water (approximately 1.17 million cubic meters) was reinjected, while the remainder was discharged into rivers or seas. Produced water in overseas operations decreased on the FY2020 volume by approximately 0.6 million cubic meters. This is due to a reduction in the produced water volume (including flowback water from fracturing) generated by the Eagle Ford Project.

Annual produced water discharge in Japan and overseas



Development of Effluent Water Treatment Technology

From FY2015 to FY2017, we conducted a pilot project at our Sotoasahikawa plant in Akita Prefecture—in collaboration with Chiyoda Corporation and METAWATER, and with the support of JOGMEC⑲—to test a produced water-treatment technology using ceramic membrane filtration.

This technology is expected to further reduce the environmental impacts of water discharges from crude oil production. A joint follow-up study with JOGMEC was launched in FY2018, and a pilot test for commercial use of this technology is currently ongoing. We achieved a total operation time of 17,600 hours as of March 31, 2022, constructed a produced water processing facility, and have continued to operate without incident or occupational injury throughout the entire operating period (approximately six and a half years).

⑲ Japan Oil, Gas and Metals National Corporation