

General Safety and Security Guidelines for Personnel Engaged in Experiments on the Sagamihara Campus (Online Training)



JAXA Sagamihara Campus

Introduction

- This document is an online training material summarizing the safety and security guidelines to be followed by personnel engaged in experiments on the JAXA Sagamihara Campus.
- The guidelines are applicable to the JAXA Sagamihara Campus. When conducting experiments in the Noshiro Rocket Testing Center, Taiki Aerospace Research Field, or the Akiruno Research Center, please confirm with your supervisor for the guidelines at their respective facilities.
- Please confirm with your JAXA supervisor for any questions.
- **An accident due to any cause, or under any circumstances, is considered “an accident on the facility of JAXA,” and could cause a significant social impact. Not being familiar with the guidelines will not be accepted as an excuse, even for visiting researchers.**
- Security cards will not be issued to those who fail to complete this training. Please sign **The Certificate of Completion of Safety Training/Agreement** on page 33 of this document upon completion of this training, and submit a printed copy along with the Request for Security Card.
- The certification will be valid for 5 years.
- Student must also submit copies of insurances (“Disaster and Accident Insurance for Student Education” and “Research and Personal Accident Insurance for Students Pursuing Education and Research”)

Compliance with Instructions Provided by JAXA Supervisor³

- JAXA **supervisors** are responsible for ensuring the safety of visiting researchers and students engaging in experiments at the Sagami-hara Campus.
- Please ensure that you know who your supervisor is and follow his or her instructions during experiments. Supervisors are listed on the next page.



Compliance with Instructions Provided by⁴ JAXA Supervisor

Visitor Category	JAXA Supervisor
Graduate student under the supervision of JAXA professors (University of Tokyo, Graduate University for Advanced Studies, special inter-institutional researcher, partner graduate school)	Supervising professor
JSPS fellow	Supervising researcher
Contract researcher	Supervising professor
Technical trainee	Supervising staff
Intern	Supervisor
Inter-university research system researcher and assistant	<ul style="list-style-type: none">• Project supervisor (for projects involving research and development or observation and testing)• Project leader at JAXA (for joint projects)• Facility administrator (for facility uses)
Researcher at partner institution of a joint project	Project leader at JAXA
Professor emeritus	Professor in charge of arrangement
Assistant to inter-university research system researcher or to researcher at partner institution of a joint project, engaging in experiments under the supervision of respective researchers	JAXA Supervisor for respective visitor category

Compliance with Instructions Provided by⁵ JAXA Supervisor

- When engaging in experiments, please follow the guidance and instructions of **facility administrators**, who are also responsible for your safety along with your supervisors.



Accidents lead to...

1. Your own pain (physical and financial, or being forced to postpone your research and work due to hospitalization), as well as your family's (staying healthy is for the benefit of your family)
2. Being held socially responsible (such as facing penalties imposed by JAXA, which is responsible for supervising its premises, or punishment under the law)
3. Impacts on others (physical and psychological impacts on those engaged in the same experiment)
4. Effects on the experimental timeline (effects not only on your own schedule, but possibly on testing carried out by others or, at worst, on the launch schedule)
5. JAXA being held socially responsible (by public offices and the media)

Please be responsible for your own actions!



Keys to Preventing Accidents (1/2)

1. As a general rule, work in pairs. Verbal communication is essential!
 - ➔ Reduces the chance of making errors by double-checking, and enables early identification of hazards.

2. Always review the protocol before the experiment and keep everyone informed! Stay calm during the experiment.
 - ➔ Reviewing the protocol allows you to check the experimental preparations and improves efficiency (utilize dry run).
 - ➔ Utilize dry run to take proactive preventive measures in order to remain calm.



Keys to Preventing Accidents (2/2)

3. Discuss how to handle accidents before they happen! (The hazard prediction training (Kiken Yochi Training, KYT) is recommended.)
 - ➔ This allows you to not only review the initial response to an accident, but to prevent the accident itself. (Example: Reviewing the fire fighting procedure before experiments involving fire allows you to take measures such as bringing a fire extinguisher closer and removing flammable items.)
 - ➔ Remain calm when handling an accident.
4. When in doubt or fear, pause and seek help!
 - ➔ Your instinct may prove right. Always check with others.

Safety Practices for Preventing Accidents (1/2)

Please adhere to the following practices when working.

1. **Wear protective clothing.**

As well as refraining from wearing sandals during experiments, avoid loose clothing that can be caught in machinery (wear work suits) and wear protective clothing, such as helmets, protective footwear, goggles, and non-conductive gloves as necessary.

2. **Obtain permission from facility administrators.**

Always obtain a permission from JAXA facility administrators when using facilities and handling equipment. When using equipment for the first time, please do so under the supervision of a facility administrator (avoid using equipment for which the facility administrator is unknown).

3. **Work should be carried out by qualified personnel.**

Work, such as crane operation and high-place work, that requires qualifications **must be carried out by qualified personnel.**



Safety Practices for Preventing Accidents (1/2)

4. Follow work instructions.

Follow the documented work instructions, and refrain from performing procedures that are not in the instructions.

5. Avoid leaving experiments unattended.

As a general rule, do not leave running experiments unattended.

6. Avoid working at night and on holidays.

Avoid working at night and on holidays when possible, as responses to accidents can be delayed. When experiments must be carried out during those hours, be sure to obtain a permission from your JAXA supervisor.

7. Make emergency contact arrangements.

Be sure to make arrangements for emergency contacts in advance.

When an Accident Does Occur...

1. First, call extension 28899 (Guard Station)! In case of fire emergency, call 119 first. Stay calm!

If you discover a fire or smoke

Emergency Contact Number

緊急連絡専用ダイヤル
050-336

28899番
ハ ヤク キュー キュー



Stay calm and call security

If you see anyone suspicious

煙や火災を発見したら




不審者をみかけたら




早い発見が、被害を最小限に抑える第一歩!

※火災発生時は、119番に連絡してください

SAXA 相模原キャンパス

Early detection is the key to minimizing damage!

Sagamihara Campus

When an Accident Does Occur...

2. Seek help from a JAXA supervisor and those around you!

Avoid making decisions on your own!

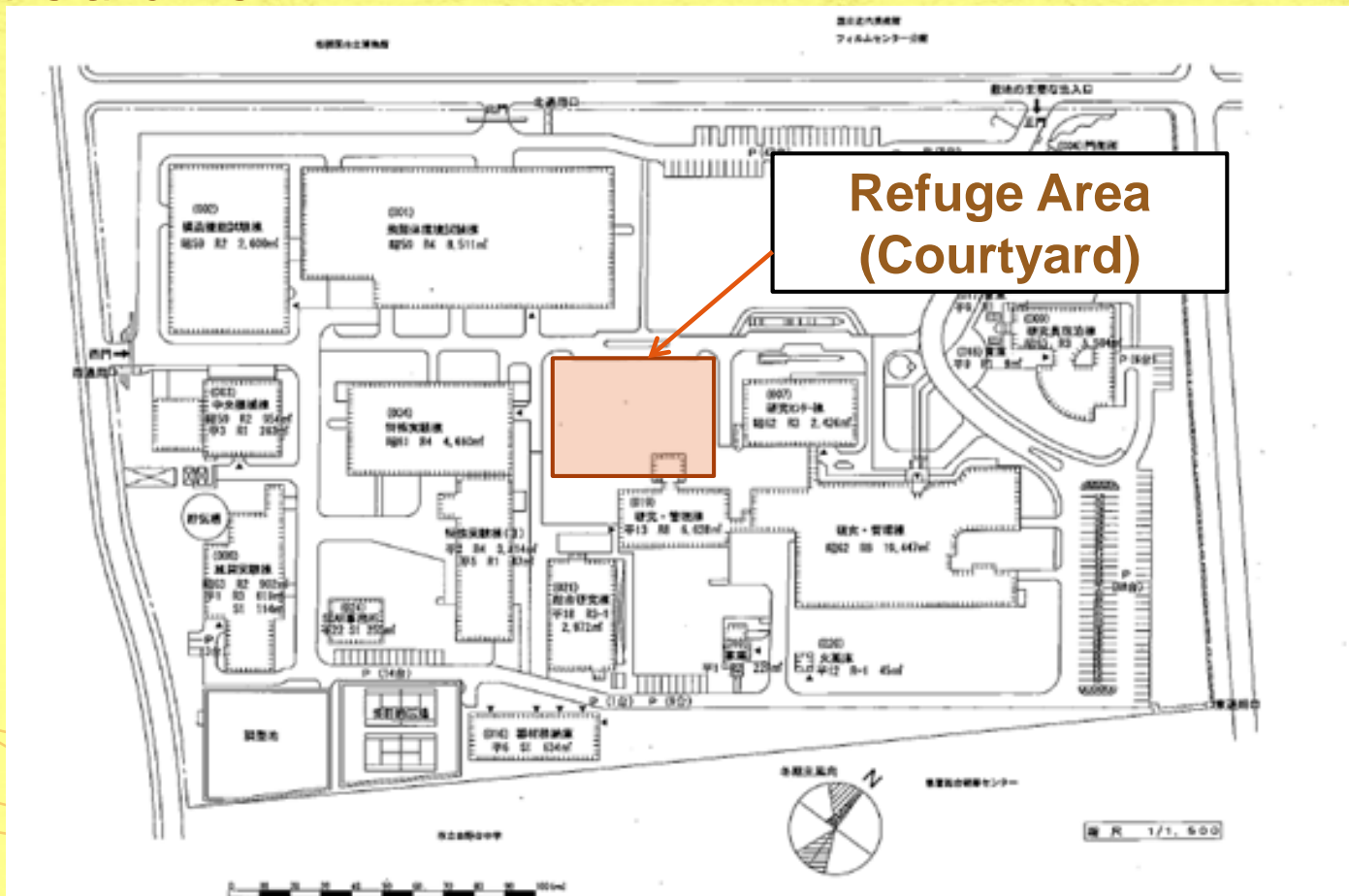
Do not come to someone's aid on your own!

Doing so can delay the emergency report and initial relief activities, and could lead to secondary damage.

Stay calm!



The courtyard (surrounded by the Research and Administration Building and the Experiment Facilities) is the refuge area in emergencies such as earthquake and fire.



Compliance with Security Regulations

JAXA stipulates a set of security regulations in order to protect its classified information. We ask you to adhere to these regulations.

1. Information security
2. Security of assets and duties
3. Area security
4. Information systems security

* Security regulations can be viewed online at the JAXA inter-university research portal (http://www.isas.jaxa.jp/j/researchers/uo_portal/).



Area Security Precautions (1/2)

- Bad practice in controlled areas:

Invited friends and family who do not have a security card into the building, and gave them a tour of the facilities, including an introduction to research activities (satellites, etc.).

Posted pictures on a blog.

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1. Unauthorized persons (friends and family) have entered the building located outside of the areas open to public.
 2. Entered the building (in controlled areas) along with others using just one security card.
- ➔ Permission is required to take pictures in areas other than the area where the M-V rocket is displayed outside or the exhibition area. Posting pictures on SNS such as Twitter and Facebook or on blogs without permission is prohibited.

Area Security Precautions (2/2)

- It is prohibited to lend to others a security card with authorization to enter controlled areas, or to enter controlled areas with unauthorized persons.
→ Authorized persons must use their own security card for entry!
- Off-duty access is prohibited even for those with authorization.
 - ✱ Even for JAXA staff, it is prohibited to enter and give tours in controlled areas or areas not open to the public without authorization (unauthorized persons have access only to areas that are open to the public).
- A record of all persons entering and leaving the controlled areas is kept for a period of time for security purposes.



Information Security Precautions (1/2)

- Bad information security practice:

Used your personal USB flash drive to save the data on your computer at JAXA, copied the data onto your home computer without permission, and worked on the data at home.

When finished, saved the data using a cloud storage service (such as Dropbox) to download the data you worked on at home to your computer at JAXA.

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1. Saving and copying the data using a personal USB flash drive instead of one permitted by JAXA is a **violation of the regulations**.
 2. Exporting the data from your computer at work and importing to your computer at home is prohibited (**unauthorized exporting of information**).
 3. Accessing services from computers at JAXA is only allowed with a permission.

Information Security Precautions (2/2)

- Accessing the JAXA network from a computer from outside (bringing your own computer) requires permission (permission of your supervisor, compliance with the regulations for its use, and taking security measures).
- When a computer in your lab is infected with a computer virus, immediately disconnect the computer from the network (pull out the LAN cable or disconnect from the wireless LAN), have your supervisor contact the JAXA network administrator, and follow their instructions.
- All access to the JAXA network is recorded, and any unintended use may lead to prohibition of network use.



Wear Your Security Card Where Visible

- Your security card authorizes your entry into the premises. Please wear it where visible and have it ready to present when required.
- Please complete this safety training before engaging in experiments at the Sagamihara Campus. Those **who fail to complete the safety training** will not be allowed to conduct experiments at this Campus.
- Please wear your security card or certificate of completion of training where visible.



Compliance with Campus Traffic Regulations

- A permit is required for driving your car onto the campus premises, even temporarily. Please register when entering at the front gate.
 - Drive under the speed limit of 20 km/h on campus → to prevent traffic accidents
 - Park your car at designated areas → to secure evacuation routes
- Parking your bike
 - Park your bike and motorbike at respective designated areas → to secure evacuation routes



Waste Disposal

- Please take home any waste produced during experiments except waste produced by JAXA work.

Contractors are responsible for the disposal of any waste brought in and produced during their work at JAXA, and such waste cannot be disposed of by the Sagamihara Campus (violation of the Waste Management Law).

- Drain disposal of chemical agents (chemical waste) down sinks or toilets is strictly prohibited. (Solid and liquid chemical wastes are collected and disposed of twice a year.)



Precautions for Handling Hazardous Materials

Bringing and handling of the following hazardous materials at the Sagamihara Campus require **prior permission and special training**.

Please confirm with your JAXA supervisor for details.

1. Radiation/X-ray generators
2. High pressure gas (including their use and production)
3. Chemical agents (particularly organic solvents/specified chemical substances)
4. Explosives (including pyrotechnics)
5. Fire (including welding)



Reference: Relevant Laws on the Sagamihara Campus

- Handling of compressed gas cylinders: High Pressure Gas Safety Act
- Handling of chemical agents: Poisonous and Deleterious Substances Control Act, Fire Service Act, Ordinance on the Prevention of the Hazard due to Specified Chemical Substances
- Handling of explosives: Explosives Control Act
- Disposal of laboratory waste: Wastes Disposal and Public Cleansing Act
- Handling of radiation: Ordinance on the Prevention of Ionizing Radiation Hazards
- Storing of supplies in hallways: Fire Service Act ... and more

Listed above are examples of laws that you are required to respect. Some of the above materials can only be handled by qualified personnel.



Cases of Workplace Accidents on the Sagamihara Campus

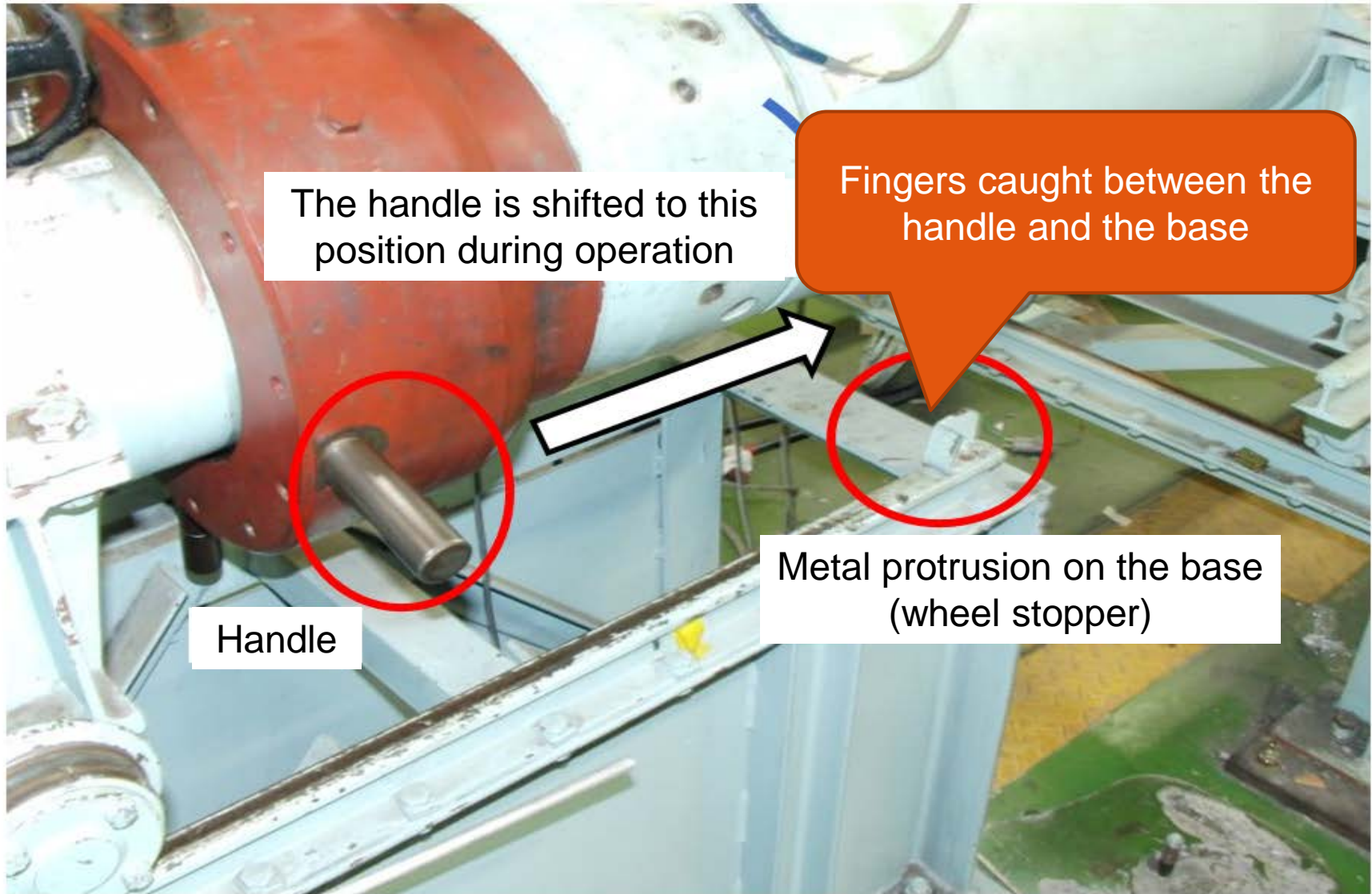
- The following accidents have actually occurred on the Sagamihara Campus. Please be cautious.

Case 1. Fingers caught between machinery and its base (October 2015, at 5 pm)

When turning a handle to disassemble the pipes of experimental machinery, a graduate student caught his hand when placed on the handle between the handle and the machinery base. This caused bleeding and was due to improper operation.

- ✓ Other students present at the scene called the supervisor and 28899. The student was taken to hospital by an ambulance and diagnosed with a bone fracture.
- ✓ The injured student had even engaged in the same operation approximately 100 times a year, and had been aware of the hazard.
- ✓ The injured student had not completed the safety training.
- ✓ As a remedy, the machinery base was protected and fixed, and a reminder has been added to the documented operational procedures.

Cases of Workplace Accidents on the Sagamihara Campus



Cases of Workplace Accidents on the Sagamihara Campus

Please learn a lesson from this case and keep the following in mind.

1. **Follow the documented procedures during operation.**
If you find errors and omissions, correct the procedures accordingly.
→ This not only reminds you but also informs others.
2. **Accidents are more likely to occur in the evenings** than in the daytime.
Allow enough time for operations.
3. **Immediately address any safety concerns raised.**
Identify hazards as hazards.
4. Unfortunately, trained persons can cause accidents. However, those that cause accidents are more likely not to have completed the training. **Please ensure to complete the campus safety training.**

Cases of Workplace Accidents on the Sagamihara Campus

Case 2. Electrocution during machinery setup (January 2016, at 5 pm)

A student brought by an inter-university research system researcher electrocuted himself through his right hand, when trying to fix a loose electric wire when working by himself to prepare for an electrical experiment.

No serious effects were noted, but the student felt numbness and requested to use the restroom. He also reported to the Management and Integration Department.

We had the student seen by a doctor (no abnormalities).

- ✓ The student brought by an inter-university research system researcher was working alone at the time of the accident (a student not accepted at the campus was engaged in operation).
- ✓ The inter-university research system researcher was not present at the scene nor on campus on the day of the accident.
- ✓ The injured student was not a resident on the Sagamihara Campus and had not completed the campus safety training; thus, he did not know the emergency contact number (28899).
- ✓ Although the machinery was turned off, the capacitor in the system was electrically charged, which likely caused electrocution (factors such as experimental configurations are omitted).

Cases of Workplace Accidents on the Sagamihara Campus

Please learn a lesson from this case and keep the following in mind.

1. **As a general rule, do not work alone.**
 - ➔ An unauthorized student engaging in operation is a violation of the regulation in the first place.
2. Anyone engaging in experiments on campus **must complete the safety training.**
3. **Be sure to know the emergency contact number.**
4. **Always predict potential hazards when working** (although this was not easy in this case as the machinery was turned off and the electrocution was caused by the charged system).
 - ➔ Wear the necessary protective clothing.



Cases of Workplace Accidents on the Sagamihara Campus

Case 3. Accident when handling high pressure gas (June 2015, at 5 pm)

A flexible hose exploded during an air tightness test for the preparation of a test using high pressure gas (oxygen gas).

No injuries were reported by graduate students conducting the test or other workers present at the scene.

- ✓ Oxygen gas at a pressure of greater than 5 MPa was running through the system at the time of the accident.
- ✓ The person engaged in the experiment was not familiar with the handling of oxygen gas, and apparently opened the valve too quickly.
- ✓ Further investigation revealed multiple factors.
 1. Dust was present inside the flexible hose.
 2. Not only was the specification of the machinery not intended for high pressure oxygen, it did not conform to the standards of High Pressure Gas Safety Act.
 3. There were flaws in the experimental planning including a person not familiar with the handling of oxygen conducting the experiment.

Cases of Workplace Accidents on the Sagamihara Campus

Flexible hose exploded during air tightness test



Rupture (on the side of the hose)

Rupture (on the side of the cylinder)



Cases of Workplace Accidents on the Sagamihara Campus

Please learn a lesson from this case and keep the following in mind.

1. **Follow the campus regulations when handling high pressure gas.**
Be sure to complete the safety training for handling high pressure gas.
 - ➔ Anyone engaging in the handling of radiation and explosives must also go through specified procedures and complete respective safety trainings.
2. **Pay careful attention to the basics**, such as not opening the valve too quickly.
3. **Hold meetings (in the mornings or evenings) prior to conducting an experiment to thoroughly review and share information regarding the experiment.**

In Closing

Please complete **The Certificate of Completion of Safety Training/Agreement** on the next page and print or save the page.

- ★ Please submit the certificate to the respective offices or personnel listed on the final page.

For inquiries about this safety training material, please contact:

Management and Integration Department, JAXA Sagamihara
Campus

(050-3362-7323)

The Certificate of Completion of Safety Training/Agreement

I confirm that I have understood the contents of the safety training document.
I agree to conduct my work at the Sagamihara Campus in compliance with the regulations and rules on campus, and take full responsibility for my work.

1. Date of Training	:	Date	Month	Year
2. Name	:	<hr/>		
3. Affiliation	:	<hr/>		
4. Title	:	<hr/>		
5. Contact	:	<hr/>		
6. Name of your JAXA Supervisor	:	<hr/>		
7. Main Work Area (Room)	:	<hr/>		

Collected personal information will only be used for the purposes of safety management on the Sagamihara Campus and accident investigations (for the purposes of safety management).

Where to Submit Your Certificate/Agreement

Visitor Category	JAXA Supervisor	Submission
Graduate student under the supervision of JAXA professors (University of Tokyo, Graduate University for Advanced Studies, special inter-institutional researcher, partner graduate school)	Supervising professor	Supervising professor
JSPS fellow	Supervising researcher	Supervising researcher
Contract researcher	Supervising professor	Supervising professor
Technical trainee	Supervising staff	Supervising staff
*Intern	Supervisor	Supervisor
Inter-university research system researcher and assistant	<ul style="list-style-type: none"> Project supervisor (for projects involving research and development or observation and testing) Project leader at JAXA (for joint projects) Facility administrator (for facility uses) 	Project supervisor Project leader at JAXA Facility administrator (for inter-university research facilities)
Researcher at partner institution of a joint project	Project leader at JAXA	Project leader at JAXA
Professor emeritus	Professor in charge of arrangement	Professor in charge of arrangement
Assistant to inter-university research system researcher or to researcher at partner institution of a joint project, engaging in experiments under the supervision of respective researchers	JAXA Supervisor for respective visitor category	Users Office (UO)*

* Users Office Email: usersoffice@jaxa.jp