

X-ray operator services

Queensland Health Guideline

QH-GDL-363

1. Purpose

This document provides guidance to hospital and health services (HHS) to support a standardised, best-practice approach for the provision of safe, effective and sustainable X-ray operator services.

X-ray operators (XO) are roles that do not have a formal qualification in radiography or diagnostic imaging, but undertake an endorsed course and training and are regulated and approved by Queensland Radiation Health to undertake a limited range of basic radiographic examinations (plain diagnostic radiography) in rural and remote, and other approved locations with a clinical or health service need for diagnostic radiography where a diagnostic radiography service would not otherwise be available.

The use of radiation sources to carry out a radiation practice is regulated under the *Radiation Safety Act 1999* to minimise the risks associated with radiation. Use Licenses for XOs are issued by the Queensland Health Radiation Health Unit.

2. Scope

This Guideline applies to all Queensland Health employees involved in the delivery and management of XO services. A description of the roles/professions within the scope of this guideline is provided in section 5 - Definitions.

Compliance with this guideline is not mandatory, however sound reasoning must exist for departing from the recommended principles within a guideline. This Guideline may be adapted to support best practice and business continuity based on individual health service requirements and analysis of associated risks. However, compliance with the *Radiation Safety Act 1999* is mandatory.

3. Human rights

Queensland Health must act and make decisions compatible with human rights, in accordance with the Human Rights Act 2019 (the Act). This includes applying the Guideline and delivering XO services in accordance with the Act.

4. Related documents

Legislation

- *Radiation Safety Act 1999* and *Radiation Safety Regulation 2021*

Standards, procedures and guidelines

- *Radiation Safety Act 1999: Strategy to Achieve Compliance*
- Queensland Radiation safety standards & Standards for radiation sources (<https://www.health.qld.gov.au/system-governance/licences/radiation-licensing/legislation>)
- Clinical Services Capability Framework for public and licensed private health facilities version 3.2 (CSCF v3.2)
- HR Policy B63 - On Call Practices – Rural and Remote Medical Imaging Radiographers (QH-POL-182)
- HR Policy C15 – Allowances (QH-POL-099)
- HR Policy B6 - Mandatory Training (QH-POL-183)
- HR Policy C33 - Radiation Safety Act 1999 – Application and Licence Fees – ‘Use’ Licences (QH-POL-209)

Forms, templates

- XO supervision agreement template (appendix 1)
- Example Expression of Interest (EOI) memorandum (appendix 2)
- Example: X-ray Operator Documentation of Support for Training (appendix 3)

5. Definitions

Term	Definition / Explanation / Details	Source
Authorised persons	The person in the position which has the authority to request a diagnostic procedure stated within schedule 6 of the Radiation Safety Act 1999.	<i>Radiation Safety Act 1999</i>
Certificate of Competency	A document required by the Radiation Health Unit for licence renewal that provides evidence of the certification of practical skill and competence for X-ray operators that hold practical competencies. See also Statement of attainment of knowledge and skills.	Radiation Health Unit, Queensland Health
Clinical Services Capability Framework (CSCF)	A suite of documents describing clinical and support services by service capability level in Queensland public and private health facilities.	Queensland Health
Competency	The knowledge, skills and behaviours that are required of an XO in the performance of their role and the delivery of high-quality, safe and effective plain diagnostic radiography in accordance with their X-ray/ Use Licence.	Queensland Health X-ray Operator Services Competency and Training Program Accreditation Framework
Designated radiographer	A licensed diagnostic radiographer directed to provide support, training, and/or advice to an XO on behalf of their regular radiographic advisor when they are unavailable.	Queensland Health

Term	Definition / Explanation / Details	Source
Director of Medical Imaging	The director responsible for the medical imaging services within the hospital and health service/ facility.	Queensland Health
Endorsed course/ training	A course which has been assessed for suitability against the Queensland Health X-ray Operator Services Competency and Training Program Accreditation Framework by the Radiation Health Unit, Queensland Health, for the training of Queensland Health X-ray Operators.	Queensland Health X-ray Operator Services Competency and Training Program Accreditation Framework.
Endorsed radiographer	A licensed diagnostic radiographer that holds a minimum of a Certificate IV in Training and Assessment (or equivalent) and has been approved by the Director of Radiation Health to assess knowledge and practical skill competencies of XOs.	Queensland Health X-ray Operator Services Competency and Training Program Accreditation Framework.
Facility manager	The position responsible for the management of operational and clinical services at the Queensland Health or other Queensland facility.	Queensland Health X-ray Operator Services Competency and Training Program Accreditation Framework.
Frequency of practice	A term used to describe the number of times a task or activity is performed and the time elapsed between when a task/ activity is performed, relating to the competence level at which that task will be performed.	Queensland Health
Line manager	The operational manager of the XO's usual/ predominant role in which they employed in the health service.	Queensland Health
Mentorship	A collaborative relationship that facilitates the sharing of professional skills, experiences, advice and feedback for the purposes of growth and development by a more experienced person to a less experienced person, e.g. a radiographic advisor as mentor and x-ray operator as mentee.	Queensland Health
Radiographic advisor (RA)	A diagnostic radiographer (the XO Clinical Educator or another licensed and AHPRA registered radiographer usually from within the health service) who is appointed as the main point of contact for an XO. Their duties include the overseeing of XO services at the nominated sites along with the facility manager and other designated radiographer(s) , including the facilitation of relevant training and support as well as assisting in the annual competency assessment of XOs at those sites.	Office of the Chief Allied Health Officer (OCAHO) and Radiation Health Unit, Queensland Health
Radiation safety and protection plan (RSPP)	A formal plan that specifies the actions to protect people and the environment from the harmful effects of radiation, including the practice for which a possession licensee is allowed to possess a radiation source under the licence.	Radiation Health Unit, Queensland Health
Radiation Safety Officer (RSO)	A position as specified in the <i>Radiation Safety Act 1999</i> for the facility that undertakes the functions under the Act and Part 6 of the <i>Radiation Safety Regulation 2021</i> . The specific responsibilities of the RSO are detailed in the facility's Radiation Safety and	<i>Radiation Safety Act 1999</i>

Term	Definition / Explanation / Details	Source
	<p>Protection Plan (RSPP), including (but not limited to):</p> <ul style="list-style-type: none"> Identifying and assessing compliance of the facility with the Radiation Safety Act 1999, the RSPP and relevant safety standards. Arranging staff training for the RSPP on radiation hazards, safe work practices and procedures and individual responsibilities. 	
Statement of Attainment of knowledge and skills	A document required by the Radiation Health Unit for licence application that provides evidence of theoretical knowledge and skills attainment for trainee XOs. See also Certificate of Competency.	Radiation Health Unit, Queensland Health
Supervision	<p>A formal process of professional support, learning and evaluation which may include direct and/or indirect clinical and professional supervision provided by a designated, more experienced person (supervisor) which enables a less experienced person (supervisee) to develop and maintain knowledge and competence in their practice.</p> <p>For XOs, supervision is practice-focused rather than line/ operational management.</p>	Office of the Chief Allied Health Officer (OCAHO), Queensland Health
Supervision agreement	A written statement detailing the schedule of XO supervision and training that shall be provided by the RA, mutually agreed upon by the XO, RA, and XO's facility manager.	Queensland Health
Use Licence	<p>A licence to use radiation sources to carry out radiation practice, issued under the <i>Radiation Safety Act 1999</i>.</p> <p>A Trainee Use Licence allows the licensee to perform a limited range of diagnostic radiography under the guidance and direct supervision of a licensed diagnostic radiographer.</p> <p>A rural or remote area radiography Use licence allows certain health sector employees without formal qualifications in diagnostic radiography to perform a limited range of plain diagnostic radiography.</p> <p>The Basic X-ray licence for chest and extremities and an Extended rural and remote area licence are applicable for XOs.</p>	Radiation Health Unit, Queensland Health
X-ray operator (XO)	<p>A health service employee without formal qualifications in diagnostic radiography that is licensed to perform a limited range of plain diagnostic radiography in rural, remote and other approved locations where a diagnostic radiography service would not otherwise be available.</p> <p>Previously known as licensed operator or LO.</p>	Queensland Health
XO Clinical Educator	Queensland Health positions employed to support the ongoing learning and development of the Queensland Health XO workforce and program.	

6. Guideline for X-ray operator services

6.1. Radiation Health Unit responsibilities

The Radiation Health Unit, Department of Health, is responsible for:

- assessing and endorsing XO education and training courses against the Queensland Health X-ray Operator Competency and Training Program Accreditation Framework, at the commence of new course offerings and when significant changes are made to course content or structure;
- overseeing the XO competency assessment process for initial trainee licence attainment and licence renewal;
- granting XO licences;
- managing concerns related to individual XO Use Licence compliance in collaboration with the relevant RSO and RA.

6.2. Health service requirements and responsibilities

6.2.1. Health service XO programs and services must comply with Queensland legislation, regulation and the Clinical Services Capability Framework (CSCF), human resources policies and other HHS policies and procedures.

6.2.2. Health services are responsible for implementing an appropriate and sustainable XO program/ service, including effective candidate selection and provision of training in accordance with this Guideline.

6.2.3. Facility Managers and RSOs are jointly responsible for ensuring:

- XOs have undertaken appropriate training, in accordance with the training requirements prescribed by Queensland Health at the commencement of training;
- XOs hold the appropriate Use Licence as prescribed in the *Radiation Safety Act 1999*, and comply with the conditions and requirements of the Use Licence, including (but not limited to):
 - use of the approved radiation source only for the practice described in the Use Licence, and
 - compliance with the health service RSPP.
- XOs are provided with ongoing support and supervision under a formal supervision agreement with an approved radiographic advisor (RA), as per section 6.5;
- XO services comply with the health service and facility RSPP, this Guideline, human resources policies and other HHS policies and procedures and the CSCF, including access to the appointed Radiographic Advisor in accordance with the level of service;
- all required and authorised persons are aware of and comply with the licence restrictions imposed on the XO staff at their facility;

- concerns regarding an XO's performance and ability to undertake the XO role competently should be managed by the XO's RA in collaboration with the XO's primary role line manager in accordance with established Queensland Health HR policies. Concerns that cannot be satisfactorily resolved and issues related to an XO's compliance with their Use Licence must be escalated to the Radiation Health Unit.

6.2.4. Facility Managers are additionally responsible for ensuring:

- XOs have access to information and communication technology (ICT) to meet XO service requirements in accordance with the service CSCF level, including (but not limited to) telephone and computer with internet and email access. It is expected that video-call facilities are easily accessible from the X-ray location . Access to the radiology information system (RIS) and picture archiving and communication systems (PACS) may be required in accordance with the CSCF.

6.2.5. In conjunction with the XO's usual line manager, facility managers and Directors of Medical Imaging (or equivalent) are responsible for ensuring on-call practices involving XOs are compliant with relevant human resources (HR) policies, including HR Policy B63: On Call Practices – Rural and Remote Medical Imaging Radiographers, noting that for facilities specified in the policy:

- Weekend and weekday relief is to be provided by a registered radiographer in the first instance if the radiographer is on-call and when operationally possible. If a qualified relief radiographer is unavailable, XOs can be used to provide a limited service as per their licence restrictions.
- If a registered radiographer is on-call and available, they are to be utilised for diagnostic imaging instead of an XO.

6.3. XO requirements and responsibilities

6.3.1. XOs must hold the appropriate Radiation Use Licence as prescribed in the *Radiation Safety Act 1999*, and comply with the conditions and requirements of the Use Licence, including (but not limited to):

- use of the approved radiation source only for the practice described in the Use Licence, and
- compliance with the health service and facility RSPP.

6.3.2.XOs should keep a record of supervision, support and training received as evidence to support licence renewal.

6.4.XO training

6.4.1.Phased licence attainment is recommended, commencing with a chest and extremities X-ray licence.

6.4.2.All XOs must have a valid supervision agreement in place with an appropriate RA prior to commencing initial training, as per section 6.5.

6.4.3.A RA or designated radiographer should be available at all times during the initial XO training period for supervision, support and training.

6.4.4.XO initial training should consist of completion of approved training, prior to application for a trainee Radiation Use Licence, that includes the principles of radiation biology, safety and legislation, including:

- the standards and elements required to ensure radiography practice complies with the codes, guidelines and legislative standards, including the *Radiation Safety Act 1999*;
- knowledge of medical radiation principles, such as patient-positioning, mechanisms of injury, and anatomy;
- general skills, attitudes, values and behaviours related to patient care, continually developing and improving knowledge and skills, effective communication and collaboration within a multidisciplinary team and the use of software and other programs.

6.4.5.A period of intensive, practical, face-to-face training under the supervision of a RA or other designated radiographer should be conducted as soon as possible after the approved initial training, at an agreed location (ideally within 2 months of undertaking the initial training and at least partially at the XO's workplace) with a suitable workload (recommended for a minimum of four (4) days) to complete the training and ensure the XO is competent to provide radiographic examinations.

- Additional training may be required at the discretion of the RA or designated radiographer. If required, the supervision agreement should be updated to reflect this.

6.4.6.While on a trainee Use Licence, all radiographic images should be assessed by the RA and regular feedback given to the XO as outlined in the supervision agreement.

- periodic evaluation of performance should be conducted by the RA to ensure continued progress of the licensee's skill and safety.

6.4.7. For staff with continuing professional development (CPD) requirements, XO training may be classified as CPD.

6.4.8. Once the relevant competencies have been achieved, and if there is a need and local support for an increased licence scope, the XO may elect to undertake the additional training involved in attaining an Extended rural and remote area X-ray licence.

- Progression towards the extended licence is to be competency-based and candidates should be endorsed by a RA.

6.5. Ongoing training, supervision, support and assessment

6.5.1. Education, support and supervision does not cease after the XO has completed the training and holds a non-trainee X-ray licence. The XO's RA or another designated radiographer (when the XO's usual RA is not available) must be available and contactable for supervision, support, mentorship, and to facilitate ongoing training as required.

6.5.2. An ongoing supervision arrangement between an RA and the XO, detailed in a formal supervision agreement (refer to appendix 1), is mandatory for all XOs.

- Where possible, face-to-face supervision and support is preferred. However, supervision and support provided by e-mail, videoconferencing or teleconferencing to facilitate timely access to supervisors may also be appropriate.
- Where possible, the RA should be familiar with the equipment being used in the XO's facility to ensure the provision of effective support.
- Ongoing RA support should include regular assessment of XO images including feedback to the XO as outlined in the supervision agreement.

6.5.3. The supervision agreement should be tailored to the XO's individual proficiency and learning needs.

6.5.4. The supervision agreement between the XO and RA should be reviewed every 12 months and include:

- the name and contact details of the appointed RA and at least one alternative RA (for when the appointed RA is not available)
- all training requirements, including elements of direct supervision and training (e.g., face to face at the XO or RA's facility) and indirect supervision and professional development to support ongoing development and competency (e.g., videoconference, remote image assessment, telephone, and email support);
- be signed by both the XO and RA, and endorsed (with signature) by the XO's facility manager, with copies held by all 3 parties.

6.5.5. Each XO should have access to the equivalent of two days of training (exclusive of travel time) with their RA and/or XO clinical educator per year.

- Annual training should be tailored to the individual's current competency and need for support, considering the XO's frequency of practice, and ideally include one day of face to face training.

- Where possible, the option for a RA to provide annual training at an XO's facility should be made available and practical training should be rostered to ensure it is not adversely impacted by emergent clinical workload.
- Training can be delivered face-to-face or via comparable modalities (e.g., videoconferencing) at an agreed location with suitable workload (in accordance with the CSCF).

6.5.6. Annual assessment and a certificate of competency issued by a radiographer endorsed by Radiation Health (not the XO's usual RA) is required for licence renewal.

6.5.7. Assessments may be performed 'face-to-face' or by utilising appropriate technology for remotely located XOs e.g., videoconference.

The assessor should provide written feedback on the assessment to the XO, their RA and the facility manager, for consideration of the XO's supervision and training plan.

6.5.8. Additional training requirements may be determined by the Radiation Health assessor in consultation with the RA and the XO.

- The duration of any additional training is at the discretion of the XO's RA and their assessor, and may be conducted using a variety of modalities including videoconference, teleconference, and online learning materials.

6.6. XO Program/ service management

6.6.1. Facility managers should review their specific XO service requirements at least annually to support sustainability, considering whether an XO service is appropriate, including whether there is:

- community need and demand for local medical imaging services, and whether demand justifies employing a radiographer (if possible);
- sufficient demand for XO services to maintain XO competency;
- sufficient levels of suitable staff and resources to enable an XO service, including the availability of, and access to appropriate levels of RA support, and available and accessible resources to support the ongoing training and competency of XO.

6.6.2. Facility managers are responsible for the sustainability of their health service's XO program/ services, including that appropriate XO candidates are selected and supported to complete training by undertaking an informed Expression of Interest (EOI) and selection process that:

- Ensures the potential XO candidate is aware, understands and is prepared for the requirements of the role, including initial and ongoing training and other requirements such as on-call requirements;
- carefully considers candidate selection for longevity, including the potential XO candidate's willingness and ability to undertake the XO role in their current location and within their primary role in the health service, including availability to support the XO service and ongoing training;
- involves the supervising RA, the HHS Director of Medical Imaging, facility manager and RSO.

6.6.3. To validate the EOI and selection process, facility managers should obtain a letter of support from the relevant radiation source Possession Licence holder that outlines the justification of the selection of the XO candidate to accompany XO licence applications.

6.6.4. Prior to commencing initial training, facility managers should confirm that XO candidates have completed all HHS mandatory training (including infection control, child safety and patient handling) in accordance with the HR Policy G6.

7. Document approval details

Document custodian

Chief Allied Health Officer, Clinical Excellence Queensland

Approval officer

Chief Allied Health Officer, Clinical Excellence Queensland

Approval date: 13 November 2024

Version control

Version	Date	Comments
1.01	11/09/2014	Incorporates feedback from consultation process on Education and Training Framework for X-ray Operators from Clinical Education and Training Medical Radiation Professions in August 2015.
1.05	26/08/2015	
2.00	06/11/2024	Minor and major amendments to incorporates feedback following a comprehensive consultation process with Department of Health and medical imaging stakeholders in 2023, including: <ul style="list-style-type: none">• Restructure and re-templating on new Queensland Health Guideline template.• Update of reference to the new <i>Radiation Safety Regulation 2021</i> and other related documents.• Update of definitions• Recognition of the provision of XO services in approved areas outside of rural and remote facilities.• Clarification and specificity of the requirements of relevant parties in XO Programs, including roles and responsibilities of facility managers, training and supervision.• Updated appendices – XO Supervision Agreement template and EOI form.

Appendix 1 – XO Supervision Agreement Template

X-ray Operator Supervision Agreement

XO Name			
HHS		Facility	
RA Name		HHS	
Effective Date		Review Date (max 12 months)	
Alternative designated radiographer (when usual RA is not available)			

Learning Objectives

Learning objectives should be identified through discussion and image review between the radiographic advisor (RA) and X-ray operator (XO) annually. These objectives should be aimed at improving image quality and patient outcomes.

Learning objective 1	
Learning objective 2	
Learning objective 3	
Learning objective 4	

Add another sheet if further objectives identified.

Radiographic examination supervision

Tick areas of anatomy (within current licence) where immediate contact prior to the radiographic examination with the RA is required:

NB: In accordance with the Extended rural and remote area licence, contact immediately prior to the radiographic examination is required for all radiographic examinations conducted under the Extended rural and remote area licence.

Chest	<input type="checkbox"/>	Forearm	<input type="checkbox"/>	Femur	<input type="checkbox"/>
Cervical spine*	<input type="checkbox"/>	Wrist	<input type="checkbox"/>	Knee	<input type="checkbox"/>
Shoulder*	<input type="checkbox"/>	Hand/finger	<input type="checkbox"/>	Tibia/fibula	<input type="checkbox"/>
Humerus	<input type="checkbox"/>	Abdomen*	<input type="checkbox"/>	Ankle	<input type="checkbox"/>
Elbow	<input type="checkbox"/>	Pelvis/hip*	<input type="checkbox"/>	Foot/Toes	<input type="checkbox"/>
Paediatrics	<input type="checkbox"/>	Mobile/ portable examinations	<input type="checkbox"/>		

* Only permitted under the Extended rural and remote area licence.

Schedule of communication

List the planned dates of contact to facilitate supervision and support between XO and RA. This must be at least quarterly and should reference the learning objectives.

Date	Type/ purpose	Method
	e.g. Annual initial discussion of learning objectives	i.e. face to face; telephone; video conference

Image Assessment

Frequency – (How often will image assessment be conducted?)

Method of Feedback – (i.e., face to face; telephone; email)

Participants' Agreement

I agree to participate in this supervision arrangement in accordance with the above supervision agreement. I agree that the time utilised as part of this agreement will be additionally documented and signed as evidence of supervision and training in x-ray operator duties.

X-ray Operator

Name			
Signature		Date	

Radiographic Advisor

Name			
Signature		Date	

Alternative Designated Radiographer

Name			
Signature		Date	

Endorsement: Health Service Facility Manager

Name			
Position			
Signature		Date	

Appendix 2 – EXAMPLE EOI

X-ray Operator Training Expression of Interest (EOI) Memorandum

MEMORANDUM

To: Queensland Health Employees – Your Hospital

Copies to: Click, enter CC's Name/s, Title/s

From: Facility Manager **Contact No:** Sender's Tel Number
Radiographic Advisor

File Ref: Ref Number

Subject: X-ray operator training opportunity

Applications are invited from permanent and long-term temporary and casual staff interested in becoming an X-ray operator in their Queensland Health facility.

X-ray operators (XO) are roles that do not have a formal qualification in radiography or diagnostic imaging, but receive training and are regulated and approved by Queensland Health to undertake basic radiographic examinations in rural and remote, and other approved locations to facilitate limited diagnostic imaging where a diagnostic radiography service would not otherwise be available.

Requirements for becoming an x-ray operator include:

- Interest in providing limited x-ray services directly to patients on an 'as needed' basis.
- Ability to be released from primary Queensland Health duties.
- Ability to participate in on call duties as and when required.
 - Expected frequency of on call duties: _____.
- An intention to remain at your current facility for a minimum of twelve months after undertaking the training.
- Demonstrated willingness and ability to learn new skills and undertake the training program.
- Willingness to update skills through attendance at workshops and seminars along with additional reading, etc.
- Maintenance of a current use licence.

Applications should include a maximum two page document addressing the above requirements.

If you would like to extend your involvement in patient care and contribute to the x-ray service provision, please submit your expression of interest in writing by (insert date).

In addition to demonstration of suitability against the requirements above through the written application and interview, the number of successful applications will be based on HHS assessment of:

- the need for community access to local medical imaging services;
- workload demand levels for an XO;
- availability of, and access to a RA; and
- resource availability to address ongoing XO staff training requirements.

Conditions

To be an X-ray Operator, the applicants must:

- Undergo annual competency assessment (a requirement for licence renewal); and
- Ensure at all times that their actions are not in breach of the *Radiation Safety Act 1999*, *Radiation Safety Regulation 2021*, their Use Licence, and the facility's Radiation Safety and Protection Plan.

In addition to comprehensive training and ongoing support, successful applicants will be given access to telecommunication resources such as email, phone and internet to undertake training and to maintain their skills and knowledge to provide limited radiographic examinations.

For further information please contact (include details below).

Facility Manager

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Radiographic Advisor

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Appendix 2: Example X-ray Operator Documentation of Support for Training

MEMORANDUM

To: Radiation Health Unit

Copies to: Radiographic Advisor
Click, enter CC's Name/s, Title/s **Contact No:** Sender's Tel Number

From: Facility Manager
Facility Possession License Holder **File Ref:** Ref Number

Subject: Support to undertake X-ray operator training

In accordance with the Queensland Health X-Ray Operator Service Guideline (QH-GDL-363:2013), this document confirms support for the following [Insert HHS] employees to undertake endorsed training for XOs:

- [Insert employee name]
- [Insert employee name]

In making this recommendation, the following have been confirmed:

- There is a clinical and service need that cannot be met without an XO service.
- There is sufficient levels of suitable staff and resources to enable the XO service, including the availability of, and access to appropriate levels of radiographic advisor (RA) support, and available and accessible resources to support the ongoing training and competency of XO.
- There is sufficient demand for XO services to maintain XO competency.
- The above candidate(s) is/are aware, understand and are prepared for the requirements of the XO role, including initial and ongoing training and other requirements such as on-call requirements.
- The above candidates are willing and have the ability/ are suitable to undertake the XO role in their current location and within their primary role in the health service.
- The candidates' line manager, proposed RA, the HHS Director of Medical Imaging and the Radiation Safety Officer have been consulted and are supportive of the candidate participating in XO services.

Facility Manager

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Facility Possession Licence Holder

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