Radiation Safety and Protection Plan

Solaria

Name (possession licensee)

Signature Date
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1. **Introduction**

This plan provides details of how the radiation hazard of solaria is managed and controlled at this practice to ensure satisfactory compliance with the requirements of the *Radiation Safety Act 1999*, *Radiation Safety Regulation 2010* and sections 1.1 to 3.5 and 3.6.2 of AS/NZS 2635:2008, Solaria for cosmetic purposes.

2. **Scope**

For the purposes of this radiation safety and protection plan, the possession licensee is identified on the front page. All persons who are employed at this practice will comply with this plan. These persons will also comply with the *Radiation Safety Act 1999* and the *Radiation Safety Regulation 2010*.

3. **Hazard assessment**

Lie down and/or stand up solariums (or a solarium) are used at this practice.

It is important to note that Queenslanders have the highest rates of skin cancer in Australia, and overall, Australians have among the highest rates in the world. There are a number of deaths from skin cancer every year in Australia. Ultra violet (UV) radiation is recognised as the main cause of both non melanoma skin cancer and melanoma (the most dangerous form of skin cancer).

Risk factors for developing skin cancer include excess exposure to UV radiation during childhood and adolescence, sunburn, a family history of skin cancer, as well as skin that is fair and/or with a number of freckles or moles. Solarium use (especially during childhood and adolescence) has been linked with skin cancer\(^1\). A UV index of 36 (in a solarium - 0.9 W/m\(^2\)) can be three times the total erythemal irradiance of mid summer solar UV at noon\(^2\).

There is also the risk of eye damage to clients who use a solarium. UV radiation may cause, or contribute to, photokeratitis, (corneal sunburn), cataracts, pterygia (growth of tissue on the whites of the eye that can block vision) macular degeneration, and cancers around the eye\(^3\). Eye protection that complies with AS/NZS 2635: 2008, *Solaria for cosmetic purposes* must be used in a solarium.

Accordingly, it is very important that people and governments take action to reduce skin cancer rates (for example by making sure that children and adolescents who are under the age of 18 years of age, or people with skin photo type 1, do not use a solarium).

In addition to the radiation risks outlined about, further risks may include:

i. fungal infections of the skin from using lie down solaria (prevented by cleaning of the solarium by an operator after each use with a disinfectant recommended by the manufacturer)

ii. heat exhaustion (especially in summer, if the temperature of the room that the solarium is in is inadequately ventilated or not air conditioned)

iii. burning of the skin (prevented by clients using solaria only at recommended intervals, avoiding outdoor tanning prior to, or after solaria use, and by the possession licensee following the regular maintenance and servicing schedule in this plan)

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iv. skin reactions such as when photo sensitizing medications are used, or with some skin and other health conditions (may be avoided by discussion with the client before the client consent form is signed and the client seeking medical advice, when necessary, before using a solarium).

4. Functions of the radiation safety officer

This practice has appointed a radiation safety officer (RSO) who holds a radiation safety officer certificate. This RSO has been appointed to:

- monitor radiation safety
- report to the possession licensee about radiation safety
- maintain awareness of the radiation safety legislation and keep abreast of the trends in radiation safety

The name of the RSO and contact details are displayed close to each solarium used in this practice.

(a) On-going RSO duties

On an on-going basis, the RSO:

- provides, or arranges for the provision of, training about radiation hazards and safe working practices
- checks the solarium and premises to assess compliance with this plan as well as relevant sections of AS/NZS 2635:2008 (1.5 to 3.6.2), the Radiation Safety Act 1999 and the Radiation Safety Regulation 2010
- identifies ways of ensuring that the radiation risks of using a solarium are minimized as much as is practicable
- advises staff on safe working practices
- investigates any radiation safety incidents.

Additionally, the RSO reports to the possession licensee if some person:

- is involved in any radiation incident
- contravenes the requirements of this plan, the Radiation Safety Act 1999 or the Radiation Safety Regulation 2010
- requires any action to be taken to achieve compliance with this plan, the Radiation Safety Act 1999 and the Radiation Safety Regulation 2010.

(b) Annual RSO duties

Each year, the RSO checks that:

- users and all other employees understand and are complying with this plan
- the details of the solarium (or solaria) are accurately recorded and match the current inventory attached to the possession licence
• the possession licence is current
• all staff who operate solaria hold use licences

• all repairs and maintenance, as required in section 7 of this plan, are conducted within the stated timeframes and recorded, and that any relevant problems have been appropriately rectified

• all operational checks, as required in section 8 of this plan, are conducted within the stated timeframes and recorded, and that any relevant problems have been appropriately rectified

• personal protective equipment, as required by section 9 of this plan, is readily available

• all records, as required by sections 11 and 12 of this plan are maintained and kept in a readily accessible location

These results of these checks are recorded in an appropriate log book, and any identified problems are rectified as soon as possible.

Additionally, if the RSO is not the same person as the possession licensee, the RSO provides an annual written report to the possession licensee. This report will include, but not be limited to, the following:

• the results of the annual checks stipulated in section 4(b)

• ways to minimize the radiation hazard from the solaria

• any contravention of this plan, or the Act and Regulation

• the results of a review of this plan to ensure its continued effectiveness against actual practice

• recommendations about any necessary changes to the plan.

5. Training

The RSO provides, or arranges for the provision of, appropriate training to all staff who work at this practice. This is two fold, and consists of general training for all employees as well as more detailed training for those staff that operate solaria at this business.

Employees must undertake and satisfactorily complete the following training when they start employment, and undergo annual refresher training thereafter. Participation at this training is recorded in a training log book, which is kept at this practice.

(a) General training for all staff

The following topics are covered:

• Radiation hazards of solaria
• Emergency procedures in case of a safety incident with the solaria
• Proper procedures for sanitizing protective eyewear and tanning equipment
• Age and skin photo type 1 restrictions on the use of solaria
• Use licence requirement for the operation of solaria
• Personal protective equipment (staff and clients)
• Warning notices and health claims.

(b) Additional training for staff that operate solaria

The following topics are covered:
• use of exposure schedules for the solarium/solaria used in this business
• safe use and operation of equipment
• proper determination of the skin photo types
• screening for potentially exposure limiting conditions
• emergency procedures in case of adverse reactions
• types and wavelength of UV light and health risks
• malfunctioning of the solarium/solaria
• determination of exposure times and supervision
• use of consent forms
• operational checks.

6. Safe work practices

The following general safe work practices are adhered to at this practice:
• All staff (including those who are casual and part time) who operate a solarium hold a use licence.
• All use licensees comply with the conditions of the licence issued under the Radiation Safety Act 1999.
• Only use licensees who are authorised to use the equipment by the possession licensee are permitted to access and operate a solarium.
• All use licensees are at least 18 years of age or older.
• The operator of the solaria controls the exposure and exposure time
• All solaria are equipped so that there is an emergency switch that the client can easily use to terminate exposure
• The solarium operator can from a central control area terminate any session at any time if required.
• A timing device is operable in order to automatically terminate the session in a tanning unit at the expiry period based on the exposure times specified in section 10 of this radiation safety and protection plan
• Use licensees must comply with all aspects of this plan.
• A person assessed as having skin photo type 1, or any person under 18 years of age, will not be allowed access to the solarium.

Reporting to the RSO

• Staff who are involved in the operation of solaria are required to report any contravention of this radiation safety and protection plan to the RSO.
• Any malfunction of the solarium/solaria must be reported to the RSO (for any malfunction of a solarium that causes burning of a client, the solarium is not used until the RSO is notified and a qualified service person has been able to make an assessment of the problem and necessary repairs are undertaken).

Cleaning of solarium and disinfection of equipment

• All sections of the solarium that may have come into contact with the client (including pillows for a lie down solarium) are cleaned/disinfected after each client exposure by a staff member with an acrylic cleaning product that is recommended by the manufacturer and as per the solarium manufacturer’s instructions.

• Cracked or damaged pillows are discarded.

• Personal protective eyewear is also cleaned/disinfected after each use by a properly mixed product that does not leave a residue and destroy the plastic of the goggles.

Temperatures of solarium and a room containing a solarium

• The room in which the solarium is kept is a comfortable temperature (especially during summer). The operating temperature of the solarium is maintained within an appropriate range as recommended by the manufacturer. Appropriate air conditioning and/or ventilation is provided for rooms with solaria.

Control of access to the solarium

• The room/s containing the solarium/solaria is only able to be accessed by trained staff who hold use licenses and clients who have been screened by these trained staff.

• Staff provide all new clients with appropriate instructions (emergency shut off switch, positioning, adjusting the canopy).

Prohibited statements about solarium use

No representations are made at this business that solarium use is safe, beneficial or has any health improving qualities.

7.0 Repair and maintenance

The following repairs and maintenance are conducted at this practice, and a record of this work kept in the equipment maintenance/log record book (this includes the UV output on each inspection as well as details of all replacement lamps and specifications).

Any identified problems are required to be reported to the radiation safety officer and the possession licensee, and rectified.

Technical service

In this practice, each solarium is serviced at least every year by a trained service technician, or in accordance with the schedule specified by the manufacturer. Checks are undertaken to ensure that the erythemal effective UV irradiance of the solarium/solaria used in this business does not exceed a UV index of 36 (0.9 W/m²), and that the UV lamps do not emit any UVC. The bulbs used in lamps are replaced at the end of the manufacturer’s recommended life. All replacement lamps shall have UVB emissions (280 to 320 nm) falling within the range of 0.7% to 3% of the total UVR output.
In-house maintenance

At least weekly, the following cleaning and disinfection is conducted by an appropriately trained staff member, and a record is made that this work has been performed:

- all appropriate surfaces of the solaria are cleaned with an acrylic cleaning product that is recommended by the manufacturer and conducted as per the solarium manufacturer’s instructions
- all other surfaces (e.g., inlets, fan mounts) are vacuumed
- pillows are checked for lie down solaria, and cracked or damaged pillows are discarded
- all personal protective eyewear are cleaned/disinfected.

8.0 Operational checks

The following operational checks (i.e., audit checks carried out internally) are conducted at weekly intervals by a person trained and authorized to carry out this work by the possession licensee. Any identified problems are reported to the RSO and the possession licensee.

The results of all operational checks are recorded in an operational check log book.

This person checks, as a minimum, that:

- warning signs are located at the entry to the premises and next to each solaria and are in an intact, clean and legible state
- consent forms are available and are completed
- an exposure chart is available for each solaria
- an instruction book for each solaria is readily available
- personal protective eyewear is available and are in a clean/intact condition
- all acrylic shields are in sound condition (not cracked or degraded)
- pillows are checked to ensure that they are not cracked or damaged
- there is no unusual noise/smell or any electrical problems or burning from the solarium.

9.0 Personal protective equipment

Personal protective eyewear which complies with AS/NZS 2635:2008 Solaria for cosmetic purposes is provided at this practice.

Specifically, the personal protective eyewear complies with the following requirements:

(a) the spectral transmittance of the eyewear shall not exceed 0.1 percent for the wavelength range 180 nm to 320 nm

(b) The total transmittance of the eyewear shall not exceed 1 percent for the wavelength range 320 nm to 400 nm

(c) For wavelengths longer than 400 nm, the spectral transmittance of the eyewear shall be sufficient to enable persons wearing the eyewear to visually locate the mechanism specified in clause 2.2.2 of
AS/NZS 2635:2008 for terminating the session. The eyewear shall be of the type that forms a light tight seal against the skin surrounding the eyes such that that the transmission of light to the eyes from all directions is filtered by the eyewear.

(d) The eyewear shall have an effective method to provide a light tight seal against the skin surrounding the eyes such that the transmission of light to the eyes from all directions is filtered by the eyewear.

(e) The eyewear shall have an effective method to provide a secure attachment over the eyes for stand-up and lay down tanning units.

The use licensee must ensure that personal protective eyewear is worn by every client during any period for which the tanning unit is operative. Additionally, personal protective eyewear is provided and must be worn by any solarium operator who needs to access a solarium that is switched on.

Broad screen sunscreen (factor 30+) containing a physical blocking agent such as zinc oxide or titanium dioxide is also available for use.

10. Skin photo types, exposure schedules and warning notices

Skin photo types

Proper determination of the skin photo type for each client is carried out at this practice by the use licensee. Persons with a skin photo type 1 are not allowed to access a solarium (this is a legal requirement under the Radiation Safety Act 1999).

The skin typing system found on the Australian Radiation Protection and Nuclear Safety Agency web site (the details of which appear below) is used at this practice.


Exposure times

An exposure schedule (or chart), which details the maximum duration of irradiation for each skin photo type for each particular solarium at this practice is provided, and must be complied with.

The exposure chart is located near the control panel of the solarium. The initial exposure time for a client does not exceed 0.5 MED. In addition to this, no exposure in a tanning unit shall exceed 0.9 MED.

Repeated exposure must not exceed 3 MED per week irrespective of the exposure schedule. Repeated exposure must not occur within 48 hours after the previous exposure including initial exposure.

In order to comply with the requirements of section 3.1 of AS/NZS 2635:2008, the W/m² of the solaria/solarium used in this business is/are known (by use of a spectral output reading if necessary).

Warning notices

In this practice, warning notices, with minimum dimensions of 210mm x 300mm are displayed within immediate view of every client:

(a) upon entry of the establishment; and
(b) adjacent to each solarium
The warning notices contain the following information:

- Tanning units emit ultraviolet radiation
- Exposure to ultraviolet radiation contributes to skin cancer and skin ageing
- People with fair skin who burn easily will not be permitted to use a tanning unit
- No person under the age of 18 years is permitted to use a tanning unit
- Protective eyewear must be worn at all times while undergoing tanning unit exposure
- Repeated exposure further increases risk
- Further intentional exposure to sunlight or a tanning unit must be avoided for the next 48 hours

11.0 Consent forms and client records

Consent form

In this practice, before commencing a course of tanning of one or more exposure sessions in a solarium, a consent form (approved by the chief executive, Queensland Health) is handed to the client and:

i. The client signs and dates the form
ii. The client returns the signed and dated form prior to the commencement of the first exposure session in the establishment
iii. The original signed and dated form is kept for at least two years
iv. A copy of the signed and dated form is provided to the client.

A copy of the approved consent form is available from Radiation Health, or may be downloaded from Radiation Health’s website: www.health.qld.gov.au/radiationhealth.

Persons who are under 18 are not permitted to access the solarium at this practice.

Client records

The following details are recorded before the irradiation of the client by the use licensee:

i. The name of the client being irradiated
ii. The date on which the client is irradiated
iii. The assessment of the skin photo type of the client
iv. Details about recent solarium use, sun exposure or use of a photo sensitizer by the client (a photo sensitizer means a chemical substance which increases the sensitivity of a persons skin to radiation in the electromagnetic spectrum between 280 nm and 400 nm)
v. The written consent of the client to the irradiation.

Additionally, the following details are recorded after the irradiation of the client:

i. the name of the use licensee who used the solarium to irradiate the client
ii. the duration of the irradiation of the client.

12. Practice records

The following records are kept in a readily accessible location:

- Current possession licence issued under the Radiation Safety Act 1999
• Copies of use licences issued to each operator under the *Radiation Safety Act 1999*
• Current radiation safety and protection plan approved by the chief executive of Queensland Health
• Annual reports by the RSO
• Approvals to acquire or relocate the solaria
• Solaria disposal records
• Inventory and location of solaria
• Training log book
• Equipment maintenance log book
• Operational check log book
• Incident reports
• Consent forms
• Record of each client’s exposure.

13. **General regulatory requirements**

The possession licensee ensures the necessary approvals are granted prior to the following considerations.

**Acquisition**

The approval of the Chief Executive of Queensland Health will be sought and obtained prior to acquiring (purchasing, borrowing, exchanging etc) a solarium.

**Supply**

*Within Queensland*

A solarium will not be supplied (sold, lent, exchanged etc) to another person in Queensland, unless that person has obtained an ‘Approval to Acquire’ that specific unit.

*Outside Queensland (relocation)*

A solarium will not be relocated (moved, sold, lent, exchanged etc) outside of Queensland, unless an ‘Approval to Relocate’ has been obtained for that specific unit. The Chief Executive of Queensland Health must be notified within 7 days after its relocation.

**Disposal**

To dispose of a solarium, it will be rendered permanently incapable of producing radiation, and any radiation warning signs will be removed. Following this, the possession licensee will give the chief executive of Queensland Health written notice of the disposal within 7 days of the disposal. No solarium will be abandoned.

**Register of equipment**

An inventory of solaria in possession of the possession licensee, including its current location, will be maintained by the possession licensee. The Radiation Health Unit will be notified about any change of location of a solarium.

14. **Incident Response**
After any radiation incident that adversely affects, or is likely to adversely affect the health or safety of any person because of the emission of radiation, a written incident report will be produced by the RSO and submitted through the possession licensee to the Radiation Health Unit within 7 days of the occurrence of the incident. This report will include:

- incident description including details of the solarium involved and its location
- estimates of UV radiation exposure to individuals (if applicable)
- action taken
- proposals to prevent a recurrence

If the incident includes any of the following events, the possession licensee will immediately notify the chief executive of Queensland Health, either orally or in writing. If the notification was provided orally, a written notification will be submitted within 7 days.

1. A client or staff member who works in the business with the solarium or solaria suffers burning, eye damage or other harm which requires the provision of medical advice.

2. The solarium malfunctions so that there is, or could be, harm to a client of the business or a staff member who works in the business.

3. The solarium is or appears to have been, lost or stolen.

If either of the first two events occurs, the solarium will be switched off as quickly as possible and the possession licensee will take precautions to prevent use of it by posting a sign to state that the solarium must not be used, and locking the room which contains the solarium, or taking other appropriate action.

The RSO will be advised of the incident, and make a determination of the UV dose to the person (or persons) involved. The solarium will not be used until it has been tested for compliance with section 2.1.2, lamp emission characteristics, of AS/NZS 2635:2008. The possession licensee will authorize its use only when advised by Queensland Health that it may be used.