

SKAC26 (SQA Unit Code - FA4M 04)

Operate plant to provide and maintain an ice surface



Overview

This unit is about operating ice rink plant. The unit covers maintaining the plant and ancillary equipment and ensuring that the ice quality and temperature are safe and right for the types of activities which are taking place. The unit does not cover the types of specialist maintenance which goes beyond the routine and is carried out by trained and qualified engineers.

The unit is divided into three parts. The first part describes the three things you have to do. These are:

1. maintain ice plant
2. maintain ancillary ice rink equipment in working order
3. ensure the quality of the ice surface

The second part describes the knowledge and understanding you must have.

The third part gives some examples and explanations of some words we use in the unit.

The unit is intended mainly for Sport and Leisure Centre staff who have some responsibility for plant operation. You should have had training and experience relevant to plant operation. The unit is not for engineers who carry out more than routine maintenance.

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Performance criteria

You must be able to:

Maintain ice plant

- P1 make sure the systems are correctly set for daily programmes
- P2 monitor the systems and gauges for faults and alarms
- P3 check readings against previous data for trends
- P4 take the correct action to deal with any faults , alarms and trends promptly and according to manufacturers' guidelines
- P5 check to ensure that corrective action has resolved the issue
- P6 complete all the necessary records according to schedule accurately and legibly, and make them available to the responsible colleague when required
- P7 follow all relevant legislation and other safety requirements at all times
- P8 follow the emergency action plan in the event of any emergencies

You must be able to:

Maintain ancillary ice rink equipment in working order

- P9 carry out regular tests, checks and routine maintenance and ancillary equipment according to manufacturers' instructions
- P10 identify any items of ancillary equipment that need repair and report these to the responsible colleague
- P11 take the appropriate action when the normal operating procedures are not being met
- P12 ensure ancillary equipment is stored correctly according legal requirements
- P13 monitor the alarms and respond to them following normal operating procedures and the emergency action plan
- P14 complete all the necessary records and make them available to the responsible colleague when required
- P15 follow all relevant legislation and other safety requirements at all times

You must be able to:

Ensure the quality of the ice surface

- P16 carry out the daily tests, monitoring and sensory inspections according to prescribed procedures
- P17 make sure that the ice surface is appropriate for the activities taking place
- P18 pay careful attention to the ice condition and monitor and, where appropriate, take corrective action
- P19 pay careful and ongoing attention to the alarms which monitor the quality of the ice surface
- P20 measure the ice depth at prescribed points
- P21 take corrective action when normal operating procedures are not being met and in response to bacteriological test results
- P22 carry out routine maintenance procedures according to the

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- maintenance schedule
- P23 complete all the necessary records accurately and legibly, and make them available to the responsible colleague when required
- P24 follow all relevant legislation and other safety requirements at all times

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Knowledge and understanding

You need to know and understand:

For the whole unit

- K1 the basic principles of creating and maintaining an ice surface
- K2 the manufacturer's instructions and the normal operating procedures for the plant
- K3 the chemicals commonly used in ice plant, their effects and the hazards associated with them
- K4 the emergency action plan for the plant
- K5 the records concerning the operation of the plant which need to be kept up
- K6 how to complete the necessary records
- K7 who is the responsible colleague to make records available to and report equipment needing repair
- K8 the basic requirements of the Health and Safety at Work Act and COSHH regulations as they apply to the operation of plant

You need to know and understand:

Maintain ice plant

- K9 the importance of following instructions for the operation of the plant
- K10 how to set the systems correctly for a range of requirements
- K11 how to monitor the plant operation
- K12 normal rates of energy use and flow, levels of pressure and temperature
- K13 how to take corrective action when the normal operating procedures are not met
- K14 the faults and alarms which may occur and how to respond correctly to them

You need to know and understand:

Maintain ancillary ice rink equipment in working order

- K15 the importance of maintaining ancillary equipment in good working order
- K16 the requirements of the maintenance schedule and log sheets
- K17 the common types of ancillary equipment used in ice rinks
- K18 how to carry out the routine tests and maintenance required
- K19 how to identify items needing repair and what to do when they are found
- K20 how to test alarms

You need to know and understand:

Maintain the quality of the ice surface

- K21 the importance of maintaining the quality and temperature of the ice
- K22 the basic principles involved in maintaining the quality of an ice surface
- K23 the tests and checks which need to be carried out in order to check the quality and temperature of the ice and how to do so
- K24 how to take the samples required
- K25 the types of ice surface which are appropriate to a range of activities
- K26 the types of corrective action to take when ice quality and temperature

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does not meet standards

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Additional Information

Scope/range related to performance criteria

1. **systems**
 - 1.1. creating the conditions for the formation of an ice surface
 - 1.2. associated measuring and control equipment

2. **gauges**
 - 2.1. rates of flow
 - 2.2. rates of pressure
 - 2.3. rates of temperature
 - 2.4. rates of energy use
 - 2.5. density of the coolant medium

3. **records**
 - 3.1. which compressor is operating
 - 3.2. coolant medium pressure
 - 3.3. coolant medium temperature
 - 3.4. coolant medium density
 - 3.5. energy use
 - 3.6. air temperature
 - 3.7. return temperature
 - 3.8. outside air temperature
 - 3.9. suggestions for improving normal operating procedures

4. **routine maintenance** to ensure
 - 4.1. efficiency
 - 4.2. effectiveness
 - 4.3. economy

5. **ancillary equipment**
 - 5.1. resurfacer
 - 5.2. edger
 - 5.3. zipper/cherry picker
 - 5.4. pallet truck
 - 5.5. gas bottle carrier unit
 - 5.6. lighting rigs
 - 5.7. platforms
 - 5.8. barrier/temporary barrier
 - 5.9. glass/netting
 - 5.10. seating
 - 5.11. flooring/temporary flooring
 - 5.12. skate hire boots
 - 5.13. regrind machine

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- 5.14. ice pit
 - 5.15. resurfacers garage
 - 5.16. lockers
 - 5.17. other ancillary equipment ice surface
6. **tests and monitoring**
- 6.1. ice surface temperatures
 - 6.2. inside air temperature
 - 6.3. outside air temperature
 - 6.4. relative humidity
 - 6.5. incoming and outgoing coolant temperature
 - 6.6. condition versus usage/activity
7. **sensory inspections**
- 7.1. wet patches/lines/areas/exits
 - 7.2. objects/debris
 - 7.3. cracks/holes
 - 7.4. discolouration/texture of the ice surface
 - 7.5. irregularities
8. **maintenance procedures**
- 8.1. wet resurface
 - 8.2. dry resurface
 - 8.3. cross resurface
 - 8.4. double ice resurfacers
 - 8.5. manual resurface
 - 8.6. edge
 - 8.7. flooding
 - 8.8. temperature changes
 - 8.9. ice pebbling
 - 8.10. ice scraping

Glossary

Ancillary equipment

For example, Zamboni machine

Corrective action

What the candidate should do when there are faults, alarms or variations in the operation of the plant

Emergency action plan

The written plan which has been developed by the facility to deal with any emergencies which may occur

Guidelines

Those developed by the manufacturer and possibly adapted by the facility

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Health and safety legislation

Mainly the Health and Safety at Work Act but also other pieces of legislation or regulations which may be relevant to the plant, for example the Control of Substances Hazardous to Health regulations

Maintenance schedule

The manufacturer's guidelines (possible adapted by the facility) for routine maintenance

Normal operating procedures

The procedures which have been developed by the facility to cover normal (non-emergency) working

Other ancillary equipment

For example, equipment for curling or ice hockey

Plant effectiveness

The plant's ability to maintain ice temperature and quality as required

Plant efficiency

The plant's ability to maintain ice temperature and quality whilst using the minimum amount of energy under the circumstances

Plant economy

Maintaining the overall plant running costs to an acceptable level

Responsible colleague

The person with overall responsibility for the plant and the quality of the ice surface - usually the line manager or supervisor

Links to other NOS

This unit links to SKAOSC24 and SKAOSC25.

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Developed by SkillsActive

Version number 1

Date approved June 2009

Indicative review date June 2014

Validity Current

Status Original

Originating organisation SkillsActive

Original URN SA44NC26

Relevant occupations Associate Professionals and Technical Occupations; Leisure, travel and tourism; Sport, leisure and recreation; Sports and Fitness Occupations

Suite Operational Services

Key words operate, plant, provide, maintain, ice, surface