

Perceived vs Actual Risk of a Dehydrating Oven – Findings from an RCA

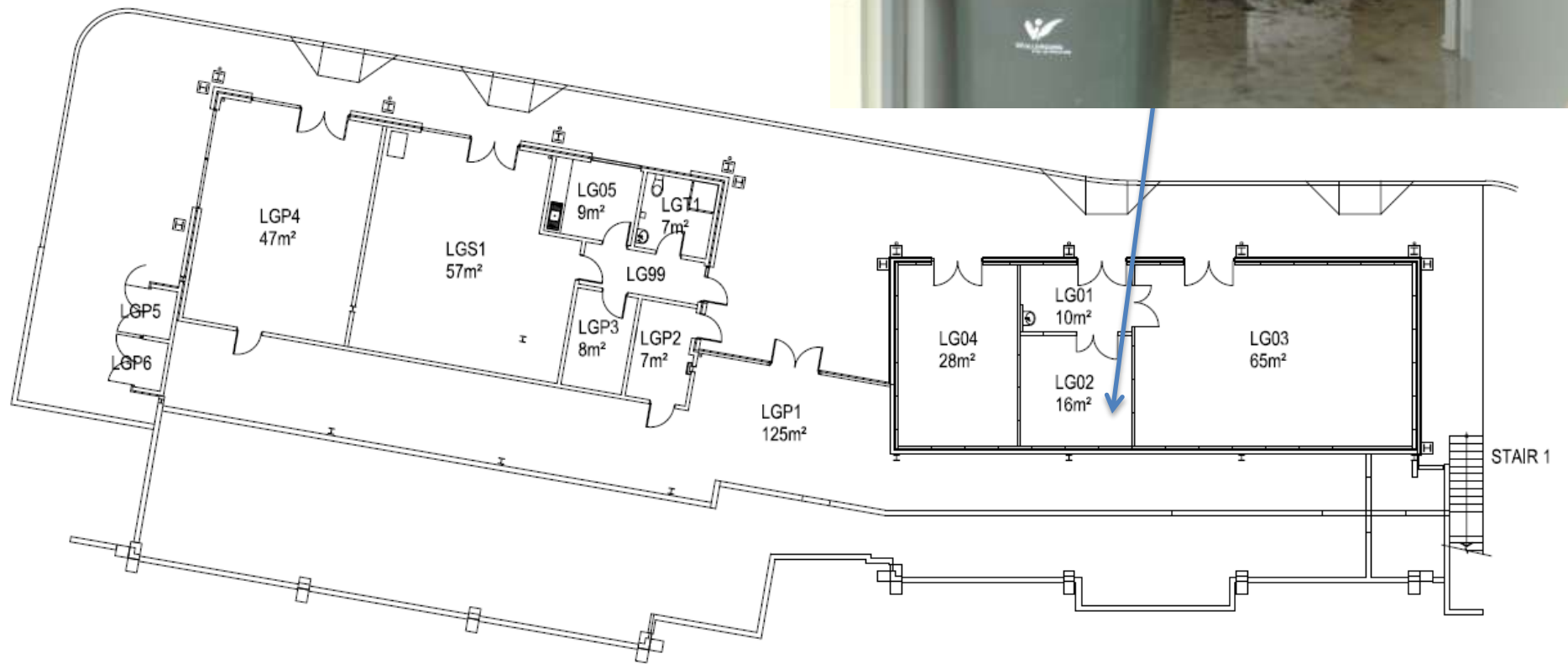
Michael Negendahl

Daniel Leo

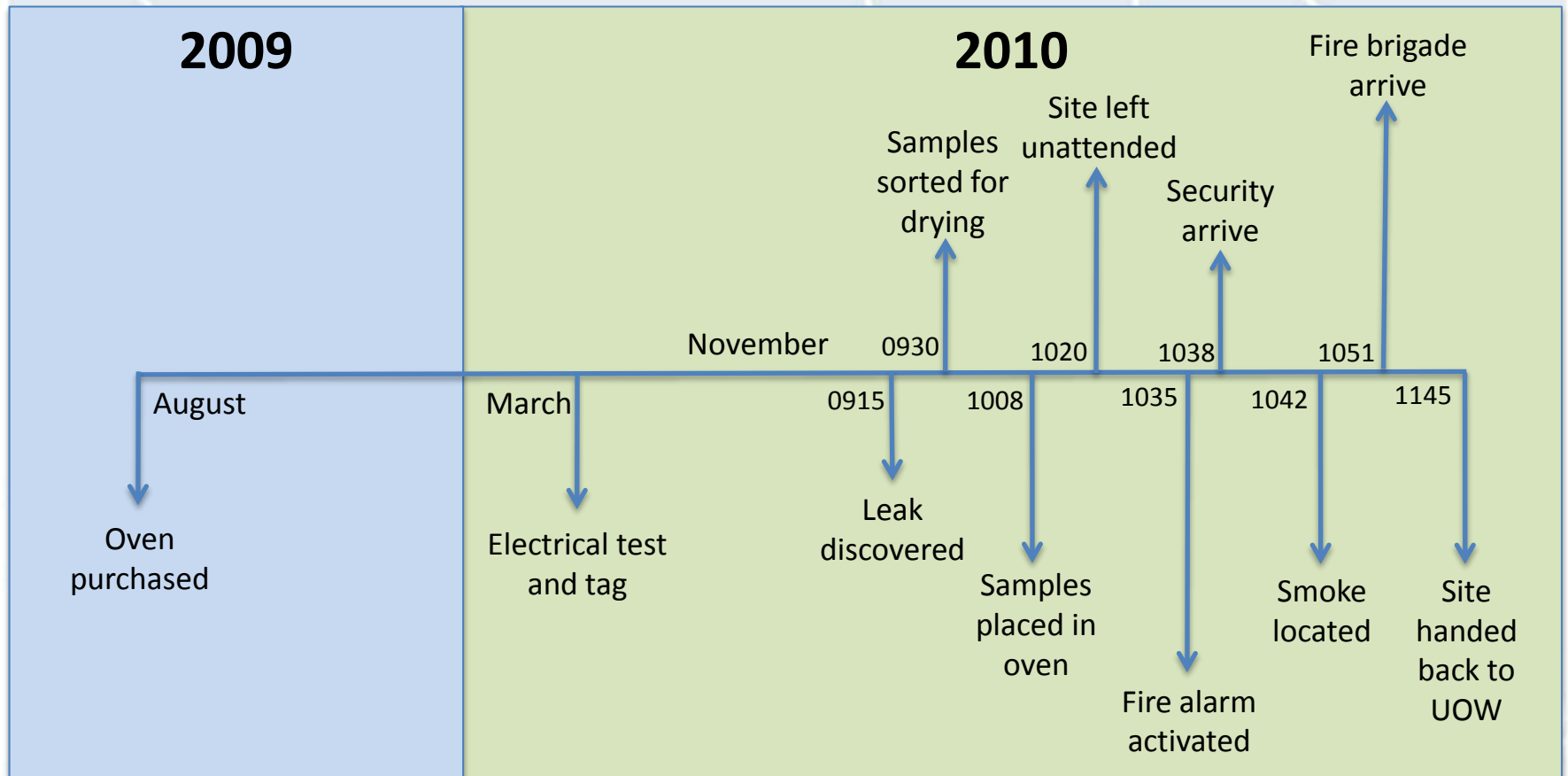
Background

- Labec ODH50 Superior Dehydrating Oven
- 507 L capacity
- Used to ascertain the 'dry weight' of samples





Timeline









Interviews

Photos

Investigation
Report and
Recommendations

Investigation
Investigation
Guidelines
(Level 2)

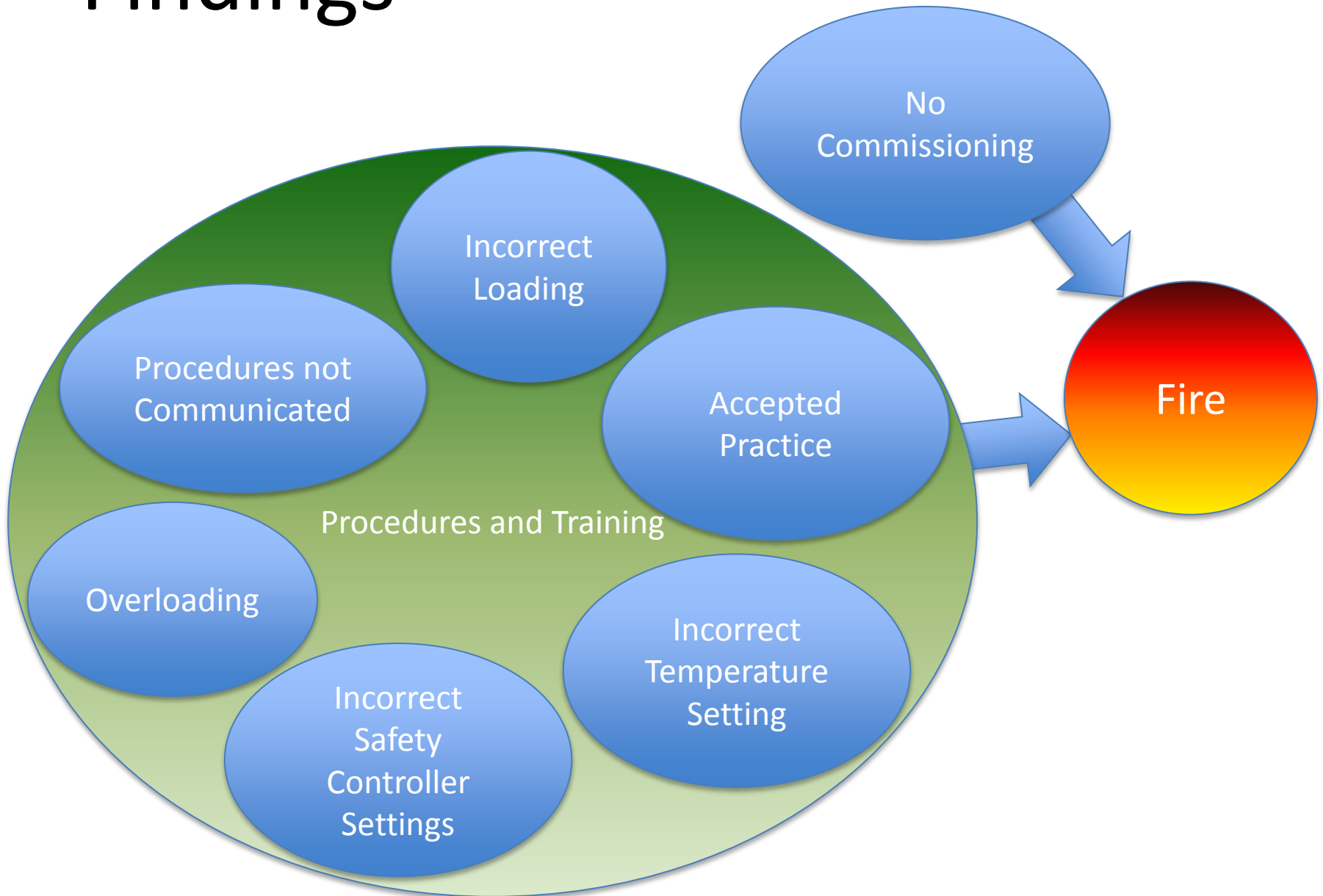
Charting

Manuals

General
Information

Reports

Findings



Introduction

Congratulations on the choice of an Australian made quality product. Labec products are manufactured, tested and calibrated to meet published standard specifications under our strict quality assurance guidelines.

This Instruction Manual is for the guidance of operators of Labec Ovens and should be read before the oven is connected to the electricity supply.

It is hoped that this manual will supply all the information that the customer should require for satisfactory operation of the oven. If, however, there are any questions that remain unanswered then the customer should contact our service department.

Unpacking

Remove all packing and protective wrapping from both interior and exterior of the unit. Check the unit for the possible transit damage. Ensure all ordered accessories are present. If any physical damage or shortage is evident, do not discard the packaging material until the unit is inspected by the distributor, agent or manufacturer.

NOTE: All claims for shortage or damage must be made within fourteen days (14) from delivery.

Subject to our standard published conditions of sale, we have reasonable grounds to believe that we have ensured, so far as is reasonably practical, that the products listed in our catalogue and brochures have been designed and constructed so as to be safe and without risk to health when properly installed and used in their environment by appropriate and trained personnel, and where applicable, in accordance with our published instructions.

Installation

Electrical

This equipment must be tagged and tested according to AS/NZS3760:2003 prior to use and thereafter on a regular basis dependent upon the environment.

It is preferable to locate the oven close to a power point and recommended that double adaptors are not used. Check the total wattage if connecting to multipoint outlets. Check the rating plate for power requirements. Installation is to be carried out by a qualified electrician in accordance with the power requirements of the product specifications.

Location

Select a location free from draught and away from direct sunlight or other heat source.

Temperature Control

Labec ovens are fitted with solid state proportional action digital temperature controllers which operate from a sensitive thermocouple or Rtd inserted in the working space of the chamber. The controller has been calibrated at 100°C (or 150°C for 300°C model ovens) and before any adjustments to temperature settings are made allow the oven temperature to stabilise for at least one hour. If a thermometer port is located in the top of the cabinet and it is important to ensure that the sensor for the thermometer is located well into the chamber when checking the chamber temperature. A digital controller is fitted please read the enclosed operating instructions when setting the controller temperature.

Safety Thermostat

The oven is fitted with an over heat safety thermostat. It must be set to slightly above the desired setpoint temperature and will prevent overheating. It will maintain the temp you set on the thermostat. Set the thermostat by turning to full and allowing the chamber to stabilise at the desired set temperature. Then slowly turn the dial anticlockwise until the power to the heaters turns off (thermostat will click on and off as you pass the chamber temp) and note the temperature on the thermostat at this point. Then turn the dial clockwise again to switch the power back on. Turn the dial anticlockwise again until it is slightly above the temperature at which point you noted the chamber switched off. This is now set around 5°C above the desired setpoint and will switch off all power to the elements should the oven reach this temperature.

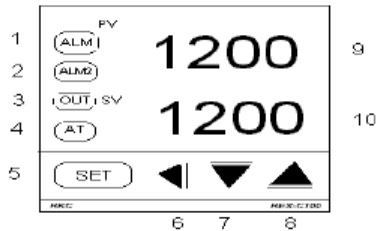
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Turn the dial anticlockwise again until it is slightly above the temperature at which point you noted the chamber switched off.

RKC-CB100 CONTROLLER

DESCRIPTION OF PARTS AND INSTRUCTIONS FOR USE



1. ALARM LIGHT INDICATES ALARM IS ACTIVATED
 2. INDICATES WITH GREEN LIGHT OUTPUT CONTROL.
 3. INDICATES HEATING IN PROGRESS
 4. INDICATES AUTOTUNING IN PROGRESS.
 5. SET KEY, PRESS ONCE TO CHANGE VALUES OF SET POINT OR PROGRAM SETTINGS.
 6. SETTING DIGIT SHIFT.
 7. SET - VALUE DECREMENT KEY.
 8. SET- VALUE INCREMENT KEY
 9. MEASURED- VALUE PV DISPLAY (PV IS THE CURRENT TEMPERATURE)
 10. SV IS THE SET VALUE.
- A. TO SET TEMPERATURE PRESS '5' THEN USE KEYS 6,7 AND 8 TO SET TEMPERATURE, THEN PRESS 5 AGAIN.
- B. TO AUTOTUNE, (FROM A COLD START) FIRST SET YOUR REQUIRED TEMPERATURE USING PROCEDURE 'A' ABOVE. THEN HOLD DOWN KEY '5' FOR 6 SECONDS, 'ATU' APPEARS, CHANGE THIS VALUE TO READ '001' THEN HOLD AGAIN KEY '5' UNTIL THE DISPLAY RETURNS TO HOME DISPLAY POSITION, GREEN INDICATING LIGHT '4' SHOULD BE FLASHING.

ALARM

SET THE ALARM OVER TEMPERATURE BY HOLDING SET FOR 6 SECONDS AND SET "AL1" FOR SAFETY OVERHEAT PROTECTION. PRESS ONCE TO STORE SET VALUE THEN HOLD SET FOR 6 SECONDS TO RETURN TO MAIN MENU. THIS WILL CONTROL AT "AL1" SHOULD THE HEATERS FAIL ON.

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Our Ref: 9333

(02) 9265 2886

7 December 2010

University of Wollongong
WOLLONGONG NSW 2522

Attention: Michael Megendahl

Dear Sir,

A summary of the Reporting Officer's Fire Incident Report is set out below. Please remember that this information is based on the Reporting Officer's observations at the time of the incident without the benefit of scientific investigation and is provided without prejudice and in good faith on the understanding that it is not to be used in any proceedings against the NSW Fire Brigades.

Address: Robsons Road, GWYNNEVILLE

Date: 15 November 2010

Alarm Time: 10:41 Hours

Incident Description:

Fire in a plant specimen drying oven, building 70 Wollongong University. Fire extinguished by Brigades using 1 x CO2 extinguisher and first aid reel. Alarm system isolated and building left in care of campus security.

Oven damaged by fire, slight smoke and water damage to room in which the oven was located and an odor of smoke throughout the building.

Oven was supposed to operate at 60 degrees C, however the temperature was much higher, hot enough to ignite the paper layers between specimens.

Area of Origin: Laboratory

Probable Ignition Factor: Automatic control failure

Attending Brigades: Wollongong and Balgownie

Yours sincerely

A handwritten signature in black ink, appearing to read 'S318 JGL'.

Acting Research and Incident Information Officer

1011091.in

New South Wales Government
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Learnings

- Low risk equipment
- Engineering control relied on an administrative control
- Although low risk, the potential impact was significant
- Administrative controls in place were sufficient if followed
- Commissioning process
- Instruction to users
- Modification to current work practices