STATE CORONER'S COURT
OF NEW SOUTH WALES

Inquest:	Inquest into the death of S S
Hearing dates:	22 April 2014
Date of findings:	24 April 2014
Place of findings:	State Coroner's Court, Glebe
Findings of:	Magistrate Michael Barnes, State Coroner
Catchwords:	CORONIAL LAW – self inflicted death; access to toxic chemicals; Poisons and Therapeutic Goods Act
File number:	2012/00354086
Representation:	Mr C. McGorey, Counsel Assisting Ms Kirsten Edwards, Counsel for Sigma-Aldrich Pty Ltd Mr Steven Woods, Counsel for NSW Health Mr Brent Haverfield, Counsel for the NSW Police Force

Table of contents

Non publication orders – s74 and s75 1
Introduction 1
The evidence 2
  Social history 2
  Medical history 2
  Attempts to obtain potassium cyanide 4
    First attempt 4
    Second attempt 5
    Third attempt 7
    Fourth attempt 7
  The death is discovered 7
The investigation 8
  Scene examination 8
  Autopsy results 8
  Expert reports 8
Conclusions 9
Findings required by s. 81(1) 10
  The identity of the deceased 10
  Date of death 10
  Place of death 10
  Cause of death 10
  Manner of death 10
Recommendations 10
  The legislative regime 10
  Sigma-Aldrich previous policy 11
  Changes to Sigma's practices and procedures 13
  Steps taken by the PSU 14
  Conclusions 14

Non publication orders – s74 and s75

1. **I am of the view it is not in the public interest that details of the procedures adopted by Sigma-Aldrich to ensure its supply of chemicals and substances constrained by the Poisons and Therapeutic Goods Regulation are not inappropriately acquired be published. Accordingly, I order that the section of this report headed "*Changes to Sigma's practices and procedures*" and the exhibits and submissions upon which it is based not be published.**

2. **Having regard to the manner of her death, I am of the view that it is not in the public interest that the deceased or her partner or her daughter be publicly identified. Accordingly, I order there not be published any report likely to identify any of those persons.**

The copy of this report uploaded to the website of the Office of the State Coroner will have those parts redacted and may therefore be quoted.

The Coroners Act in s81(1) requires that a coroner's inquest findings must be recorded in writing. These are the findings of an inquest into the death of S S.

Introduction

On the afternoon of 13 November 2012, SS, 50, was found unconscious and in a critical condition at home after she ingested potassium cyanide obtained from a chemical supply company, Sigma-Aldrich Pty Ltd ("Sigma-Aldrich"). Ms S had a lengthy history of mental illness which manifested in a number of self harming or suicide attempts including three prior attempts to obtain potassium cyanide from Sigma-Aldrich and another chemical supply company.

This inquest considered the following issues:

- How did Sigma-Aldrich come to supply cyanide to Ms S?

- What changes have Sigma-Aldrich made to its procedures since Ms S's death?

- What measures have the Pharmaceutical Services Unit introduced since Ms S's death?

- Are there recommendations which ought to be made which would reduce the likelihood of similar deaths occurring or otherwise contribute to an improvement in public health and safety?

The evidence

Social history

SS was born on 19 April 1962 in Port Dickson, Malaysia. She was the youngest of five children. After completing her primary and secondary education in Malaysia, she travelled to Australia to undertake tertiary study at the University of New South Wales. She graduated with Bachelor of Arts and Master of Commerce degrees and later became a CPA accredited accountant. She was an intelligent and resourceful woman.

In 1987, while in Australia, she married. She gave birth to her daughter G soon afterwards. The marriage ended in divorce.

Ms S commenced a relationship with Mr LW, who she had met when at university. In 1998, shortly after she became an Australian citizen, they jointly purchased an apartment at 193/1 – 15 Fontenoy Road, North Ryde. They lived there together, raising G, until Ms S's death.

Medical history

Ms S suffered from a complex range of mental health conditions from at least 2004, when she exhibited symptoms of depression, anxiety and insomnia. She ceased working full-time and commenced part-time work until, after consultation with psychiatrist Dr Nicholas Cassimatis at the Northside Cremore Clinic and commencement on an apparently beneficial treatment regimen, she returned to full-time work.

In 2008 Ms S's health again deteriorated. She complained about physical ailments – difficulty walking, loss of balance, ringing in her ears and breathing difficulties. Neurologist Dr Phillip Cremer diagnosed Ms S with benign vertigo. Ms S recovered but, during the course of her treatment, her doctors recommended that she receive treatment for anxiety. Ms S commenced consulting with psychologist Dr Sarah Edelman. She underwent cognitive behavioural therapy. Her mental health improved after several months of consultation.

However, Ms S's physical complaints (which later included complaints such as difficulty swallowing, restricted jaw movement and muscle spasms) would come and go. She consulted a number of specialists but none could find a physical cause for her complaint and most attributed her concerns to anxiety.

In late 2010, Ms S commenced consulting with psychologist Dr Suzanne Kennedy and saw her regularly until mid-2011.

From mid-2011, possibly at the advice of Dr Kennedy, Ms S commenced consulting with Dr Peter Stepan, a psychiatrist who also worked at the Northside Cremorne Clinic. Ms S would see Dr Stepan typically every four to six weeks until10 October 2012, when he advised her that he would no longer treat her.

By the end of mid-2011 Ms S's anxiety about her health had increased. She became fixated on her perceived weight loss, despite treating clinicians' advice that she was within the healthy weight range. She lost 10kg in late 2011 so that she was in the mid-40kg range. Her weight stabilised in the months preceding her death and, aty the time of her death, she weighed 59kg.

Ms S's condition markedly deteriorated in 2012. It seems she attempted self harm on a number of occasions. In January 2012 she organised her affairs and wrote letters to Mr W and G about her life and how difficult it had become.

On 6 February 2012, she drank mineral turpentine at home. Ms S contacted emergency services afterwards. Paramedics arrived and transferred her to Macquarie Hospital where she was admitted for treatment then transferred and admitted to the hospital's Parkview Unit as an involuntary patient. On 13 February 2012, after consultation with Dr Stepan, Ms S was transferred to Northside Cremorne Clinic and admitted voluntarily under his care.

On 20 February 2012, while admitted to the Northside Cremorne Clinic, Ms S overdosed on 24 Panadol tablets she purchased at a local supermarket. Northside Cremorne Clinic staff contacted emergency services and she was subsequently transferred and admitted to the Royal North Shore Hospital for treatment. Ms S was admitted for about one week before being transferred to the hospital's Cummins Unit for about three weeks under the care of psychiatrists Dr Malcolm Gunkit and Dr James Telfer. On 6 March 2012, the day before she was scheduled to appear before the Mental Health Review Tribunal, Dr Telfer agreed to discharge Ms S home.

While Ms S was still displaying anxiety over her weight, Mr W observed that she was doing rather well between March and August 2012. After consultation with Dr Stepan, Ms S voluntarily admitted herself to the Northside Cremorne Clinic on 14 August 2014 to deal with her perceived physical weakness and weight issues.

On 21 August 2012, again while admitted to the Northside Cremorne Clinic, Ms S again overdosed on Panadol purchased from a local supermarket. Ms S was transferred and admitted to the St. Vincent's Hospital Emergency Department. She was assessed by psychiatrist Dr Jackie Hubbard and treated for two days before discharge home.

Following the two self harming episodes at the Northside Cremorne Clinic, Ms S's family searched for other clinics at which she could receive treatment. Ms S was eventually admitted to the Mosman Private Hospital under the care of psychiatrist Dr Vladimir Shinin on 6 September 2012. During her second week as a patient there, Ms S returned home for a visit and openly spoke to Mr W about committing suicide for the first time. She took steps to jump out of the window at the residence but Mr W convinced her to return to hospital. She did so and Mr W informed staff of the incident and of his concerns.

Ms S attempted to discharge herself from Mosman Private Hospital on 15 September 2012. Staff instead transferred her to the Royal North Shore Hospital for assessment. She was admitted there and, after a few days, transferred to the

Parkview Unit at Macquarie Hospital under the care of psychiatrist Dr Elsa Bernardi. Ms S was admitted for three weeks before being discharged on 10 October 2012.

On 23 October 2013, at the family's request, they met with staff at the Parkview Unit to discuss Ms S's health and the options available to her. Mr W says that the treating team advised that Ms S had borderline personality disorder combined with very low self esteem and depression, and that those conditions were amplified by Ms S approaching perimenopause. A plan was discussed whereby Ms S would attend on Dr John Taylor to undergo dialectic behavioural therapy (DBT) at St. John of God Hospital.

On 24 October 2012, Ms S was discharged from the Parkview Unit and transferred to the St. John of God Hospital for that purpose. She was assessed by Dr Taylor who noted that she was difficult to interview and selective with her history, but she displayed no psychosis or suicidal intent. During her admission she was seen a number of times by Dr Taylor who contemplated scheduling Ms S; however, he considered that she never quite reached the criteria to justify involuntary admission.

On 3 November 2012 Ms S was discharged at her insistence. Arrangements were made for her to consult a psychiatrist on 22 November 2012 and she was placed on the waiting list for the DBT program.

From 6 November 2012 until her death, the Ryde Community Mental Health Service attempted to re-engage with Ms S.

Attempts to obtain potassium cyanide

Following Ms S's death, Mr W located notes on Northside Cremorne Clinic paper which he identified to be in Ms S's handwriting. Those notes suggest that Ms S obtained the contact details of a number of chemical supply companies and contacted at least some them, including Sigma-Aldrich and "Crown Scientific" (known as VWR International). Those notes are undated but it is known Ms S was last discharged from the Northside Cremorne Clinic on 21 August 2012.

On 3 October 2012, during her in-patient treatment at the Unit at Macquarie Hospital, she faxed a "Trade Account Agreement – Application Form" to chemical supply company VWR International. This was the first of four attempts by Ms S to procure potassium cyanide apparently for the purpose of self harming or committing suicide.

First attempt

The first known contact that Ms S made with a chemical supply company to purchase potassium cyanide is the fax to VWR International. The fax shows that Ms S represented herself to be a purchaser attached to *S S Jewellery*. Ms S was not a jeweller. In addition to an application form, Ms S faxed a signed but otherwise incomplete "*End User Declaration*" and a copy of her NSW Photo Card. Ms S made subsequent telephone contact with VWR International on 3, 4 and 5 October 2012. On 5 October 2012, following a request from VWR International, Ms S faxed a completed *"End User Declaration"* form in which she sought to purchase 250g of "*Potassium Cyanide, ACS 96.0% MIN" "to be used as a cleaning reagent in the processing of jewellery".* She sought to have product delivered to her residence. It appears that VWR International did not supply potassium cyanide to Ms S, noting

that a permit (by which I assume to mean an authority) was required from NSW Health to do so.

Second attempt

On 11 October 2012, Ms S made a further attempt to purchase potassium cyanide. This time, she contacted Sigma-Aldrich.

Sigma-Aldrich is part of a large global group of companies that supplies biochemical, organic chemical compound products, kits and services that are used in scientific research, biotechnology and pharmaceutical development. It has over 170,000 substances available for order in Australia and New Zealand. Sigma-Aldrich supplied about 69,000 orders in Australia and New Zealand to about 1,200 different customers during the 2012/13 financial year. The company's primary customers are universities and medical and scientific research laboratories.

Ms S contacted a Sigma-Aldrich customer service representative by telephone and placed an order to purchase 25g of potassium cyanide at a cost of $104.50. The exact manner in which Ms S identified herself is unknown. However, it is clear from Sigma-Aldrich records that the purchase was processed against the Macquarie University's account. This suggests that Ms S identified herself as from the Macquarie University and either quoted the account number or was unable to do so and it was entered by the customer service representative.

At the time, Macquarie University held an account with Sigma-Aldrich in the name "Macquarie Univ/Macquarie University 2109". It was identified by Sigma-Aldrich as an institution or scientific facility for the purposes of cl. 20(8)(c) of the *Poisions and Therapeutic Goods Regulation 2008* ("PTG Regulation") on the basis of correspondence it had entered into with the University's Executive Dean of the Faculty of Science in March 2012. Sigma-Aldrich had supplied a range of chemicals, biochemical and reagents to Macquarie University. During the 2012/13 financial year, Sigma supplied the University 560 orders (in excess of 1500 products) with a total net value of $280,000. The supply of Schedule 7 substances represented a relatively small proportion of its sales to the University.

At some point during the purchase process, the name "Sumi Nathan" was given as a contact along with Ms S's name, home telephone number, mobile telephone number and email address (a Hotmail account). Those details were entered into Sigma-Aldrich's computerised system known as "SAP" against the Macquarie University account record. Payment was made using Ms S's personal credit card.

Pursuant to Sigma-Aldrich's policy at the time, the order was referred to the company's Quality and Compliance Team but no further checks were made due to Macquarie University having been identified as a scientific or research facility. The order was then approved and forwarded to Sigma-Aldrich's warehouse for dispatch.

At about 8.24am on 12 October 2012, Ms S contacted the same customer service representative by telephone and requested that the shipping address be changed to "193/ 1 – 15 Fontenoy Road, North Ryde 2113" (her home address). The change was made. The final tax invoice issued listed the ship to address as:

Macquarie Univ
School of Biological Sciences
Attn   S S (PH. 98781047)
193/1-15 Fontenoy Road
North Ryde NSW 2113
Australia

Ms S made subsequent telephone calls to check the progress of the order.

On 15 October 2012, a commercial courier delivered the potassium cyanide to Ms S's home. Both Ms S and G were home at the time and G, suspicious of the parcel, intercepted it. Ms S was highly agitated at the turn of events and there was a scuffle. G called Mr W who returned home immediately. Ms S remained agitated and, after advice from the Macquarie Community Help Line, police were contacted.

Senior Constable Ingrid Lewis and Probationary Constable Danielle Paynter attended the residence at about 12.45pm. Mr W showed Senior Constable Lewis the tax invoice which listed the shipping details above and explained that Ms S had falsely represented herself to have a connection with the University in order to facilitate the purchase.

Senior Constable Lewis described Ms S as agitated and stated that she was becoming increasingly paranoid. She recalled that Ms S told police to shoot her with their guns and said that she wanted to kill herself. The police caused Ms S to be scheduled under the *Mental Health Act 2007*. Ms S was transferred by ambulance and admitted to the Parkview Unit at Macquarie Hospital. Senior Constable Lewis retained the potassium cyanide and subsequently arranged for its disposal. Sigma-Aldrich was not notified of the incident.

This was the first of three successful purchases of potassium cyanide Ms S made from Sigma-Aldrich.

Pursuant to cl. 20(1) of the Poisons and Therapeutic Goods Regulation (PTG Regs), Sigma-Aldrich was required to hold an authority to obtain or use potassium cyanide. During the period of Ms S's three purchases of potassium cyanide from Sigma-Aldrich (in October and November 2012), Sigma-Aldrich did not have an authority to supply or obtain that substance. Nor did Ms S hold an authority to obtain or use potassium cyanide. On each occasion she falsely represented herself to be purchasing on behalf of the Macquarie University School of Biological Sciences and requested that the delivery be shipped to her residence at 193/1 – 15 Fontenoy Road, North Ryde. The residence is in the same suburb as Macquarie University.

It is clear that in this case, Ms S represented herself to be a person attached to the Macquarie University School of Biological Sciences and who intended to use the potassium cyanide in that institution and Sigma-Aldrich supplied the substance to her purportedly on that basis.

Third attempt

On 1 November 2012, while admitted to the St. John of God Hospital, Ms S again contacted the same Sigma-Aldrich customer service representative by telephone and ordered 25g of potassium cyanide, using her credit card, at a cost of $78.65.

The order was again placed on the Macquarie University account. The shipping address either remained or was listed as Ms S's residential address. The contact and shipping details on the tax invoice were identical to that for the 11 October 2012 purchase.

On 3 November 2012 Ms S was discharged at her insistence.

After her return home, Ms S informed Mr W that she had ordered potassium cyanide. On 5 November 2012, they waited for the delivery and one eventually arrived at the residence from Sigma-Aldrich. Ms S handed it to Mr W. Mr W remained at home with her for the week. He described her as calm and content during that time. Sigma-Aldrich was not notified of the incident.

Fourth attempt

On 12 November 2012, Ms S ordered potassium cyanide from Sigma-Aldrich in the same manner as the previous occasions in all relevant respects, except that the email contact on this occasion was record as mehdi.mirzaei@mq.edu.au. Dr Mirzaei and this email address are listed on the Macquarie University's publically available online directory. It is not known whether Dr Mirzaei's email had previously been recorded in the SAP database or whether Ms S provided that email address.

The order was processed in the usual manner. As it came from a customer which had previously placed orders and was apparently a research institution the order was not further scrutinised by Sigma's Compliance Team. The toxin was delivered to Ms S at her home the following morning.

The death is discovered

At about 12.55pm on 13 November 2012, Ms S called Mr W and informed him that she had ingested potassium cyanide. Mr W was unable to contact G, who may have been at the residence, but he was able to contact emergency services. He returned home immediately.

Mr W returned home to discover Ms S supine and unresponsive in bed. He observed a bottle of potassium cyanide on the vanity in the ensuite bathroom attached to the bedroom.

Paramedics arrived at 1.16pm. Ms S was in cardiac arrest and had been incontinent of urine. The paramedics commenced resuscitation.

In the meantime, the NSW Police Force had also been contacted. Senior Constable Mike Featherstone and Constable Mark Stephenson acknowledged a concern for welfare report at 1.10pm and arrived at the residence at about 1.25pm.

Paramedics transferred Ms S to the Royal North Shore Hospital Emergency Department where she was admitted at 1.56pm. The bottle of potassium cyanide was transferred with her in addition to other medication. Ms S was asystole on arrival. Resuscitation was continued at the hospital under the supervision of treating physician Dr Robert Day with no effect and was eventually ceased at 2.19pm. Dr Day declared Ms S deceased at 2.20pm.

The investigation

Scene examination

Senior Constable Featherstone and Constable Stephenson commenced the investigation after being notified of Ms S's death, and after having received a declaration from Fire and Rescue NSW that the residence was safe to conduct a crime scene.

The scene examination was conducted by crime scene officer Senior Constable Leanne Gearside with Senior Constable Featherstone.

Police located a cardboard box in the bathtub in the ensuite bathroom in which it seems likely the potassium cyanide had been packaged for delivery.

A 'Pack List' receipt for "*Potassium Cyanide Bioultra >=98.04*" and a tax invoice, both on Sigma-Aldrich letterhead, was located on the dining room table. The tax invoice was dated 12/11/2012 and recorded the "shipping party" as "*Macquarie University School of Biological Science*". It was marked to the attention of Ms S at her residential address. Similar shipping details were recorded on the Pack List.

Autopsy results

Forensic pathologist Dr Rebecca Irvine conducted an autopsy at 9.30am on 15 November 2012.

Dr Irvine retained post-mortem blood and other samples for toxicological examination. Toxicology examination showed the presence of what Dr Irvine described as "therapeutic/nontoxic" concentration of mirtazapine and a "modest" concentration of nordiazepam. The results also detected cyanide at quantities of 3.3mg/L in the femoral and leg blood samples and 5.7mg/L in the heart blood sample – what Dr Irivine described as "*toxic to lethal range cyanide ion concentrations*".

Dr Irivine was of the view that autopsy revealed no significant injury or pathology which would explain Ms S's sudden and unexpected demise.

Dr Irvine formed the opinion that Ms S died on 13 November 2012 at Royal North Shore Hospital, St Leonards from cyanide toxicity.

Expert reports

Dr Christopher Ryan prepared an expert report in concerning the adequacy of Ms S's mental health care and treatment. While Dr Ryan expressed some reservations about aspects of her care, he concluded:

> *I am satisfied … that the care Ms S receive, both as an in-patient and as an out-patient was generally appropriate and of a reasonably high standard, and therefore I am satisfied that appropriate measures were implemented to manage Ms S's risk of self-harm.*

Conclusions

I am required to confirm the death occurred and to make findings as to the identity of the deceased person; the date, place and medical cause of her death, and the manner or circumstances of that death. Only the last of those matters is in any doubt.

Ms S suffered from very complicated and difficult to treat mental illness and/or personality disorder – one of her treating psychiatrists described her condition as a "*diagnostic dilemma*." Having regard to the review of her treatment undertaken by an independent psychiatrist, I am satisfied the attempts to minimise her risk of self harm were adequate.

There is no doubt her illness severely reduced Ms S's quality of life and led to its premature end. Her illness and the manner of her resulting death must have also been very hard on her family. They have my sincere condolences. I also commend their constructive approach to the prevention aspects of this inquest.

The evidence establishes that on a number of occasions, over an extended period, Ms S threatened to and engaged in high risk behaviour that had the potential to end her life.

She went to considerable lengths to obtain the substance that eventually caused her death.

It is notable that on each occasion that she ingested poisonous substances or threatened self harm, including the occasion that resulted in her death, Ms S did so in circumstances where there was a reasonable probability that somebody would intervene and prevent her death – either other people were already present or she called someone and told them what she had done.

In the circumstances, I am left in some doubt as to whether she actually intended to end her life on the day she died, rather than intending to engage in yet another act of self harming with an expectation the intervention of others would preserve her from death.

I don't doubt she intentionally ingested the cyanide knowing that it risked killing her, but I am not sufficiently satisfied she intended it to do so.

I find that no act or omission by any other person directly or indirectly caused or contributed to Ms S's death.

Findings required by s. 81(1)

As a result of considering all of the documentary evidence and the oral evidence given at the inquest, I am able to confirm that the death occurred and make the following findings in relation to it.

The identity of the deceased

The deceased person is S S.

Date of death

Ms S died on 13 November 2012.

Place of death

She died at St Leonards, NSW.

Cause of death

The cause of her death was cyanide toxicity.

Manner of death

The manner of her death was accidental drug overdose.

Recommendations

Pursuant to s. 82 of the Act, a coroner presiding over an inquest may make recommendations connected with a death that are designed to contribute to public health and safety.

Potassium cyanide is a highly dangerous substance - a small amount could easily kill many people. Accordingly, legal restrictions are placed on its supply and use. The adequacy of those restrictions and how they are implemented by chemical suppliers warrants consideration from a prevention perspective.

The legislative regime

The supply of poisons and therapeutic drugs in NSW, both at the time of Ms S's purchases in 2012 and now, is regulated by the *Poisons and Therapeutic Goods Act 1966* ("the PTG Act") and the *Poisons and Therapeutic Goods Regulation 2008* ("PTG Regulation").

The 2012 version of the Poisons List (which applied at the relevant time) relevantly defines the following as a Schedule 7 substance for the purpose of the PTG Act and the PTG Regulation:

> CYANIDES, metallic except:
> (a) ferricyanides;
> (b) ferrocyanides; or
> (c) when separately specified in these Schedules.

This is identical to the current Poisons List.

Pursuant to cl. 20(9) of the PTG Regulation, cyanides are classified as a "highly dangerous substance". The substance is primarily used in the mining industry, electroplating industry and the jewellery industry for plating gold and silver jewellery.

Schedule 7 substances were at the relevant time, and remain, regulated under cl. 20 of the PTG Regulation.

Clause 20(1) of the PTG Regulation provides that a person must not obtain or use a substance listed in Schedule 7 of the Poisons List unless the person holds an authority under Part 8 to obtain or use the substance. Clause 20(2) provides that a dealer must not supply a Schedule 7 substance to any other person unless both the dealer and the recipient hold Part 8 authorities to supply and obtain the substance respectively. Contravention of cl. 20 constitutes a criminal offence. A dealer/supplier is required to have appropriate systems in place to ensure adequate statutory compliance.

The NSW Department of Health Pharmaceutical Services Unit (formerly the Pharmaceutical Services Branch, and hereafter referred to as "the PSU") has primary responsibility for the administration of the PTG Act. Pursuant to Part 8 of the PTG Regulation, the PSU can issue authorities to both a supplier and an end-user purchaser. In order to obtain an authority to purchase a Schedule 7 substance as an end-user, the company or person must submit an application to the PSU for the issuance of an authority to obtain and use the substance. Information as to the intended use of that substance and how it will be stored is included in the application. A Senior Pharmaceutical Officer attached to the PSU reviews that application, the bona fides of the applicant and the information provided. Further enquiries are made if any doubts arise about the intended use. That primarily occurs via telephone but may also involve site visits. A standard condition of the authorities issued by the PSU is that an end-user purchaser must surrender their authority to the supplier/dealer at the time of purchase.

Clause 20(8) provides for exceptions to the ordinary requirement to hold an authority to supply or use a Schedule 7 substance. Relevantly, cl. 20(8)(c) provides that the restrictions in cl. 20 do not apply to:

> *(T)he use by a person in charge of an institution or facility for scientific research, instruction, analysis or study of any Schedule 7 substance for use in that institution or facility, or the supply to, or obtaining by, such a person of any such substance for use in that institution or facility, …*

It was the fraudulent misuse of this exception by Ms S that enabled her to repeatedly acquire cyanide, despite holding none of the necessary authorities. Her actions demonstrated a weakness in Sigma's procedures.

Sigma-Aldrich previous policy

As at October and November 2012, Sigma-Aldrich had a protocol entitled *"Drugs and Poisons Control Procedure"* which, while not expressly stated to apply to Schedule 7 substances, was nonetheless applied to those substances in practice.

Purchase orders were made by telephone, fax or via the Internet and processed by a Customer Service Team. A Quality and Compliance Team would scrutinise specific orders that were automatically blocked or were referred to it by the Customer Service Team. The primary objective of the process was to ensure that the supply of an order complied with the applicable regulatory requirements.

Stock control software known as "SAP" was used to process orders. It electronically stored customer and account holder information, including billing and shipping addresses. The SAP software automatically blocked an order for a Schedule 7 substance that was placed by a non-account holding purchaser. That purchaser was then required to open an account. At that point, the customer would undergo screening by the Quality and Compliance Team.

Schedule 7 orders made by existing account holders were also blocked and referred to the Quality and Compliance Team for approval. However, the Quality and Compliance Team would not carry out further checks if the account holder was identified to be an institution or facility for scientific research, instruction, analysis or study of any Schedule 7 substance.

A purchaser making an order over the telephone with a customer service representative might identify him or herself as an existing account holder by quoting the account number. Alternatively, he or she might do so by quoting the account holder's name. The customer representative would then search the SAP's database using that name.

The customer service representative would confirm with the purchaser his or her address details that were recorded in the SAP database, including the shipping address. The purchaser had the option of providing a different shipping address. If a new address was provided, the customer service representative would overtype the existing shipping address recorded in the SAP.

The shipping address could be changed any time prior to the dispatch of the order. The purchaser could do so by contacting the customer service centre. If the shipping address was amended, but the recorded suburb remained unchanged, this was not raised as a change to the shipping address in the SAP.

A change in the shipping address which did not involve a change to the suburb would not trigger a compliance review by the Quality and Compliance Team.

The purchaser could pay by a purchase order, in which case an invoice was issued to the account holder at the end of the month, or by credit card up to a limit of $3,000 for any single order.

The customer service representatives were trained in the use of the SAP software but did not receive specific compliance training. Nor were they expressly required to scrutinise the *bona fides* of an order for a Schedule 7 substance that was ostensibly made by an account holder identified to be a scientific institution or facility.

The processed order was forwarded to Sigma-Aldrich's warehouse for dispatch to the customer via commercial couriers.

Changes to Sigma's practices and procedures

The previous paragraphs have been redacted pursuant to a non publication order made by the coroner.

Steps taken by the PSU

In 2013, the PSU reviewed and amended the Drugs and Poisons Control Procedure (DPCP) used by applicants in the application process for a licence to supply by wholesale substances in Schedules 2, 3 and 4 and/or manufacture and/or supply by wholesale substances in Schedule 8 of the NSW Poisons List. The amended DPCP requests applicants to notify if Schedule 7 poisons are to be supplied by wholesale

The PSU also reviewed and amended the Inspection Report/Checklist document used by Inspectors when visiting and inspecting premises associated with an application for a licence to supply by wholesale substances in Schedules 2, 3 and 4 and/or manufacture and/or supply by wholesale substances in Schedule 8 of the NSW Poisons List. The amended Inspection report document prompts the Inspector to query if Schedule 7 poisons are to be supplied by wholesale.

In August 2013, the PSU re-issued amended guidelines, entitled "*Guide to the Poisons and Therapeutic Goods Legislation for Poisons Licence Holders*" to provide further guidance concerning the supply of Schedule 7 substances in NSW.

On 6 December 2013, the PSU wrote to the Plastics and Chemicals Industries Association requesting that it circulate information to its members concerning the supply of Schedule 7 substances. Without identifying Ms S, the letter specifically referred to the circumstances in which Ms S acquired cyanide and attached the abovementioned guidelines. That association confirmed to the PSU in April 2014 that the PSU's letter and the attached guidelines had been circulated to its members.

The PSU has also drafted a letter, a copy of which was exhibited before me, which it intends to send to all wholesalers licensed to supply therapeutic goods in Schedules 2, 3, 4 or 8 of the NSW Poisons List. The purpose of the letter is to alert those companies of the provisions that apply to the supply of Schedule 7 substances under the PTG Regulation, if those companies also happen to stock and supply Schedule 7 substances.

At the inquest the legal representative of the PSU advised the court that a review of the poisons regulatory framework was scheduled to commence later this year. Among other things, it would focus on minimising the risk of inappropriate access to restricted chemicals.

Conclusions

As a result of considering the evidence tendered in the inquest and the submissions made on behalf of those granted leave to appear, I am satisfied reasonable steps have been taken to substantially reduce the risk of the inappropriate acquiring of cyanide that led to this death recurring.

Sigma-Aldrich has significantly tightened the procedures it uses to ensure those to whom it supplies the chemical are *bona fide* users of the substance. The review of its procedures has been comprehensive and detailed. I commend the company on so actively engaging with the challenge of addressing the risks this sad case highlighted.

The regulator, the Pharmaceutical Services Unit, has reviewed and amended the procedures to process an application for a licence to supply by wholesale substances such as the one that caused Ms S's death.

It also reviewed and amended the checklists used by its staff when inspecting premises associated with an application for a permit to supply a range of dangerous chemicals.

The PSU has re-issued amended guidelines, entitled "*Guide to the Poisons and Therapeutic Goods Legislation for Poisons Licence Holders*" to provide further guidance concerning the supply of Schedule 7 substances in NSW.

In addition, the PSU wrote to the relevant industry organisation requesting it circulate information to its members concerning the supply of Schedule 7 substances. That association confirmed to the PSU that the PSU's letter and the attached guidelines had been circulated to its members.

Having regard to these reforms, I consider there is no basis for me to conclude any recommendations by me would further enhance safety in this area. Accordingly I decline to make any.

I close this inquest.

M A Barnes
NSW State Coroner
Downing Centre
24 April 2014