Fusion

Newsletter of the Southern African Institute of Welding

March 2015

SAIW
Southern African Institute of Welding

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Changing of the Guard

Jim Guild, Executive Director of the SAIW since December 2000, is retiring and will be leaving his post at the end of this month. Current SAIW GM Operations, Sean Blake, has been appointed SAIW Executive Director as of April 2015.

Jim says that his tenure at the Institute can be described as "steady progress". The fact, however, is that it is more apt to describe Jim's achievements as massive. When he started at the end of 2000 the SAIW was really a very small organisation with no international recognition of its courses, it was struggling financially and was reliant on sponsorship for its viability.Today it is the leading welding training organisation on the continent. Its courses are recognised internationally; it has more than doubled its training population and has earned the respect of the global welding community. Financially it still enjoys good relations with sponsors but it has greatly improved its level of self-generated income and has an appropriate level of reserves which it can use for the next level of development.

Sean Blake (l) will become SAIW Executive Director in April. Jim Guild (r) has retired after 14 years at the helm.

"I put our successes down to exceptional team work," says Jim. "From the beginning of my tenure the old stalwarts, like Ted Barwise, for example, rallied around me to help get things going the way we wanted. Their input was absolutely invaluable. Since then each and every person at the Institute has played his and her part to ensure that we met our goals and achieved what we did," Jim says.

The achievements were astounding:

2001: SAIW became a Regional Designated Centre (RDC) of the African Regional Cooperative Agreement for Research, Development and Training Related to Nuclear Science and Technology (AFRA). It acted as AFRA's Anglophone centre for NDT in Africa. Since then, the SAIW has trained around 500 African fellowship students sponsored by the International Atomic Energy Agency (IAEA). The SAIW has also conducted numerous expert missions to assist other African countries to establish NDT training and service facilities and has hosted several scientific visits from NDT personnel throughout Africa. The IAEA periodically sends three experts from around the globe to assess the SAIW standards.

2003: SAIW became an Authorised National Body (ANB) of the International Institute of Welding (IIW) able to offer all IIW training courses and issue qualification diplomas.

2005: The Young Welder of the Year competition was established. This biennial event has become the premier welding competition in South Africa attracting young welders from all over the country. The winner represents South Africa at the WorldSkills competition. The Young

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Success at Record Young Welder

With 20 participants, the Young Welder of the Year (YWOY) 2015 was the largest in the history of the competition. It was, therefore, an even more special victory for the ultimate winner, Jaco van Deventer, who will now represent South Africa at the WorldSkills competition to be held in Sao Paolo, Brazil in August 2015.

"I am very excited to have won this historical event," says Jaco. "It's an honour to get the chance to represent the South African welding industry at the WorldSkills competition and a bonus for my welding career to have won this prestigious event."

Jaco says he loves welding. "I've always been good with my hands and I like working on practical projects. But more and more I enjoy the science of welding, which is so interesting across so many materials and applications," Jaco says.

YWOY convener, SAIW's Etienne Nell, says that the quality of the welding this year matched the quantity. "Each year we see an improvement in the standards of the young welder and 2015 was no exception," Etienne says. "I was particularly impressed with the winners of the various categories and, of course, Jaco's work was outstanding. We have high hopes for him to do well in Sao Paolo where he will be up against the best young welders in the world."

SAIW executive director Jim Guild says that the Institute will definitely continue with the YWOY. "We have to continue encouraging the youth of South Africa to see welding for what it is – an exciting and potentially lucrative career. Welding is ubiquitous. It is involved in up to 98% of manufacturing processes and it offers opportunities for people who may have a Grade 10 education to people who have a PhD.

"From a SAIW perspective the youth will continue to be a major part of our focus and the YWOY a central initiative within this focus area. We need to get as many young South Africans skilled in the various disciplines that welding offers in order to reduce our reliance on importing these skills.

"When we have such a high rate of unemployment and an industry like welding that can almost always offer a job to someone with the right skills, it seems a real shame that we continue to have to import welders from other countries. This Institute, through the YWOY and many other initiatives, remains dedicated to reversing this trend," says Guild.

2015 Young Welder of the Year Jaco van Deventer with SAIW President Morris Moroga.

SAIW GM Operations Sean Blake concurs saying that despite the major shock to the economy in 2008 and the lingering economic challenges we continue to face in 2015, welding still remains a very viable career. "Because it is so widely used in industry, welding is still - in terms of employment and a career - one of the best hedges against a struggling economy," says Blake.

SAIW President Morris Moroga says that the YWOY competition plays a crucial role in finding the young stars of the future in welding. "The stories are numerous of those who have done well in the competition going on to stellar careers in welding and it is important that the SAIW, the competition sponsors and the welding industry generally continue to support this initiative for the sake of the development of our youth," concluded Moroga.

All the participants of the Young Welder of the Year competition 2015.

Young Welder of the Year 2015 Runner-up Romario Arendse.

Thanks to Young Welder of the Year 2015 Sponsors

Changing of the Guard

Continued from page 1

Welder competition plays an increasingly important role in promoting welding as a career to the youth of South Africa.

2005: Established SAIW Certification which has served to enhance the credibility and recognition of SAIW qualification and certification activities and offers good future growth opportunities.

2006: Introduced permanent representation in Cape Town and Durban and in 2013 established a fully-fledged training facility in Cape Town with a similar facility in Durban imminent.

2006 and 2012: SAIW hosted IIW Regional Congresses attended by speakers and experts from all over the world.

2008: SAIW accredited by the IIW as an Authorised National Body for Company Certification (ANBCC) enabling it to certify fabricators to the ISO 3834 standard. To date, more than 100 companies and sites have been certified by the SAIW.

2011-2013: Built and equipped a cutting-edge metallurgical and mechanical test laboratory; built a state-of-the-art multi-purpose auditorium and completed the refurbishment of the interior of the SAIW building.

2014: Established SAIW Foundation which will become an industry vehicle for social upliftment and development.

Other accomplishments over the period included:

- SAIW became an associate member of the International Committee for Non-Destructive Testing (ICNDT) and established the African Federation for Non-destructive Testing (AFNDT), which is now recognised as a regional body by the ICNDT.
- Supported the establishment of training schools at WITS and UP which offer International Welding Engineer and International Welding Technologist programmes. The SAIW sponsors Professorial chairs and research and development programmes in these centres of welding expertise.
- Since 2009 the SAIW has been accredited for its personnel certification activities by SANAS which is South Africa's member of the International Accreditation Forum (IAF).

"One of our very important accomplishments," says Jim, "was the improvement in our communications. This newsletter, Fusion, has played a major role in disseminating SAIW and industry information to our members and the welding market in general. Our journal, African Fusion, has helped in giving the industry at large an opportunity to keep up to speed with technical and global welding news and issues. I thank all those involved in the production of these important publications."

"I want to thank all those who have helped me in a job that I have really enjoyed – the various SAIW Councils and Presidents, the great SAIW team, our members, our industry contacts and all our dedicated suppliers. I couldn't have done the job without you."

"Finally, to Sean. There is still much to be done but you are now at the helm of an organisation which is recognised as a leader in its field and that has the provisions for significant future growth. You have the experience and the wisdom to take the SAIW to unprecedented heights and I look forward to your and your teams' future successes. Good luck!"

The Complaints and Appeals Process in SAIW Certification

Bodies certifying personnel and companies in accordance with ISO 17024 and ISO 17021 are required to have appropriate procedures for dealing with complaints and appeals. The procedures are used to deal with a variety of situations which may include the following:

Case 1 - A complaint against a person or organisation certified or qualified by SAIW Certification.

Case 2 - A complaint against the actions of SAIW Certification.

Case 3 - An appeal against decisions taken by SAIW Certification.

A complaint is defined as:
A written submission sent to SAIW Certification Secretariat, either via email or registered post, whereby a Complainant lodges a complaint in respect of the competence, integrity or quality of work of any Certified or Qualified Person or Organisation.

An appeal is defined as:
A written request made by any interested party for reconsideration of any substantive decision made by either a Complaint, an Inquiry Panel or other body of SAIW Certification.

Case 1 mentioned above is the most common type of complaint dealt with by SAIW Certification and typically this might be a claim that a certified Competent Person, Inspector of Pressurised Equipment or NDT operator has not performed his or her duties correctly. An example could be that CP did not personally perform a required regulatory inspection but merely signed the report of an inspection conducted by another person.

“THE USUAL PROCESS FOR DEALING WITH EITHER SITUATION WOULD BE FIRST TO VERIFY THAT THE MATTER IS A COMPLAINT WHICH CAN AND SHOULD BE DEALT WITH BY SAIW CERTIFICATION.”

Simple complaints with less serious consequences may be handled by a relatively informal hearing of a Complaint Panel which is constituted of a minimum of two persons either from the SAIW Certification Secretariat or the members of the appropriate Scheme Committee. More complex or severe complaints are dealt with through a strictly formal hearing of an Inquiry Panel which is constituted of a group of at least three suitably qualified/competent persons, nominated by the relevant Scheme Committee or Subsidiary Board.

The usual process for dealing with either situation would be first to verify that the matter is a complaint which can and should be dealt with by SAIW Certification. The Complainant would then be informed that the matter would be dealt with by SAIW Certification and any evidence supporting the complaint would be requested. Details of the complaint would then be put to the Respondent who would be asked for comment and explanation. The Secretariat would then investigate the matter further. Typically this would be done by contacting any other parties involved in the matter. At this point the decision of whether a Complaint Panel or Inquiry Panel hearing was warranted would be taken and the appropriate Panel would be convened. It is not essential that the Complainant attends a hearing of a Panel as the Secretariat is obliged to state the case of the Complainant and put forward any other facts which may have been gathered in relation to the issue at hand. The Respondent will normally attend a Panel hearing but if the person or company declines to do so the hearing may proceed without the Respondent. After considering the matter the Panel will come to a finding and if the complaint is upheld it will make a proposal on a sanction taking account of other sanctions applied in similar

“LEGAL REPRESENTATION IS NOT ALLOWED IN SAIW CERTIFICATION DISCIPLINARY HEARINGS BECAUSE COMPLAINTS AND APPEALS ARE DEALT WITH AS INTERNAL ISSUES BUT OF COURSE ALL PARTIES HAVE THE OPPORTUNITY TO USE THE LEGAL JUSTICE SYSTEM.”

circumstances, where these exist. The report of the Panel and its finding and possible sanction are then communicated to the Scheme Committee or Subsidiary Board in the case of complaints against certified companies. The Scheme Committee or Subsidiary Board will either confirm the panel finding and sanction recommendation or refer the matter back to the Panel for further investigation and comment. It is the Scheme Committee or Board which takes final decisions on complaints based on the authority it has been delegated by the SAIW Certification Board of Directors.

In Case 2 any Applicant, Candidate, or Qualified or Certified Person or Organisation may submit a complaint in writing to the SAIW Certification Secretariat regarding any decision of any Scheme Committee or Subsidiary Board in connection with any part or the whole of the certification process (including the decision to recommend or not to recommend any person or organization for certification to the Governing Board, or the decision to certify any person taken by a Scheme Committee in terms of any authority delegated to it by the Governing Board).

In this case the Board of Directors of SAIW Certification convenes a Board of Directors Panel constituted of at least three members of the Board or other nominees to consider whether the Complaint has any merit. The assessment of the Panel is based on documentary evidence provided by the relevant parties. The Panel may find that there is no merit to the Complaint in which case it will dismiss the same. If it supports the Complaint it may deal with the Complaint in any manner it deems appropriate in the circumstances. The Panel may withhold its decision and reasons therefore for any period of time that is reasonable in the circumstances where it is not in a position to make an informed decision for lack of evidence or information.

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In the SPOTLIGHT

Mathew Dudley

IN OUR SERIES OF PROFILES ON PEOPLE WHO ARE MAKING A DIFFERENCE TO THEIR COMPANIES AND TO THE WELDING INDUSTRY GENERALLY, WE TALK TO MATHEW DUDLEY, MANAGING DIRECTOR OF THE THUTHUKA WELDING PRODUCTS. BORN IN 1964, DUDLEY MATRICULATED AT BENONI HIGH AND THEN DID INDUSTRIAL ENGINEERING AT WITS TECHNIKON. HE CURRENTLY SITS ON THE WELDING COMMITTEE OF THE SABS. DUDLEY HAS BEEN MARRIED TO DEBBIE FOR 26 YEARS AND THEY HAVE A 21-YEAR OLD DAUGHTER BRONWYN.

Fusion: ***What did you do after you graduated?***

MD: I had a stint with the National Productivity Institute and then in 1988 I went to Mintex Don, which manufactures mainly brake pads and clutches for the automobile industry. It was here that I developed my enthusiasm for manufacturing that really set up my career path. In about 1994 I left for cookware specialists, Hendler and Hart, where I started as Logistics Manager and ended up managing the factory.

Fusion: ***When did you get into the welding industry?***

MD: At the end of 2000, I cashed in my pension and, with by brother-in-law Mark, bought Dalaco Welding, which sold consumables and had the distribution rights for Avesta welding products. We focused solely on the stainless steel industry at Dalaco. Things went well and we then bought a partnership in Tecdur, which manufactured welding consumables for the general market and also had the Optrel auto-darkening welding helmet agency in South Africa.

Fusion: ***Did that become Thuthuka?***

MD: No. Thuthuka came about in 2007. We amalgamated the welding entities – which had become Dynamic Welding, Dynamic Stainless Electrodes and Tecdur – with Mark's company, Dynamic Electrical to form Thuthuka Welding.

Fusion: ***Why the name Thuthuka as a matter of interest?***

MD: Thuthuka means "progress" and we are dedicated to playing our part in the progress of this industry and of South Africa as a whole. We believe in the potential of South Africa and, in spite of many challenges, we can all provide a world-class service with world class products if we adopt the right approach.

Fusion: ***Many Chinese companies can deliver products here at the same price as it costs you to produce. Why do you continue to manufacture locally?***

MD: There are three main reasons why we carry on with our business model. Firstly, we believe in this country and all of us must do whatever is possible to protect jobs. We have an outstanding and loyal staff and the survival of Thuthuka is crucial to them. Secondly, the quality coming out of China can be very erratic and by being in control of our own manufacturing process ensures we produce a world class quality consistently. And, thirdly, our model has been very successful. Why ever change a winning formula?

Fusion: ***What do you feel about the future of the welding industry in general in South Africa?***

MD: I feel very positive without being unrealistic. We need many more welders in this country. At the moment we are importing too many welders from Pakistan, India and other countries and this is criminal when we have such a high unemployment rate in South Africa. Each and every one of us in the local welding industry must do what we can to get more and more people trained in welding. In the SAIW we have the biggest welder training organisation in Africa whose standards are as good as any training institution in the world. We must make use of its expertise and ensure that an ever-increasing number of passionate, enthusiastic young welders are produced each year. Welding is a brilliant career for a young person, male or female and it is up to us to spread the message!

Fusion: ***Finally could you tell us a bit more about Thuthuka?***

MD: In essence Tuthuka supplies welding consumables to the welding industry. All our electrodes are manufactured in Kempton Park under the brand name of ISOARC. We manufacture 80-100 tons of electrodes per month. In terms of hardware we still do the Optrel range and we sell outstanding welding machines which are branded under the name of Dynamic Welding Machines. Our customers range from the very large fabricators to the smaller re-sellers who supply almost anyone who needs welding supplies. But most important of all, Thuthuka has a dynamic and hard-working team which is dedicated to doing a professional job – i.e. of exceeding our customers' expectations each and every day.

Fusion: Thank you and good luck.

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Heat Treatment of Welded Joints – Part 3

When it is not possible to place the entire component in a furnace for heat treatment (because of the size of the fabrication, circumferential welds in a pipework system or when installing equipment on site, for example), then a local PWHT may be the only option. Local PWHT needs careful planning to ensure that heating and cooling rates are controlled and that an even and correct temperature is achieved. Uneven and/or rapid heating can give rise to harmful temperature gradients producing thermally induced stresses that exceed the yield stress. This may result in the development of new residual stresses when the component is cooled.

Local PWHT may be carried out using high velocity gas burners, infra red burners, induction heating and high or low resistance heating elements. Electrical equipment is more easily installed and controlled than heating using natural gas or propane, particularly on site. High voltage resistance heating is rarely used on site due to the need for the radiant heaters to be positioned a set distance from the surface and, more significantly perhaps, the health and safety risks involved with the use of high voltage current. Low voltage electrical resistance heating and induction heating are the two most commonly used methods.

High velocity gas burners are more advantageous when large areas need to be heat treated, particularly if, for example, firing can take place within a pressure vessel which then becomes its own furnace. For local PWHT of vessel circumferential seams internal insulating barriers can be used to localise the heat source. Motorised valves and micro-processor control of the combustion conditions enabled precise management of the heating cycle to be achieved.

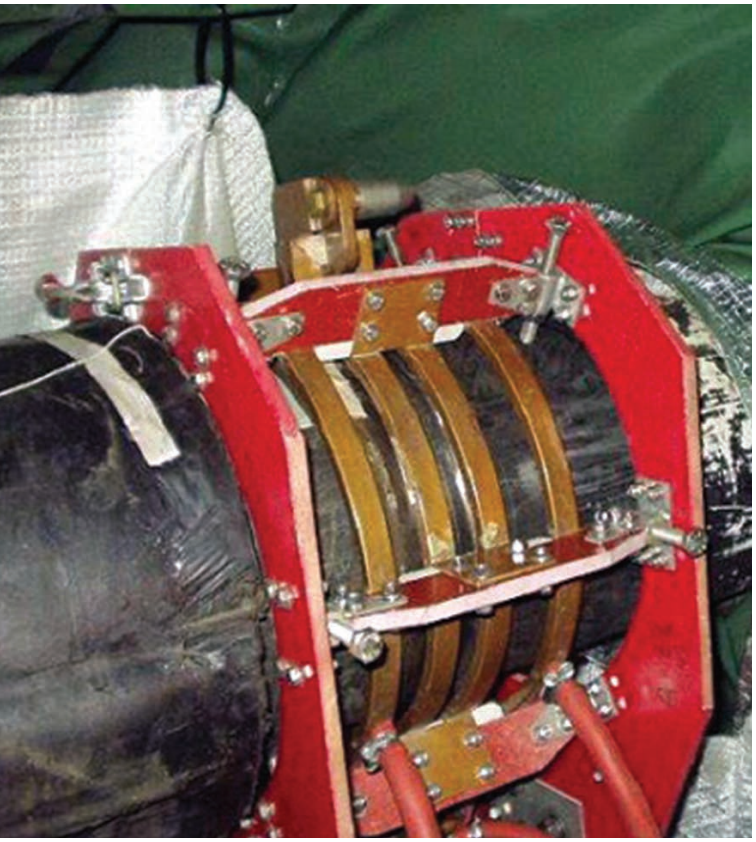

Fig 1

Low voltage electrical resistance heating uses flexible ceramic heating elements, colloquially known as corsets, an appropriate number being assembled to cover the area to be heat treated. Induction heating uses insulated cables that can be wrapped around the joint or shaped to fit the area to be heated or specially designed fitting for repetitive PWHT operations as illustrated in Fig 1. To perform the PWHT, temperature control thermocouples are firstly attached, often by capacitor discharge welding, the elements placed in position and the area then lagged with thermal insulating blankets to reduce heat loss and to maintain an acceptable temperature gradient.

“ HIGH VELOCITY GAS BURNERS ARE MORE ADVANTAGEOUS WHEN LARGE AREAS NEED TO BE HEAT TREATED, PARTICULARLY IF, FOR EXAMPLE, FIRING CAN TAKE PLACE WITHIN A PRESSURE VESSEL WHICH THEN BECOMES ITS OWN FURNACE. ”

There are no standard terms used to describe the various regions within the locally PWHT’d area. In this article the terms ‘soak band’, ‘heated band’, ‘gradient control band’, ‘temperature gradient’, which may be axial and through thickness, and ‘control zone’ as suggested by the ASME will be used (see Fig 2).

The soak band is the area that is heated to, within the specified PWHT temperature and time range. It comprises the weld, the two HAZs and part of the surrounding parent metal. The heated band is the area covered by the heating elements, the temperature at the edge of the heated band generally being required to be at least half that of the soak temperature. The temperature gradient control band is the region where thermal insulation, perhaps supplemented by additional heating elements, is applied to ensure that an acceptable axial temperature gradient is achieved from PWHT temperature to ambient. A control zone is the region where a number of heating elements are grouped together and controlled by a single thermocouple, enabling different regions to be heated independently; particularly useful with large diameter items or where there are variations in thickness.

Temperature gradients may be axial (along the length of a pipe or vessel) and through thickness. The through thickness temperature gradient is caused by heat losses from the internal surface and is a function of both thickness and internal diameter, the larger the diameter, the greater the effect of radiation and convection losses. Both the width of the soak band and the temperature achieved can be substantially less than that on the outside of the pipe or tube. Insulation on the inner surface will reduce the temperature/width differential but

may not be possible on small diameter tubes or pipework systems. This through thickness gradient is one of the reasons that specifications and codes require the soak or heated band to be a minimum width, generally related in some way to the thickness of the component.

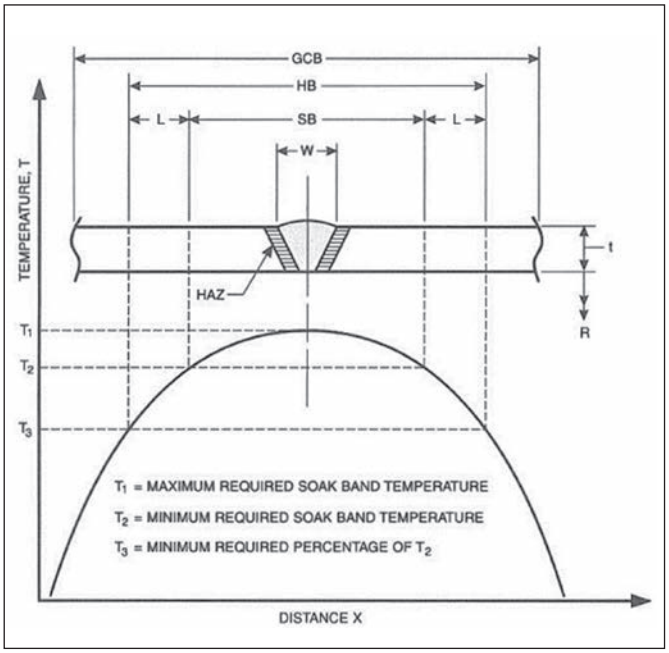

Fig 2

As mentioned above, there are rules in the application codes concerning the size of the heated area, normally related to the thickness. In a circular component such as a pipe butt weld or a pressure vessel circumferential seam the width of the band is easy to calculate. ASME VIII for instance requires the soak band width to be twice the thickness of the weld or 50.8mm either side of the weld, whichever is the lesser.

ASME B31.3 requires the soak band width to be the weld width plus 25.4mm either side of the weld. BS EN 13445 does not specify a soak band width but instead specifies a heated band width of $5\sqrt{Rt}$ centred on the weld and where R = component inside radius and t = component thickness. There are no requirements in the ASME codes regarding heated band width. A very approximate rule of thumb for flat plate is that the heated band should be a minimum of twice the length of the weld although practical considerations may prevent achieving this ideal.

TEMPERATURE GRADIENTS MAY BE AXIAL (ALONG THE LENGTH OF A PIPE OR VESSEL) AND THROUGH THICKNESS. THE THROUGH THICKNESS TEMPERATURE GRADIENT IS CAUSED BY HEAT LOSSES FROM THE INTERNAL SURFACE AND IS A FUNCTION OF BOTH THICKNESS AND INTERNAL DIAMETER, THE LARGER THE DIAMETER, THE GREATER THE EFFECT OF RADIATION AND CONVECTION LOSSES.

There are no requirements, in any code or specification, on the width of the thermally insulated band although BS EN 13445 recommends $10\sqrt{Re}$. It is essential that the relevant specification is referred to for specific guidance on what is required and it is worth remembering that the specification requirements on soak or heated band widths are minima and very little is lost by ensuring the specified dimensions are comfortably exceeded.

What is an acceptable axial temperature gradient? Again, there is little advice in the codes and specifications. It is generally assumed that if the temperature at the edge of the heated band is above half that of the soak temperature then the temperature gradient will not be harmful. During heating and cooling BS EN 13445 specifies a maximum temperature difference of 150°C in 4500mm below 450°C (1°C in 3mm) and 1000C in 4500mm above 4500C (1°C in 4.5mm).

To ensure that gradients and temperatures are controlled within acceptable limits sufficient thermocouples need to be attached to provide both temperature control and recording. For small diameter tubes, eg less than 100mm diameter, one control zone and one recording thermocouple are regarded as sufficient; between 100-200mm one control zone and one recording thermocouple at each of the 12 o'clock and 6 o'clock positions; above 250mm diameter one control zone and one recording thermocouple at each 900 quadrant, 12, 3, 6 and 9 o'clock, are suggested.

THERMOCOUPLES USE A HOT AND A COLD JUNCTION TO MEASURE THE TEMPERATURE, THE HOT JUNCTION BEING ATTACHED TO THE COMPONENT, THE COLD JUNCTION WITHIN THE TEMPERATURE RECORDER. FOR ACCURATE TEMPERATURE MEASUREMENT THE HOT JUNCTION MUST OBVIOUSLY BE AT THE TEMPERATURE OF THE COMPONENT.

These thermocouples should be placed on the centre line of the weld. Thermocouples will also be needed at the edge of the soak band and the edge of the heated band. Ideally, thermocouples should also be placed on the opposite surface to the heating elements to ensure that the correct through thickness temperature has been achieved although this is rarely possible on pipe systems. It is advisable to double up on the thermocouples to cope with the possibility of a thermocouple failure.

Thermocouples use a hot and a cold junction to measure the temperature, the hot junction being attached to the component, the cold junction within the temperature recorder. For accurate temperature measurement the hot junction must obviously be at the temperature of the component. Errors can be introduced if the junction is not firmly attached, either by capacitor discharge (CD) welding, by mechanically fixing the wires to the component or by overheating of the thermocouple junction.

CD welding of the thermocouple wires gives the most accurate results, particularly if the two wires are separated by 3-4mm. Mechanically attached wires will probably need to be insulated by covering the junction with heat resistant putty to prevent overheating of the thermocouple by the overlying heater. If the wire covering is stripped back then the bare wires also need to be insulated. It is advisable to specify the positions of the thermocouples on a drawing and to include these within a formal written heat treatment procedure document that covers both the specification and best practice requirements.

This article was written by Gene Mathers.

Qualification and Certification

CONGRATULATIONS TO THE PEOPLE BELOW WHO RECENTLY ACHIEVED QUALIFICATION AND CERTIFICATION.

SAQCC-NDT CERTIFICATES

Liquid Penetrant Testing Level One

Claasen H
Coetzee GC
Lombard BJ
Magagula WW
Mamabolo MS
Manyane MF
Maseko NB
Mashego M
Matshela KT
Meadows WI
Mhlongo DM
Mkhwanazi B
Moloi T
Moritz AP
Mothapo MM
Motloung BN
Mtsweni VL
Ndlovhu FM
Ndzimande TL
Newman VB
Rehman Z
Roos R
Sifunda WS
Stols GP
Tshongwe T
Tyhalithi L
van der Westhuizen CJ
Visagie R
Visser D
Willard M
Willemse SJ
Zwane LN

Liquid Penetrant Testing Level Two

Bakoura M
Digby J
Elrix HG
Faku S
Gouws WS
Grobler JA
Mabusela RJ
Madhlophe WD
Manganye MF
Mbele DS
Mkhize WM
Morck KD
Mosuma O
Mudau DS
Okafor H
Peterson JP
Purcell MS
Reed M
Rezant D
Roos R
Spadino F
Thompson JC
Tyhalithi L
van der Westhuizen CJ
van Schalkwyk T

Liquid Penetrant Testing Level Three

Chamunorwa A
Ismail M
le Roux GP
Newman SVC
Nyaga WG

Magnetic Particle Testing Level One

Claasen H
Coetzee JW
Coetzer LE
Cox WJ
Daniels CL
Dlodlo TP
Hadebe MJ
Hlatshwayo NS
Itumeleng N
Jennings JL
Jozi T
Kyde Y
Madela TNM
Mamabolo MS
Maseko NB
Mashego M
Matakuvhona T
Matlala T
Matwasa SE
Mbatah I
Mhlongo DM
Mkwanazi AS
MndebeleSD
Mohanoe NKS
Molefe JS
Monthoni RV
Moritz AP
Moselakgomo MC
Msibi LCN
Mthimunye JM
Mtungwa SW
Ngooko TH
Nkosi DS
Roos R
Rossouw PA
Scharneck JB
Scherman A
Sebetha SS
Sequeira V
Setlhapelo K
Sifunda WS
Sinobolo RM
Tyhalithi L
van der Merwe M
van der Westhuizen CJ
Visagie R
Whelan M
Willemse SJ

Magnetic Particle Testing Level Two

Bakoura M
Beselaar Q
Chamunorwa A
de Jager DJ
Dlamini SZ
Dyantyi A
Faku S
Gouws WS
Harris A
Holein CA
Kemp GP
Khan R
le Grange AM
Mabusela RJ
MadhlophE WD
Matthews CF
Mbele DS
Mkhize WM
Morck KD
Mudau DS
Okafor H
Pur cell MS
Spadino F
Thompson JC
Tyhalithi L
van den Berg JJ
van der Westhuizen CJ
van der Westhuizen JP
van Schalkwyk T
van Zyl ML
Vermeulen DJ
Zwane MM

Magnetic Particle Testing Level Three

Chamunorwa A
Ismail M
Newman SCV
Nyaga WG
Osman KEMAH

Ultrasonic Testing Level One

Bester R
Buss A
du Toit HL
Faku S
Kaseke F
Keys ER
Khumalo MS
King R
Ledwaba KO
Letoaba SR
Maire PRR
Makua JT
Matloa DP
Mokoena TA
Randera S
Rosenberg KD
Salt HH
Scherman CJ
Sinobolo RM
Wajuba Y
Willard MW
Motloung MP

Ultrasonic Testing Level Two

Gerber JD
Hale M
Holt GS
Minnaar JJ
Mokhabane RM
Ndlovu T
Purcell MS
Smit M
Smith A
van der Merwe I

Ultrasonic Testing Level Three

George MZ
Nyaga WG

Ultrasonic Testing Wall Thickness

Abrahams K
Appelgryn BJ
Booyens C
Bruwer R
Cooper CC
de Kock R
Dlodlo TP
Fourie JJ
Gericke NJ
Gololo ME
Kgole TJ
Khanyi STP
Khuzwayo TR
Landsberg AW
Lottering DN
Luvhenga RS
Mabe A
Mabuza JB
Mahlare MKM
Makhado D
Makola RM
Malaza BNL
Mantsoe KP
Mashamba PC
Mashele S
Mbele NI
ME Salae ME
Mnguni KG
Moekoena NA
Mokuwe PI
Moloi KE
Msimango MM
Mulibana S
Muthivi RE
Ngobeni MC
Nkutha MV
Nxumalo TB
Radebe SPH
Ramashala TR
Smith CJ
Stevenson IM
Stevenson LG
Steyn PP
Strydom H
Tjale PKM
Tsanwani TT
van Zyl G
Weerepas IA

Radiographic Testing Level One

Bezuidenhout WF
Cox WJ
Langenhoven G
Mkhonza XI
Pienaar JP
van Staden PH
Walgenbach MA

Radiographic Testing Level Two

Banda E
Fourie MP
Gouws WS
Hattingh U
Stols GP
Swanepoel W
van Beek J

Radiographic Interpreters

Makhubela T
Mashiyane NF
Ogler CD
Roberts DK
Skosana P

Students that passed the Welding Inspectors Level One & Two

Inspectors Level One

Aalders MD
Aboobaker MS
Abrahams DE
Arnold TD
Bakane M
Ballantyne CJ
Banda D
Base MM
Bera NE
Blumears VL
Bopape BC
Botha CM
Botha S
Bridger SL
Buthelezi VM
Butler RD
Bux R
Bvochora G
Campbell B
Carey R
Carey RP
Chetty K
Chin Jin RM
Clarke J
Cook JJ
Couyava JN
de Beer E
de Preez AM
de Villiers W
de Vos GC
Dhilwayo TK
Dladla PS
Donnelly AJ
du Plessis P
du Plooy KO
Dube N
Faltian WDF
Fayers TM
Franks JLV
Geldenhuys JJ
George RH
Gomes ELL
Gomes TC
Govender G
Govender S
Grobler I
Haarhoff PJ
Haasbroek A
Harold AD
Hartzenberg PJ
Henning UNJ
Hiepner G
Jacks RK
Jackson EJ
Jacobs S
Jasson RB
Jones WR
Jooste GJ
Joubert DM
Kapp SC
Kell KM
Kerry JJ
Kgatla MS
Khumalo B
Khumalo NS
King DJ
Lamalette AC
Louw DF
Lucas EE
Lucas TH
Madalane SZ
Magagula NS
Mahomed AS
Maleka LH
Malesoene SS
Mangaroo A
Mansoor B
Mariyoni N
Maseko B
Maseko MN
Maseko NPT
Masete PL
Mashinini MCT

Masipa NP
Masola SL
Mathebula AC
Mavuso ST
McDonald MA
Meso MW
Meth DK
Mkhwanazi V
Mnguni PS
Morton W
Motsumi RS
Motswatswa K
Msweli S
Mthembu B
Mthimkulu JM
Myeza AZ
Ndhlovu SW
Nel R
Nkosi KE
Nkosi SF
Noel JR
Nyambi JK
Oakes RT
O'Hare K
Olivier HJ
Otto D
Panda K
Parsons AM
Petersen J
Pierce JJ
Pieterse JC
Plaaitjie MJ
Potgieter DA
Potgieter S
Premanathan SM
Qebeng TJ
Qurban H
Rabie JP
Radebe SV
Rajkoomar A
Rohan AL
Rowe E
Scheepers WG
Sebesho MM
Selematsela KC
Senekal CJC
Sibanyone CT
Sidlayi J
Simelane ZP
Smit C
Smit S
Smith DR
Solomon RD
Steyn DC
Stoltz GH
Supra PH
Tarin MO
Thamae NED
Titi T
Treigaardt GD
Tucker KA
Twynham DJ
Tyler J
van den Heever RAE
van Niekerk SA
van Staden N
Visser WC
Vundiswa CM
Walker S
Wheeler AG
Whyte TT
Wienand WPM
Zietsman CL
Zietsman LR
Zikhali D
Zwane LN

Inspectors Level Two

Aalders MD
Apande HA
Appelgryn DC
Bakane M
Barnard AR
Bedderson LAT
Bekker D
Bell RI
Bopape BC
Botes IJC
Bradley BRM
Calitz MC
Cameron J
Chapatso TP
Chin Jin RM
Cloete WD
Coetzee C
Cooper MA
de Beer PJ
de Wet HWS
Dithipe NF
du Plessis P
Dunn RB
Ford R
Fourie S
Godfrey MN
Gomes L
Goss ZA
Greyling C
Haasbroek A
Jacobs DH
Jansen R
Jayram T
Kalaba K
Kalaba R
Khoza FM
Khumalo B
Khuzwayo TR
Kotze DJ
Kruger GF
le Roux RP
Leoto ND
Lloyd YST
Lober RG
Mabuza GM
Maebela M
Mahlangu SL
Marques JP
Masola SL
Matlejoane BS
Matshivha FM
Mavuso LP
Mbhanesi TC
Meyer JW
Mkhwanazi PL
Mnguni S
Mnisi MT
Mohabir CS
Morrow AJ
Motswatswa K
Mphanya LM
Muchenagumbo D
Naidoo S
Naidoo V
Nel J
Nhlapo SO
Nkabinde L
Nontenjwa C
Norris L
Nortje PWS
Ntombela NK
Ntshekazi ZL
Opperman ST
Padayachee M
Padayachee S
Peters G
Pile WR
Rabie JP
Ramdhanee A
Ramoshaba MM
Rayner BD
Schoeman WJR
Scholtz A
Scholtz B
Sebesho MM
Sikakane NJ
Sithebe TM
Sithole SR
Sithole VE
Smit PJ
Smith DH
Smith GG
Snyders CV
Swanepoel PJJ
Theron AP
Titi T
van der Merwe A
van der Merwe JJ
van der Merwe NT
van Schalkwyk JC
Vicente FM
Viljoen AF
Wienand WPM
Woest QD
Xaba K
Zondo TJ

ASME Codes of Manufacture

Banda BD
Botha SG
Cilliers NJW
Fourie PA
Golbahram R
Govender D
Hoy BC
Kast RLK
Manikus JM
Manuel C
Mdletshe S
Pretoius FMC
Rheeder N
Smale RL
Smit J
Thomas K
Tissogn RV
Voogt MB

Painting Inspectors

Brazelle CR
Bwene LS
Coertzen HJ
Hartzenberg PJ
Kellerman Y
Khumalo SW
Kromer J
Le Roux LJ
Mathebula P
Pechey HL
Pienaar N
Tcheuffa FB

Certified Students

Boilers

du Plessis P
Khumalo SF

Pressure Vessels

Booysen J
Bvuma A
George M
Jali P
Khumalo SF
Lotz CM
Mare A
Shezi M
Smith D
Voogt M

IPE

Singh D
Snyman P
van Wyk M

Students from Cameroon, Sudan at the SAIW

The Southern African Institute of Welding (SAIW) is currently hosting a group of Non Destructive Testing (NDT) students as part of the triangular regional development programme sponsored by the International Atomic Energy Agency (IAEA), the relevant country and the SAIW. Four students from HYDRAC, in Cameroon, and five students from the Sudanese Atomic Energy Corporation (SAEC) in Sudan, participated in this training and qualification programme.

According to Harold Jansen, SAIW NDT manager, the programme aims at having the participants qualify in the four basic NDT methods viz. magnetic testing (MT), penetrant testing (PT), ultrasonic testing (UT) and radiographic testing (RT). "Not only will they receive training and examination up to and including Level 2 qualification, but they will also be exposed to the process of how the lecturing is handled as well as the handling of invigilation of examinations. The training programme started in mid – January 2015 and is expected to last until the last week in May 2015.

The objective of the regional development programme is to help establish Approved Training Bodies (ATB) and approved

Continued on page 10

The Southern African Institute of Welding is currently hosting a group of NDT students as part of the triangular regional development programme.

New Age Comes of Age

New Age Welding Solutions has come of age! This dynamic young company, which provides professional welding and mechanical services solutions to the South African Engineering industry, has achieved ISO 3834 comprehensive part 2 accreditation via the SAIW Welder Fabrication Scheme.

"This is an important moment for us," says Joseph Zinyana founder and GM of New Age. "ISO 3834 is the basic quality benchmark in our industry and ISO 3834 certification officially confirms for all our current and future customers that we provide a world class service," Zinyana says.

He adds that ISO 3834 certification is not only an affirmation for the 'outside world' that New Age is a thoroughly professional organisation, but it is also an internal affirmation. "It is important for every company to get an objective statement about its quality. No matter how big or small one's company is, one can fall into bad habits without realising it. So independent verification is vital and that's one of the reasons we are so delighted that we "passed the test" with ISO 3834", he says.

Sean Blake, SAIW GM Operations, says that the certification process with New Age went smoothly. "It is pleasing that so many more professional welding companies like New Age are applying for certification. There was a time when the industry felt that ISO 3834 certification was for the biggest companies only. Of course this is not true and now the number of companies, both big and small, applying for certification continues to grow in South Africa. This is an excellent thing as compliance with ISO 3834 ensures that our fabricators are working to the best possible standards," he says.

New Age's Joseph Zinyana and SAIW's Herman Potgieter.

Zinyana complimented the SAIW team which he says was "thoroughly professional" at all times.

Zinyana, who founded New Age Welding Solutions in 2003, says his company strives to exceed all its customers' expectations through excellent service, quality and practical solutions by using cutting edge technology and methods to enhance the customers' equipment integrity and availability. "We are committed to creating a safe working environment and to constantly applying innovative welding, mechanical and engineering related solutions in order to reduce customers' total cost of ownership," he says.

ISO 3834, supplements the already certified ISO 9001-2008 quality management system in New Age. Both systems ensure that New Age delivers a quality product to all its clients.

Other companies which have recently attained ISO 3834 certification through the guidance of New Age Welding Engineering services include: Petrochemical Piping Services and D&M Engineering." New Age shall endeavour to assist general welding companies to achieve this ISO 3834 certification wherever possible," Zinyana concluded.

Meanwhile for several years in Fusion we have spoken about the burgeoning popularity of the SAIW Welder Fabrication Scheme. The time however has now come to talk not of a 'burgeoning' initiative but of a highly successful Scheme that is playing a critical role in ensuring standards in the welding industry while also helping companies to get work both here and abroad.

"More than 75 companies and more than 35 sites have been certified since inception and the demand continues to grow," says Herman Potgieter, SAIW Qualification and Certification manager. "There is no doubt that the 'push-pull' effect in the South African welder fabrication market has been an important reason for the success of the Scheme. Life is made so much easier for the larger end users when they see that a potential supplier is certified as they can have confidence in the quality of the product supplied. End users are reluctant to work with non ISO 3834-certified companies and this has pushed fabricators to get certified," he says.

Students from Cameroon, Sudan at the SAIW *Continued from page 9*

Examination Centres (ExC) within various African countries. The SAIW facilitates this program in countries that are proficient in English with other languages, such as French and Portuguese, being facilitated via regional development centres catering for these languages in cooperation with the African Federation of NDT (AFNDT).

Once the qualification programme has been completed, the nine students will return to their respective countries in order to gain the industrial experience required as part of their NDT certification process. Certification is based on the SAQCC NDT scheme, which is a third party personnel certification scheme compliant with ISO 9712, the internationally recognised standard for qualification and certification of NDT personnel.

Once NDT training and examination within Cameroon and Sudan is sustainable, based on the numbers of students, a national qualification scheme will be established. But, until then, the SAQCC scheme shall be applicable, with SAIW Certification being the ISO 17024 accredited Personnel Certification Body (PCB).

We wish these students a long and successful career in NDT.

ISO TC44 Meeting hosted by SAIW in Cape Town

Some of the committee members at the ISO TC 44 SC8 sub-committee meeting held recently in Cape Town.

During January 2015, at the Lagoon Beach Hotel in Cape Town, the SAIW hosted the ISO TC 44 SC8 sub-committee meeting which deals with equipment for gas welding, cutting and allied processes. This was the first time this committee has met in South Africa, and it was indeed an honour for South Africa to host the experts in this field.

The committee members who attended the meeting were; Prof. Dr. Ing. Kurt Ziegler from the German Metrology Institute who chairs the committee; Stephan Wellendorf from DIN, the German Institute for Standardization – Stephan fulfilled the role of secretariat for the meeting; Uwe Schulze, from BAM, the Federal Institute for Materials Research and Testing; Cesar Joubert from Air Liquide France; Francois Chaussat from Cahouet in France; Marco Giannelli from Harris, Italy; Marco Arzenton from Air Liquide Welding in Italy and David Warhurst from the United Kingdom.

Our overseas visitors were joined by Roberto Dionisio from Afrox, Philip Doubell from Eskom, Sean Blake from SAIW as well as Peter Cross, Thero Malumane and Thembi Hlongwane from SABS.

The main items dealt with included the revision of ISO 5175 for flashback arrestors; ISO 15296 which defines the terminology for gas welding equipment; ISO 3821 which deals with rubber hosing for gas welding equipment; ISO 14114 – Acetylene manifold systems for welding, cutting and allied systems; ISO 2503 – Pressure regulators and pressure regulators with flow metering devices up to 300 bar; ISO 5171 – Pressure gauges used in welding; ISO 5172 – Blowpipes for gas welding, heating and cutting; ISO 7289 – Quick action couplings with shut-off valves; ISO 7291 – Pressure regulators for manifold systems up to 300bar; ISO 9090 – Gas tightness for equipment for gas welding and allied processes; ISO 9539 – Materials used for equipment.

The discussions were, as expected, technical and detailed and were sometimes rather heated, indicating the enthusiasm and passion that all the attendees have for the subject matter.

All in all, the event was a resounding success and affirmed SAIW's and indeed the entire South African welding Industry's commitment to the development and implementation of international standards.

After a hard day's work, the meeting participants enjoyed good food and indulged in the excellent wines that the Cape has to offer. Many of the European visitors took the opportunity to enjoy the sights of South Africa with some touring up the coast to Fish River Canyon, others travelling along the Garden Route whilst some simply just soaked up the Mother City's lovely sunshine.

The Complaints and Appeals Process in SAIW Certification

Continued from page 4

In Case 3 any aggrieved Complainant or Respondent may lodge an application for Appeal of a finding, decision or sanction of a Panel with SAIW Certification. An Appeal Panel is appointed constituted of not less than 3 (three) persons and a hearing is convened in which the Panel treats the Appeal as an Appeal in the wide sense and shall (unless otherwise agreed in writing by both parties) re-hear the matter de novo (i.e. it hears the full complaint again).

Legal representation is not allowed in SAIW Certification disciplinary hearings because complaints and appeals are dealt with as internal issues but of course all parties have the opportunity to use the legal justice system.

The background to the complaints and appeals processes are that SAIW Certification must uphold the standards of a body which is certifying people and companies giving them credibility in a particular field of technology.

It is attesting to the ethics and quality of persons and companies. Consequences for certified persons or companies breaching the standards of the certification system can be severe. At the same time the body has to be fair and transparent. Wherever needed the good practices that are expected of a certification body are applied so, for example, no member of a panel may have a conflict of interest in relation to a complaint and the persons or organisations involved. Impartiality has to be seen as well as practiced.

For more information contact Herman Potgieter at potgieterh@saiw.co.za.

Please note: the above article is only a brief synopsis of the SAIW Certification procedure for complaints and appeals.

The procedure is binding and can be found on the SAIW website (click on the Certification tab on www.saiw.co.za).

Branch NEWS

Johannesburg

An evening meeting was held on the 25th of February where Gammatec's Michael Beaugrand and Shaun Nelson presented their new technologies for digital radiography.

Two different technologies were presented, the HPX-PRO CR which is a system that produces high-quality digital radiographic images utilizing a new single pass scan/erase protocol on a flexible sensor that produces a digital image.

The second technology presented was NDT PRO Industrial Film Digitizer which is a scanner that digitises traditional radiographic films. It addresses the unique needs of aerospace, petrochemical and other industrial testing applications at a lower-cost alternative to expensive laser scanners currently used throughout the industry.

Heat Treatment Course 6-10 July 2015

"Heat treatment for Engineering" course will be running from the 6th to the 10th July and will be presented by Dr. Andy Koursaris a previous President of SAIW and previously a Prof at Wits.

This five-day course covers the processes used on a day to day basis to manipulate the microstructure and properties of steel.

New Corporate Members:
CFW Industries
Razven Solutions (Pty) Ltd
University of the Western Cape

New Members:
Olivier H
Digby M

Cape Town

Our final evening meeting & the Cape Town AGM took place on the 20th November. The Secretary of the CT Committee gave an overview of branch and committee activities for 2014, and thanked the outgoing committee for their loyal service. The new committee for 2015 is:

Jerome Arends (Intertek), Liz Berry (SAIW), Paul Barber (PG Test), Andrew Ceto (Eskom), Corné Cotzee (Afrox), Angus Donaldson (AM Donaldson), Nick Miles (RITC), Danel Nieuwoudt (GRI), Sean Pearson (Pearson Distr), Stuart Tanner (SF Tanner & Son).

Corné Cotzee and Liz Berry were elected as Chairman and Secretary respectively.

The AGM was followed by a presentation by Hennie van Rhyn of Afrox entitled "LindoFlamm Flame Solution – Why Acetylene is the preferred Fuel gas to use".

The first evening meeting for 2015 was "Determining Pre-heat to Avoid Hydrogen Cracking using ISO EN 1011-1 & 1011-2" presented by Etienne Nell of the SAIW. Attendance was great.

At the time of publication, the annual Western Cape Golf day will be underway (5th March) – all the winners will be published in the next issue!

Our first Welding Inspector (SAIW Level 1) group for the year started training on the 26th January, closely followed by Group 1 of the Senior Inspector (SAIW Level 2).

For details of upcoming courses and events, or a copy of the full SAIW Curriculum, contact Liz Berry on berryl@saiw.co.za.

Durban

KZN has had a very quiet start to the year. Our AGM took place on the 12th of February. SAIW's GM Operations, Sean Blake, provided a review of SAIW's activities during 2014 as well as the proposed activities in 2015 for Kwa-Zulu Natal.

The search for a permanent home for SAIW in Durban is progressing full steam ahead and we hope to report on our new premises shortly.

Five Welding Inspector Level 1 courses will be held in Durban in 2015, one more than last year, and three Senior Welding Inspector Level 2 courses, two more than last year.

We will also be presenting the much anticipated Welding Symbols course, Appreciation of Welding course, ASME Codes of Manufacture, AWS D1.1 Codes of Construction and Competent Persons courses.

On the NDT front, SAIW will be presenting the Radiographic Interpreter course twice, as well as the Appreciation of NDT for Engineers course.

We thank the members who have volunteered to help with the Kwa-Zulu Natal Committee, namely Tullio Monté, Donovan Govender and Dawie van der Merwe.

We are looking forward to our dinner for the Presentation of Diplomas which will be held on 26 March at the Greyville Racecourse. We will be presenting in excess of 100 successful students with their diplomas.

JOHANNESBURG (HEAD OFFICE)
Membership Services Secretary: Rencia Grundlingh
Southern African Institute of Welding
52 Western Boulevard off Main Reef Road
City West, Johannesburg
P O Box 527, Crown Mines, 2025
Tel: +27 (0)11 298 2100
Fax: +27 (0)11 836 4132
E-mail: grundlinghr@saiw.co.za

CAPE TOWN
Western Cape Representative: Liz Berry
Unit 38 Milpark Centre, Ixia Street
Milnerton
PO Box 179, Table View, 7439
Tel: +27 (0)21 555 2535
Fax: +27 (0)21 555 2517
Mobile: +27 (0)84 446 0629
E-mail: berryl@saiw.co.za

DURBAN
Kwa-Zulu Natal Representative: Ann Meyer
Mobile: +27 (0)83 787 5624
E-mail: meyera@saiw.co.za