



# S61

# NEWSLETTER

---

**September/October 2022**

# Spring

---

The long night took our pigmentation and I guess along with that our fondness for the Sun. The glare of natural light reflecting off the white landscape is taking some adjusting too; blinds that were once always open are now closed to block the brightness of the sunlight from our nightly eyes. A not so rosy welcome for the Sun unfortunately, however the warmth that comes with the Sun is appreciated, as this affords the team the opportunity to do some work outside without the pains and aches of freezing.

Regular sightings of birds have sprung reducing the loneliness of being in this far away frozen land. It is amazing how something as common as seeing birds at home in RSA would extrude so much joy and excitement for us here. This feeling could be summed up with the words "WE ARE NOT ALONE".



We have double header interviews for you from **Aphiwe** and **Thulz** as they share their experiences thus far in our expedition. Trust you will enjoy as we start off with the man who celebrated his birthday in October, our:

## **Communications Tech Aphiwe Dyum**

### **1. How would you rate SANAE compared to**

Well there are a lot of similarities and also some few differences. SANAE is all covered in ice and the weather is always horrible. Whereas in Marion there are a lot of good days where you get to walk out on the field and get some fresh air and be adventurous. To add on the above, the base at Marion is a little cold compared to SANAE, meaning that whilst inside the base it is necessary sometimes to have many layers of clothes on. On the other hand, the SANAE base is warmer inside and you can literally have only vests (if you are a bodybuilder) on for as long as you want.

To touch on the similarities a little bit, both here in SANAE & Marion base you are expected to do some team work, meaning that you will have to interact with others and also take responsibility and accountability in keeping the base neat and tidy all the times.

### **2. Share with us your highlights for this year 2022**

One of the things I have never done in my life is staying indoors for an entire month without seeing the sunrise/sunset. I had never imagined even in my wildest dreams that I would ever be in such a place, but here I am today having spent nearly a year in such a place and still it's oh so beautiful.

Also, the fact that I am involved in the process of getting clean drinking water is also one of my highlights thus far. On the plus sign of being a proudly South African, this is one place that I will never forget as we have 0% crime rate here. Back home I must always be cautious about every little thing and my personal belongings. I have always been careful of what I have and know that at any given time I can just lose it. But here in SANAE base I literally do not need to worry much about losing any of my personal belongings due to theft or robbery. Here I can leave my room with all my personal belongings unlocked and when I get back to it, I will find everything exactly the way that I had left them, this is truly amazing to me and I always have high hopes that this will be the case back home in Humansdorp, South Africa.



### **3. Tell us what you do here**

My job here is to look after the electronic communication equipment ranging from HF/VHF radios, Satellite system, telephonic equipment, navigational systems and a computer LAN. This means whenever there is a break in the communications system between us i.e., SANAE base and Cape Town and the rest of the world I must be able to investigate by troubleshooting and restore communications as soon as possible.

As you would imagine back home that SANAE is roughly  $\pm 4000$  km away from Cape Town and we need to constantly keep abreast of all the news happening back home and rest of the world. So, my job in here is mainly to maintain all the communication systems mentioned above to be in good working order all the time. Also, to attend to any breaks/ faults and resolve them as soon as possible. Also, whilst all electronic systems are all operational as they should, I must also try and come up with better ways of managing the systems and constantly keep myself up do date with the newer and better systems out there in the market.



***Hard at work with Fibre cables***

### **4. What do you miss about home?**

I miss mostly the people that are so dear to my heart, i.e., my family and my friends. I miss the bright lights and city life back home, the driving on our highways and seeing forests/trees, bridges, tall buildings and being in shopping centres and sport arenas. I miss a lot back home and I can't mention it all in here.

### **5. How do you pass the time when you are not working?**

Well I love spending time in the kitchen and try some few recipes in there. I am not very good in cooking, however whilst here I try and better my cooking skills by reading some recipes and talking to some people back home and ask them how they prepared some of the meals that I love and then try them out here.

Also, I enjoy playing games especially board games with others. There is a lot of laughter in here and this is actually one of the ways I use to try and not think of all the troubles that are out there in the world.

Lastly when I am not cooking nor playing games, I try and read news feed on the internet, also talk to my people about just anything that comes up my mind.

**6. What have you learnt from your SANAE colleagues?**

Well I've learned quite a lot about them and especially their personalities. Great people I have around here indeed. They are always willing and ready to assist others in any way possible. One thing that stands out about my colleagues in here is that, regardless of every persons look and background we all know that we come from different places and we might not like the same things all the time. We are here for a common purpose and that is to look after the South African Antarctic base, do our jobs as required and live in harmony together.

**7. What would you do to improve awareness for this program?**

Well I do believe that the department is doing its best to try and ensure that more people back home are informed and are aware about the SANAP program. This can be proven by the number of followers the Antarctic legacy South Africa (ALSA) have social media accounts. Also, the people that I had the opportunity to engage with in the past and the interest they have shown in becoming involved on the SANAP program. The long and short of this, I do not have much input in here as I think the department is trying its utmost best to try and ensure that people at home are informed about career opportunities on the SANAP program.

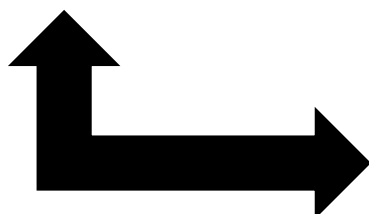
Aphiwe forgot to mention how he doesn't just play games with the team for fun, but rather that he plays to win. All will know if and when he has won a game of pool, monopoly, chess, table tennis or poker☺.



**Aphiwe enjoying a night of Poker with the team**



**Bragging rights are the order of the day for Aphiwe on Pool nights.**



# Meet our Mechanical Engineer, Deputy Station Leader and Technical Team Leader: Thulani Ngwaqa

## **Q1: Share with us what your work at SANAE is?**

I am the Mechanical/Base Engineer for South African National Antarctic Programme 61st Overwintering Team in SANAE IV Base. Therefore, my duties or responsibilities are as follows: ***Ensure the serviceability of and operate the mechanical and civil services and equipment, that is placed under my responsibility as per the duty sheet for this post***, that is: To perform daily routine checks on the equipment ensuring that is operational. Manage the Mechanical Team and ensure good coordination. Perform the planned and any other required maintenance. Troubleshoot and conduct the necessary repairs. Check the stores for spares and ensure that at the end of my tenure the stocks are replenished. Provide support to NDPWI & DFFE during the Relief Period. Help train and familiarize the following Mechanical Engineer during the Relief Period. Manage the whole Technical Team as the Base Engineer. Ensure that any problems are fixed immediately.

***Ensure the serviceability of all additional base related technical systems and equipment as part of the base Technical Team:*** Perform daily checks (base checks) as part of the technical team. Daily base-checks are done and recorded. So it is my duty to check these records at least weekly to identify any problems and abnormalities. Help others as part of the Technical Team to Troubleshoot and conduct the necessary repairs. Help perform standard maintenance. Oversee the maintenance and servicing of the vehicles, snow mobiles and the power generators. The maintenance and servicing of: the air-conditioning, refrigeration, vacuum, water reticulation, diesel bunker, and the snow smelter systems. Operate earth moving machines and cargo handling equipment. Use BMS to monitor all the systems integrated to it, pump water from the snow smelter to base, pump polar diesel from diesel bunkers and change or adjust set points when required.

***Perform Administrative Functions:*** Prepare monthly and annual reports on all work performed, state of mechanical equipment, and spares utilized or required. Prepare monthly and weekly reports on SANAE IV Water and Wastewater Analyses from the results obtained from the Laboratory, more especially regarding the final effluent discharged from the base to the environment (cliff). Conduct the stock taking and related issues.

The operation of the Membrane Bio Reactor (MBR), waste water treatment/effluent plant: daily process by taking process control samples, conducting analysis, taking readings, interpreting information and make the required process adjustment. These include the settings for pumps, blowers and chemical dosing. Operations of the decanter system to, remove solids from the effluent plant. In the waste water treatment plant (WWTP) there is a touchpad or human-machine interface (HMI) used to adjust settings.

I spend most of my time working in the lab and WWTP. Every day, I perform daily checks and record the readings on the MBR plant log sheet.



**Daily**, grab sample from final effluent and take readings of pH, electrical conductivity (EC) and ammonia (NH<sub>3</sub>). If any reading exceeds general limits guidelines, then the required process adjustments are made to ensure that the WWTP complies, as it is of paramount importance to discharge clean or harmless final effluent to the environment (cliff). **Weekly**, grab samples and do laboratory

analysis from *Final effluent* {pH; EC; NH<sub>3</sub>; NO<sub>3</sub> (nitrate); COD (chemical oxygen demand) and TSS (total suspended solids)}; *Membrane or Filtrate tank* {pH; NH<sub>3</sub>; COD and TSS}; *Aeration tank* {TSS}; *Anoxic tank* {TSS}.

**Monthly**, grab samples and do laboratory analysis from *Final effluent* {pH; EC; NH<sub>3</sub>; NO<sub>3</sub>; COD; TSS; PO<sub>4</sub> (Phosphate); Alkalinity; Colour Apparent; Colour True and Faecal Coliforms}; *Membrane tank* {pH; NH<sub>3</sub>; COD; TSS and Alkalinity}; *Aeration tank* {pH; NH<sub>3</sub>; COD; TSS and Alkalinity}; *Anoxic tank* {pH; NH<sub>3</sub>; NO<sub>3</sub>; COD; TSS and Alkalinity}; *Plant influent or Raw* {pH; EC; NH<sub>3</sub>; COD; TSS; PO<sub>4</sub> and Alkalinity}; *Water Fountain* {pH; EC; Turbidity; Colour True; Colour Apparent; Alkalinity; Total Coliforms and E.coli} and *Water Kitchen*{pH; EC; Turbidity; Colour True; Colour Apparent; Alkalinity; Total Coliforms and E.coli}.

**Quarterly**, grab samples from *Buffer tank* and do laboratory analysis of {pH; EC; NH<sub>3</sub> and COD}; *Flotation: Outlet* {COD} and *Flotation: Inlet* {COD}. In summer decanter is run in weekly basis and in winter is run in monthly or quarterly basis. When decanter is stable samples are grabbed for laboratory analysis, from the *Sludge Supernatant* {TSS}; *Sludge Feed* {TSS} and *Sludge Cake* {TSS}. And the major service of the WWTP is done **annually**.

Before doing labs I always make sure that the instruments are accurate by measuring the standard solutions for quality control. When running out of standard solutions then I prepare them, but only those that can be prepared in our lab.

I am also the leader of the technical team consisting of a mechanical engineer (myself), millwright and two diesel mechanics. Our role is more of support staff, to keep the base functioning in order to allow the scientific work to continue. I am very lucky and

## Q2: What does it take to go through a year at SANAE IV BASE?

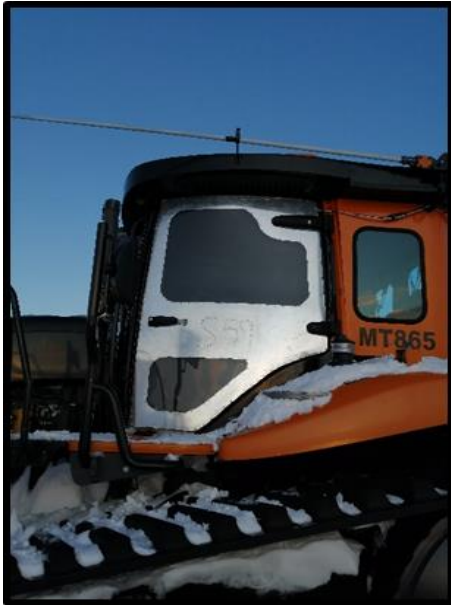
It requires selfless; sense of urgency; team player; endurance; ability to work in a team;

ability to work long hours when required; ability to work under pressure; ability to gather and analyse information; safety conscious; initiative and self-driven; leadership skills and analytical. You need to stay focused, no matter what happens in your family back home. There is no room for carelessness, so you must be systematic and meticulous.

There is no hardware shop or motor spares shop, so if the glass door gets shattered then sheet metal can be used to fabricate or manufacture new door (frame) and Perspex can be used to replace glass or window and so on. The picture on

the left hand side shows the final product of the replacement door fabricated by the technical team in 2020. The picture on the right hand side shows the shattered glass door on the vehicle due to heavy storms. The door for challenger #6 got shattered during heavy storms in my first expedition here with S59 (2020) and we had to use what we had in our stores to fabricate the new door. This year the S59 door was replaced by a brand new glass door and it got shattered again during heavy storms in winter hence S59 door will be reinstalled back to the vehicle when the weather permits. Technical team (S61) has done some work to strengthened or modified S59 door to get ready for the next takeover 2022/2023. Please see the pictures below showing how the door was fabricated.

Here in SANAE we use whatever we have to make anything and we enjoy doing that. This is the perfect place for me because I am very useful with my hands. Most the people in my community back home call me a jack of all trades.







*Markings on the sheet metal for cutting*



*Fabrication of door frame in process*



*Thulz marking on the door frame where final trimming must be done*



*Marking for latch and handle on the door frame*



*Technical team (S59) with finished fabrication of the door for challenger6*



*Recently strengthened or modified door or door frame by S61*

**Q3: What activities do you enjoy doing when you are not working?**

Organizing, requesting quotations and doing sample branding merchandise for our team. Playing games like pool table, darts, cards and board games. Cooking when it is my turn on cooking skivvy roster. Reading news from the internet to catch up with what is happening in the world. Sewing whenever clothes need some stitches or need to attach some badges and so on. Drawing house plans of my dream houses because I am a dreamer.

**Q4: How does this trip compared to the last?**

The last trip was the best to me. The weather was not as bad as it is this year. This year, we can hardly go outside to work and enjoy ourselves due to nonstop heavy storms accompanied by extremely freezing temperatures.

**Q5: Will there be a third trip?**

Yes, I think there will be a third trip. Once you bond with this place, you keep missing it when you are back home (South Africa).

**Q6: What do you look forward to do when you are back home?**

I look forward to visit my father's tombstone and place a stone, since I was not able to attend the funeral service. He passed away in the morning the day after my birthday (03/02/2022). "May his soul rest in peace" I look forward to helping my family take off mourning clothing (ukukhulula izila), more especially my mother and I wish to be there when that ceremony or ritual takes place. Spend time with close friends, my family, more especially my son. To see how my cows are doing and probably have more livestock. I look forward to register with Engineering Council of South Africa (ECSA). There is an endless list of things that I look forward to do when I am back home.

**Q7: How does this program benefit South Africa?**

The purpose of this program is to safeguard the environment of the Antarctic and Southern Ocean and protecting the integrity of ecosystems, both marine and terrestrial in the region. The mission of the SANAP is very clear: it is to increase the understanding of the natural environment and life in the Antarctic and Southern Ocean through appropriate science and technology. Without Scientific research (SANSA etc.) South Africa would be in the dark with what is happening in the world including the weather (SAWS), life in the Southern Ocean and so on. This program has put South Africa on the map. There are always job opportunities available for expedition members and so on, and that needs to be appreciated, knowing that it is tough economically these days, more especial after covid-19, lot of industries or companies lost businesses.

The South African research vessel, SA Agulhas II, equipped with two helicopters rescued 62 seafarers that had been stranded on a remote South Atlantic island after their vessel sunk in October 2020. The South African Research Vessel was coming back from one of the voyages when she had to be dispatched back for rescue mission. SA Agulhas II has also managed to locate the sunken ship (The Endurance) in March 2022. The Endurance has been found and successfully surveyed and filmed for research purposes. Sir Ernest Shackleton's ship, The Endurance was crushed and sank to the ocean floor about 3km deep in the Weddell Sea, Antarctica in 1915. And that on its own is something big in the world and it will be written in history books. I am very proud of this program. The list is endless about how this program benefits South Africa.

Just by reading you can tell that our Base Engineer is a stickler for order, something I find most admirable. We are truly fortunate to have him in our team.

That's all for this issue till next time from:

**SANAE IV BASE Team 61**

