

New oil recycling plant takes off in Australia



Years of hard sweat developing the world-beating Pietermaritzburg hydrogenation plant is paying off for FFS. A new lubrication oil recycling plant commissioned in New South Wales in August 2007 has already achieved production of 2 600 000 litres a month of top quality base oil for re-use.

This R100m plant was designed by FFS, fabricated in its Durban workshops and was shipped to Australia for assembly on site. The enterprise is a 50:50 joint venture between Australian company TransPacific Industries through its

▲ The Australian plant at night

used lubrication oil collection company Nationwide Oil, and FFS. This new company is called TransPacific Refiners (Pty) Ltd (TPR).

The plant is designed to recycle 3 500 000 litres a month of waste engine oil back into base oil for re-use. Pre-treated oil is received from Nationwide's propane solvent extraction process in Sydney for hydro-finishing.

The process consists of a fixed bed high-temperature and pressure hydrogenation reactor followed by

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Danielle Martin, receptionist at FFS Prospecton depot

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FFS completes major empowerment deal

FFS now has a 25,1% Black ownership following the sale of Sasol's minority shareholding in FFS. The BEE partner is Calulo Petrochemicals who are no strangers to the oil industry. The deal was funded by Standard Corporate & Investment Bank and although concluded in August 2007 was back-dated to March 2007. Calulo's founders – Mkhusele Faku and Mpho Diale – have been appointed to the new FFS Board of Directors. The new FFS Board now consists of Tony Hurter (chairman), Diane Hurter, Don Hunter



(managing), Don Cochran (financial), Mkhusele Faku, Mpho Diale, Gregg Hurter and Jerome McLoughlin. ■

▲ FFS managing director Don Hunter and chairman Tony Hurter, with one of the founders of Calulo Petrochemicals Mpho Diale, after signing the deal

FFS develops a cost-effective oxygen sensor

FFS has broken new ground again with the development of a cost-effective online sensor for measuring oxygen in combustion gases. The new sensor, dubbed the Lambda+, employs technology originally developed for catalytic converters in the automotive industry. The Lambda+, which is fitted to the flue of a fuel-burning appliance, converts small electrical signals from the oxygen sensor into an industry standard 4-20mA output

with a high level of repeatability. This output signal represents the percentage of oxygen present in the combustion gas and is a reliable indicator of combustion efficiency. Indeed, it is practically impossible to set up a burner efficiently without such a device.

The Lambda+ can be used to continuously display or record combustion performance and can even be connected to a SCADA and other control units to provide

automatic combustion control and trim.

Says managing director Don Hunter: "It is a valuable tool that can be used for the proper management of many combustion devices, and is a fine example of the FFS culture of innovative research and development."

Setting and maintaining a burner efficiently can save up to 10% of the fuel bill. ■

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a vacuum stripper and a flash point correction column. The losses, at less than 5%, are very low and the quality of the base oil to SN 150 ASTM colour 1.5 specification is very high with less than 10ppm total metals. The plant has met and exceeded all environmental emission constraints.

FFS managing director Don Hunter says the plant in Australia promises to be a most profitable venture given growing environmental awareness and the runaway crude oil price. There is also great

scope for further expansion as the technology can be applied in most developed countries. He says FFS has been extremely busy in the past year expanding its technology, product range and geographic footprint. ■



▲ The Transpacific Refiners group in front of the Australian plant



▲ Products showing the clarity and brightness that is being achieved



▲ Overview of plant and storage tanks at the Australian refinery

Handicaps are cut at Evander



◀ Evander tar plant processing facility

The new FFS tar processing plant close to the Evander golf course has met stringent environmental requirements. Many modern safeguards, such as vapour recovery and scrubbing, hard surfacing and bunding, cut-off drains and ground water monitoring boreholes, have allayed the concerns of golfers who can focus again on improving handicaps.

After six months of operation the first air emission monitoring found that the operation was fully compliant and in line with initial air modelling estimations. Several members of the 70-strong staff com-

plement at the plant are believed to have already improved their own golf handicaps.

The R40 million plant, designed and built by FFS on a green-fields site, was commissioned last year after the decommissioning of the 29-year-old “temporary” tar processing plant on Synfuel’s unutilised product dams at Secunda. The various waste hydrocarbon streams were exhausted and the site was needed for Synfuel’s growing ash dump. The operations were completed without any disruption to market supply.

Annual output at Evander is 30 000 tons a year of wood cre-

sote for the utility pole market and coal tar fuel for use as a glass furnace reductant. Waste tar material for processing comes from the production of coke and char for the metallurgical industry as a by-product.

The plant consists of a fully self-sufficient operation including extensive storage facilities, steam boiler, evaporators and centrifuges, laboratory and weighbridge, workshops, transport, canteens and offices. The new facilities are a vast improvement on the old temporary Secunda plant and the staff has already started to beautify the site with grass and trees.

The operation employs 70 people and a further 25 indirectly, and the plant contributes around R24 million a year to the local area economy. ■

Emission reduction at PMB refinery

Improved emission control measures at the FFS Pietermaritzburg refinery are setting a new standard for air quality. This program involved extensive air sampling and analysis as well as a comprehensive emission control maintenance plan.

Independent consultants Simpson, Ryder and Associates undertook a comprehensive fugitive emissions survey last year. Although emissions were pinpointed in several areas of the plant, they were inside legal limits. Nevertheless remedial measures were taken to achieve further reductions. These included the installation of vapour balancing ducts on process and



▲ The FFS management team receiving the ROSE Foundation trophy are from left Yolande Omar, environmental administrator, Stephan Roeloffze, branch manager, Alison Haycock, company environmental manager, and Arno van der Merwe, factory manager. Raj Lochan of the ROSE Foundation is in the centre

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storage tanks, scrubbing of vent gases and close fitting inspection hatches and lids.

FFS introduced diffusive samplers positioned on the fence line, tanks, plant and other fugitive emission sources. Sampling provides data on VOCs (volatile organic compounds), sulphur dioxide, nitrogen oxides and hydrogen sulphide emitted over several weeks. A sophisticated multi-component air quality monitor, the first in South Africa, is also used in areas that have been pinpointed, to provide more detailed information on a short term basis. Fence line sampling has shown full compliance with the annual benzene limit with a margin of tolerance.

Alison Haycock, company environmental manager for FFS, says improved monitoring and a comprehensive database of emission readings has allowed for more focused investigation of anomalies and rapid modification of plant and processes to ensure continued full compliance with

all legal requirements and other adopted international standards. She says the fugitive emission measurement, control and maintenance plan has improved the environmental performance tremendously. Indeed, the new system should largely put to rest complaints from residents and environmental groups about pollution problems.

This program and the commitment of staff have led to the Pietermaritzburg refinery receiving The ROSE Foundation floating trophy this year for the best operation among the four FFS refineries with ISO 14001 accreditation. The award is based on a broad range of criteria extracted from the ISO 14001 environmental management system audited by WSP Environmental, an independent third party.

The refinery processes used oils into fit-for-purpose fuels and products. ■

Wood preservative R&D pays off

Wood preservative research and development has enabled FFS customers to cut treatment time and costs, and improve product quality.

Carl Frankenfeld, FFS national sales manager, says the company has shown strong commitment to the industry since entering the preservative market 2,5 years ago.

At the outset an automated mini-treatment plant was designed and fabricated in the FFS workshops to gain a better understanding of the basic principles of all wood preservative treatment dynamics, and to test and refine new processes and technologies. He says research indicated that preservative penetration into the wood was inhibited by low preservative temperature and that these low temperatures were caused by inadequate heating facilities at treatment plants and by the temperature of the wood itself.

Heat exchangers have since been supplied and installed at several customer treatment plants. These efficient FFS heat exchangers are installed with heavy duty circulating pumps and they provide preservative heating for the working tanks prior to application and for the pressure

cylinder during the pressure treatment cycle. Preservative now enters the cylinder at the correct temperature and can be maintained for the duration of the treatment cycle. This ensures good preservative penetration and reduces overall treatment time. "The result is a better quality product at lower cost."

There was also a need for reliable and accurate measurement and control of critical wood treatment process parameters such as preservative temperature, vacuum and pressure levels, and quantities used during the wood treatment cycle.

FFS recently installed data logging

systems at three of its bigger wood preservative customers. The data loggers record these critical parameters that can then be transferred to a computer database using cellular phone telemetry, direct cabling, local wireless links or data-card. The database can be used to ensure that treatment regimes comply with national and customer standards, and is an effective management tool for the running of any wood treatment plant.

"Many more exciting developments can be expected from the ongoing FFS R & D programme. Watch this space," he says. ■

New mechanical workshop

After years of sharing a corner of the company's fabrication workshop, the FFS centrifuge repair and maintenance shop finally has its very own workshop. FFS runs a variety of centrifuges which are re-built and maintained in-house, although the balancing is done by an outside concern. In this shop the machines have their



purpose-made tungsten wear parts fitted, and all parts are assembled and tested before dispatch back to the factory.

Staff appointments and promotions

Kate Robinson

is now the chief chemist responsible for the effectiveness of the FFS laboratories around the country. She is also responsible for monitoring product blending to ensure optimum performance. Kate has a masters degree in chemical technology and spends much of her time on chemically-related research and development.



Bilal Sayed, a chemical engineering graduate, has moved from Durban factory production to the R&D team at head office.



Neil Yelland

has been promoted to operations manager, based at FFS Refiners' head office in Durban. Neil has a BSc in chemical engineering and has completed his MBA. His new position will facilitate an overall improvement in the integration of the company's strategy and performance.



Paul Watson

replaces Neil Yelland as branch manager of the FFS Cape Town facility – the largest branch in the group. He is a graduate mechanical engineer and will be responsible for all on-site activities.



Johan Kruger

has been appointed plant engineer at the new tar processing facility in Evander. Johan has an engineering diploma and a government ticket.



Thembinkosi Khomo and **Martin Bezuidenhout** are part of the KZN sales team. Both have vast experience in the industrial fuels sector and in-depth understanding of combustion systems. This enables FFS to best assist its customers with the optimisation of combustion systems and to quickly identify and solve combustion problems.

Denzil Bazley

has been appointed branch manager of the FFS processing facility in Durban. Denzil, who is a professional engineer with a BSc in mechanical engineering, manages the overall production, maintenance, transport and laboratory at this busy plant.



Mona Naicker

recently joined FFS as company secretary. Her BSc and LLB qualify her to handle various legal issues.



Purchase of ROSE depots

Following a change in strategy, the ROSE Foundation moved from a direct commercial involvement in the purchase and sale of used lubrication oils, to environmental monitoring and incentivisation. This resulted in them selling off their collection depots. The ROSE Foundation (Recycling Oil Saves the Environment) is an oil industry initiative to ensure the responsible collection, storage, transportation, processing and disposal of used lubrication oil in South Africa.

FFS won the tender to purchase three of these ROSE Foundation depots at Brackenfell in Cape Town, Prospecton in Durban and Paterson Road in Port Elizabeth.

Collectors recover used lubrication oil from garages, transport

► Proud manager Neil Freimond in front of his spotless Prospecton facility



◄ Used oil reception tanks at the Prospecton depot

workshops and industry, and deliver this wet oil to these depots. FFS, as an approved processor with Waste Site Exemption, then processes this valuable non-renewable resource into a range of products, includ-

ing recycling back to base oil. The effluent oily water received with the used lubrication oil is treated in purpose-designed treatment plants for disposal to municipal sewer. ■

New policy elevates Corporate Social Investment

Corporate Social Investment has been elevated as a key component of the FFS business strategy.

The FFS board has now significantly expanded and formalised a co-ordinated and progressive programme, says managing director Don Hunter.

“We have a clear focus allied to our core areas, that is mutually beneficial to disadvantaged communities and to ourselves. More than ever we are committed to the empowerment, development and growth of disadvantaged communities.”

The three focus areas are: Maths, science and technology education for secondary school teachers and pupils, training in technical skills in the engineering fields, and development of a technical training school. FFS will support a new combined KwaMashu/Inanda Protec branch that teaches maths and science to promising youngsters on Saturdays and during holidays. Continued support will also be given to the annual FFS Expo for Young Scientists, now in its 18th year.

On the environmental front the company will support projects that teach awareness to teachers and pupils, and that facilitate recycling.

Small grants will continue to support projects undertaken by a range of welfare organisations in communities assisted by the company. These include feeding schemes and homes for AIDS orphans, and support for handicapped children.

The CSI programme is financed by the allocation of at least 1% of annual taxed profit.

Greater Good South Africa, a non-profit organisation, has helped compile the CSI policy and will continue to identify projects that need help.

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If you would like to receive a copy of FFS News, or you have changed your address, contact head office. Visit the enhanced FFS Refiners website on www.ffa-refiners.com

At the 2008 FFS Expo for Young Scientists:

▼ Sizophwe Shoba, grade 10 pupil at Little Flower School in Ixopo, concluded that heredity played a bigger role in human intelligence than environmental and social factors



◀ Boyd Dreyer, grade 8 pupil at Maritzburg College, compared vegetables fed with leachate liquid from a worm farm with vegetables using conventional fertilizer

FFS joins Rally to Read



◀ Youngsters enjoy new reading material at Madudla Junior Primary School

Rally to Read has become another flagship project in the new CSI programme. Don Hunter, managing director of FFS, says children can't be taught maths or science if they can't read, so it is necessary to get priorities right.

Don Hunter and wife Shirley went on FFS' first rally to two rural schools in Zululand. These Hluhluwe schools are among hundreds of under-resourced schools nationally that are benefitting from the reading material, teaching aids, training and support supplied by READ.

Say the Hunters: “It was very humbling to see the interest and enthusiasm of the children learning in these difficult conditions, with no electricity or water and very little in the way of resources. It is patently clear that without a basic education that provides adequate literacy skills these rural children will not be able to escape the chains of poverty.”