



Cape Environmental Assessment Practitioners (Pty) Ltd

Reg. No. 2008/004627/07

Telephone: 044 874 0365
Facsimile: 044 874 0432
Web: www.cape-eaprac.co.za

First Floor, Eagles View Building
5 Progress Street, George
PO Box 2070, George, 6530

ENVIRONMENTAL AUDIT # 7

For

AFRO FISHING (PTY) LTD MOSSEL BAY



Prepared for the Applicant: Afro Fishing (Pty) Ltd

By: Cape EAPrac

Report Reference: MOS009/07

Date: 30 April 2014

APPOINTED ENVIRONMENTAL ASSESSMENT PRACTITIONER:***Cape EAPrac* Environmental Assessment Practitioners**

PO Box 2070

George

6530

Tel: 044-874 0365Fax: 044-874 0432

Report written & compiled by: **Melissa Mackay** (BTech & ND Nature Conservation), who has eight years' experience as an environmental practitioner.

PURPOSE OF THIS REPORT:

Environmental Audit Report

APPLICANT:

Afrofishing (Pty) Ltd

CAPE EAPRAC REFERENCE NO:

MOS009/06

SUBMISSION DATE

30 April 2014

ENVIRONMENTAL AUDIT # 7

AFRO FISHING (PTY) LTD

MOSSEL BAY

Submitted for:

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Cape Environmental Assessment Practitioners

Tel: 044 874 0365
Fax: 044 874 0432
Web: www.cape-eaprac.co.za

PO Box 2070
5 Progress Street
George 6530

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GLOSSARY

DEA&DP	Department of Environmental Affairs and Development Planning
EIA	Environmental Impact Assessment
ECO	Environmental Control Officer
IDC	Industrial Development Corporation
MCM	Marine and Coastal Management
NPA	National Ports Authority
ROD	Record of Decision
TAC	Total Allowable Catch

1 INTRODUCTION

Cape Environmental Assessment Practitioners (*Cape EAPrac*) was appointed by **Afro Fishing (Pty) Ltd** to conduct the twice yearly Environmental Audit required by the Industrial Development Corporation (IDC) as part of their financial agreement with the cannery. This requirement will no longer be necessary, however Afro Fishing (Pty) Ltd will continue with a yearly audit in terms of their General Duty of Care. This report will be kept on site for any persons wishing to view it.

In addition, this report has been expanded to include documentation required for Environmental Health and Air Quality Management which prescribe various reporting mechanisms to ensure sustainable operation. This also includes various reports required by the National Ports Authority (NPA) in terms of the Strategic Environmental Assessment (SEA) for the Mossel Bay Harbour.

The previous Audit (Ref: MOS009/06) was conducted in May 2012. The site visit that was scheduled for October and November 2013 was postponed due to availability of fish and the site visit was finally conducted on **24 March 2014**, when the cannery was in full production. During the month of February 2014, the water temperature in the area was higher than normal and fish catches were very low, thus precluding an audit inspection.

The aim of this Audit Report is to **monitor** and ensure **compliance** with the Environmental Authorisation, conditions of approval and relevant Management Plans, as well as to monitor the long term sustainability of the cannery. The scope of this Report is to verify compliance with the following aspects of the Operational Phase of the cannery:

- *Effluent Control*
- *Odour Control*
- *Noise Pollution*
- *Stormwater*
- *Emissions*

The cannery went into operation for the first time August 2007 and the first product to be canned, inspected, sold and labeled left the premises in March 2008.

Previously the cannery was producing two sizes of cans, but due to demand in 2011 they are only producing the larger cans. The small can machinery was changed to accommodate the larger cans and thus double the capacity for production.

During 2013, some further adjustments were made to the production lines in order to streamline the process and maximise the available space on the factory floor. Approximately 10 200 tons were processed in 2012; 9680 tons were processed in 2013 and approximately 1400 for 2014 to date. The total estimate for 2014 is a total of 10 000 tons.



Photo 1: The labelling floor with awaiting cans in the background

1.1 Study Site

The Afro Fishing cannery is located on **Quay 1** of the Mossel Bay Harbour in the Southern Cape. The cannery has a long term lease agreement with the NPA for the use of the property for the purposes of processing and canning pelagic fish.

Historically all canning and pelagic fishing operations were concentrated on the West Coast of South Africa, however, the increasing pelagic Total Allowable Catch (TAC) has increased for fleets that fish between Cape Town and Mossel Bay. The decision to base Afro Fishing in Mossel Bay was to provide a better product, as previously fish offloaded at this harbour had to

be road freighted to the West Coast for processing, increasing the handling and damage sustained by the product.



Photo 2: Boats offloading and taking on ice at the dolphin jetty on Quay 1

2 ENVIRONMENTAL CONTROL OFFICER

An Environmental Control Officer (ECO) was appointed in terms of Condition 14 of the Environmental Record of Decision (ROD) to oversee the Construction Phase of the cannery. Although not a specific requirement of the ROD that the ECO and Auditing of the ROD continues *ad infinitum*, this arrangement has continued into the lifespan of the cannery in order to ensure that the cannery is managed in an environmentally sustainable fashion.

The ECO's terms of reference are as follows:

- To ensure compliance with the Operational Environmental Management Plan (OEMP) and the ROD, and any other conditions (such as that of the IDC or NPA) that may be imposed from time to time.
- To conduct an Environmental Audit twice yearly as per the requirements of the IDC.
- To be available for guidance and information when required.

In addition, the National Environmental Management: Air Quality Act (NEM:AQA, Act 39 of 2004) has come into effect and replaces the previous Air Pollution Prevention Act (APPA). NEM:AQA requires that all facilities within certain thresholds that produce emissions require a license. Although Afro Fishing does not require this license, they form part of the Eden District Municipality's Air Quality Compliance Workgroup. The commitment by Afro Fishing to develop and maintain a "model" program in terms of all relevant legislation and norms and standards is contained in their Policy Statement (see [Appendix 1](#)).

Cape EAPrac is the appointed ECO for the site.

3 ENVIRONMENTAL MANAGEMENT

Environmental management of the cannery during its Operational Phase focuses almost entirely on the management of effluent removal, odour and emission control.

The sustainability of the caught product falls under the auspices of **Oceans and Coast Management (OCM)** (a Directorate of the Department of Environmental Affairs) in the form of quotas and by-catch management. This environmental audit does not cover these aspects of the fisheries industry however reports on catch and quantities are made available to the ECO for information. An annual scientific survey is undertaken by OCM to determine general catch quotas for the following year; this information is made available to the industry to inform their sustainable management practices. See Appendix 2 for the 2012 and 2013 annual survey information.

Furthermore, it is the duty of the owners and skippers of fishing vessels to ensure that their impact on the sea and the harbours is kept to a minimum and that responsible waste management is practiced.

3.1 Effluent Management

A Waste Management Plan was drawn up by Afro Fishing and is regularly monitored by both NPA and cannery management. In addition the cannery applies for a Municipal Effluent Permit yearly. See **Appendix 3** for a copy of the Waste Control Plan.

The waste material from the processing of the fish is known as offal and is made up of the head, tails, broken fish and blood. This is removed from the processing floor by means of a conveyor belt and removed from the premises in sealed tankers.

Included in this is the waste material from the boats and the offloading process which include scales and broken fish. These are screened out before entering the building, caught in skips and transferred into the offal containers for fish meal.



Photo 3: Offal tanks collecting fish waste

3.1.1 Offal

At the time of the site visit, the cannery was in full production and one of the trailers had left to offload its product. The cannery has an agreement with the South Cape Fish Meal (SCFM) plant located in the industrial area outside of Mossel Bay, for the receipt of the offal produced during processing.

The offal is made up of all waste products associated with the fish i.e. scales, blood, heads, tails, broken pieces etc.



Photo 4: Offal tanking leaving the premises with a full tank

In previous years, the cannery has found that the oil content in the fish caught of this area is very high and had to make contingencies for effects that are not common occurrences on the West Coast. The rich fatty oils that come off the fish during the cooking process are very high in Omega 3 making it a valuable source of protein. At the 2010 Audit, the cannery had managed to obtain a centrifuge and pump system which collects the cooking water, separates the oil and water and pumps the oil to a tank in the outside courtyard from where it gets sold as fish oil. The water is then discharged with the rest of the floor water via the stormwater system into the harbour.

In 2011, the system had been improved to include the centrifuge (existing), two skimmer tanks, one inside and one outside on the quay (new), and a separator (new). The warm oil and water produced during the cooking process is spun in the centrifuge, with the heavier oil mixture being expelled into the first skimmer tank. In the skimmer tank, the mixture is allowed to cool, allowing the remaining water to separate from the oil. The oil is removed and pumped to the outside oil containers. The water mixture is drained out to the second skimmer tank outside on the quay where it again goes through another separation process. The outside skimmer tank works in the same fashion as a septic tank, with dividers between compartments

which separates heavier fluids and particles from the water. The water is then expelled into the harbour via the stormwater system. The system has significantly reduced the amount of oil that is discharged into the harbour with the stormwater which is considered improved environmental practice. The fish being processed at the time of the audit were not fatty and the centrifuge system was not being utilised.

3.1.2 Discharge Water

The outside skimmer tank is located on the quay which provides a secondary separation of any oils before the cooled water is discharged into the harbour. Once the water from the cooking process and general discharge water off the floor of the cannery is processed through this skimmer tank, the water is discharged into the harbour via the stormwater system.

When the cannery is in operation, the water from the boat holds, which is screened to remove solid proteins such as scales and flesh, enters the harbour via the stormwater outlet point as per the OEMP. The screens are located adjacent to the outside skimmer tank on the quay. The cannery and NPA management monitor this area daily, when in operation. This is done by visual inspections as well as the SAEON water sample analyses.



Photo 5: Screens between boats and factory and **Photo 6:** Screens with skimmer tank below

An additional screen has been included in the form of a drum filter which removes particles that may have fallen on the factory floor and washed into the drainage pipes. These pieces are generally small pieces of broken fish, some heads and tails. The pieces are removed as the drum turn and expelled into a skip. The water is diverted into the skimmer tank from where it is discharged into the harbour.

The water that enters the harbour is quickly dissipated. Any oils or proteins are retained by means of floating booms to contain any foam produced. These are quickly eaten by shoals of small fish.



Photo 8: Drum screen



Photo 7: Discharge into the harbour with floating booms retaining oils

In order to improve the harbour's Water Quality control, a confidential SAEON Long Term Ecological Monitoring Report was implemented as part of NPA's SEA. Essentially the Report lays out mechanisms and programmes for monitoring and control of the harbour area to improve water quality. Six sample sites are being used, one of which is located off the Afro Fishing Quay. In the 2010 report none of the sample sites showed signs of nutrient enrichment, faecal or water heavy metal contamination. The report does confirm that activity during this period in terms of shipping and fishing was relatively low. This monitoring is ongoing.

3.1.3 Recycling

The cannery has implemented several mechanisms to recycle water used in the cannery. This water is made up mostly of seawater from the boat holds and cleaning water used on the cannery floors. A filtration system has been setup next to the hopper and filtered sea water is re-used on the cannery floor for wetting blades and for further cleaning. Some of the filtered cooking water is pumped to an exterior tank and is used to irrigate the gardens around the cannery.



Photo 9: Water cooling tower and recycling system

3.1.4 Solid Waste

The cannery premises are kept very tidy and litter is not seen anywhere. Due to the very strict rules regarding food preparation and hygiene, the cannery is very conscious of its obligations, both in terms of the Environmental Authorisation and the NRCS (National Regulatory Compliance Services) regulations. Solid Waste is temporarily stored outside of the premises and removed to the relevant waste disposal site. Recycling within the cannery is encouraged at all times.



Photo 10: The yard and loading area is kept clean and neat

3.2 Odour Management

The cannery operates using fresh fish directly from the holds of the boats which are immediately processed and cooked. The concerns regarding unpleasant odours as referred to during the environmental process have been unfounded. The offal is removed from the premises within at least 12 hours of being processed and as such does not begin to break down and emit odours commonly associated with fishmeal plants. The smell of cooking (fish and tomato sauce) is in no way annoying or considered a nuisance.

There have not been any complaints of strong odours since the previous Audit. See **Appendix 4** for the EDM Air Compliance Worksheet which is completed regularly during the year.

3.3 Emissions Management

The cannery runs its cooking and vacuum equipment with a fuel driven boiler. The boiler emits limited smoke on start-up and, depending on the quality of the available fuel, very little emissions are visible to the eye, nor is there any obvious smell of burnt fuel. In order to manage emissions it is important that all machinery is correctly maintained in order to reduce

emissions. The inspections are carried out routinely, with all relevant faults being addressed immediately. See **Appendix 5** for the Boiler Inspection Report.

Only steam from the cooking process was observed at the time of the audit.



Photo 11: Only steam emissions observed at the audit inspection

3.4 Noise Management

During the previous Audit, noise outside of the cannery was neither invasive nor obvious and cannot be considered a nuisance to residents/businesses. When observed from Marsh Street, nothing was heard from the cannery over the background noises e.g. traffic sounds and day to day sounds from the neighbourhood/harbour. Inside the cannery, there is no need to wear hearing protection although it is available for those who require it.

Noise levels inside the factory are comfortable, slightly more invasive in the packing and labeling areas, and in engineering sections. Hearing protection is available to those who require it. Outside of the factory sound emissions are drowned out by traffic and general background sounds.

4 GENERAL

The premises of the cannery are being kept very neat and tidy and effort has been made at maintaining the gardens and landscaping the area. The embankments made along the road been built up with retention blocs and vegetated using *Aloe* and *Carpobrotus* spp (Suurvygie), effective erosion control and water wise plants. The plants are being watered by capturing some of the recycled water leaving the building in the stormwater drains. Furthermore the small entrance garden is predominantly populated using succulents that are water wise while creating a pleasing environment.



Photo 12: Gardens at the entrance to the plant

Compliance with Health and Safety Regulations and Food Safety protocols remains a priority and Food Safety Management Systems and the Hazard Analysis Procedures have been implemented. These protocols are designed to ensure that the product is of a high standard and complies with the necessary requirements for consumables. See **Appendix 6** for the Hazard analysis and critical control points (HACCP) certificate.

In addition to these standards, Afrofishing has Water Management and Pest Control protocols in place to ensure that the standards of all products on site as well as the environmental requirements are maintained. See **Appendices 7 and 8** for copies of these protocols.

Afrofishing has provided valuable employment and economic opportunities to Mosselbay. Their launch of their own label, Mossel Bay Pilchards, promote the locally caught product and the area.



Photo 13: Mossel Bay Pilchards range

5 CONCLUSION

The cannery has been conscientious in complying with the required Environmental Authorisations and other applicable regulations. The innovative implementation of various mechanisms to minimise waste products and recycle both water and fish oil is commended.

The ECO is satisfied with the progress of the Operation Phase of this project. The following Audit will be undertaken within the next twelve (12) months, dependent on availability and quantity of fish.

6 REFERENCES

Cape EAPrac (2012). *Environmental Audit # 6 for Afro Fishing (Pty) Ltd*. George, South Africa.

Deyzel, S et al, (July 2009). *Confidential Report on Long-Term Ecological Monitoring in the Port of Mossel Bay*. South African Environmental Observation Network, Republic of South Africa.

HillLand Associates (2007). *Draft Operational Phase Environmental Management Plan*. George, South Africa.



AFRO FISHING POLICY STATEMENT



It is the policy of AFRO FISHING to develop and maintain a "model" occupational safety, health, and environmental program. The model program is focused on prevention and the protection against environmental pollution, injuries and illness, and the promotion of safe and healthful actions and attitudes, not only in AFRO FISHING employees but also in other individuals who may be affected by its facilities and operations, including visitors, contract employees and persons in the surrounding community.

Policy Outline

All our actions will:

- Demonstrate strong leadership and direction in environmental, health and safety aspects
- Ensure a consistent approach to the management of environmental, health and safety across all locations
- Consult and communicate with employees and stake holders
- Educate the workforce in risk management, Health, Safety and Environmental principles
- Promote the health and well-being of our people
- Measure environmental, health and safety performance
- Comply with statutory obligations
- Review of environmental policy annually and make available to all employees of the organization.

The model is used as part of our objective to focus on continual improvement. This is achieved by:

- Establish an effective monitoring system to provide data useful in evaluating the operation of the program in terms of scope, appropriateness, and effectiveness, including an annual evaluation of the overall program to determine if it has met or made progress toward its goals and objectives, if its policies and procedures are relevant and appropriate, and if its policies, regulations, procedures, and facilities continue to meet or exceed National Standards.
- Further more, the model program shall meet or exceed all Regulations or guidelines as outlined by National Legislation.

DEWALD LOURENS.
CEO

Date 10/01/2009

STATUS AND MANAGEMENT OF THE SOUTH AFRICAN SMALL PELAGIC FISHERY

Acknowledgements: Janet Coetzee (Department of Agriculture, Forestry and Fisheries, South Africa) and Dr Awie Badenhorst (Consultant biologist)

THE FISHERY AND THE MANAGEMENT SYSTEM

The South African pelagic fishery is a limited-access, rights-based fishery, based on three species: sardine, anchovy and round herring. These species are found in South African waters ranging from the Orange River in the west to Port Alfred in the east and are caught with a mixture of wooden and steel-hulled purse seine vessels. Anchovy and round herring are reduced to fishmeal, whereas most of the sardines caught are canned, although some are marketed as fresh fillets or bait.

The Total Allowable Catches (TACs) for sardine and anchovy are set using a joint Operational Management Procedure (OMP). Juvenile sardine and anchovy school together during the first few months of their life and the young sardines are then prone to be regarded as an unwanted, but unavoidable, by-catch with the recruiting anchovy, which is targeted from April/May onwards as recruiting juvenile fish. This is usually the period when the juveniles of both species begin their southward migration along the west coast, from as far north as the Orange River, then via St Helena Bay and around Cape Point, back to their main spawning grounds on the eastern and western Agulhas Bank. A sardine Total Allowable By-catch (TAB) is also calculated to allow for reasonably unrestricted anchovy-directed fishing for about five months when the two species are quite extensively mixed in the sea.

Input data for the joint OMP are derived from annual hydroacoustic surveys conducted during November to measure the adult biomass of sardine, anchovy and round herring. Additional input data are also derived from dedicated annual hydroacoustic surveys during May/June the following year to measure the amount of recruitment stemming from spawning by the adult component measured in November.

FORAGE FISH

Sardine and anchovy are known as forage fish and they play a crucial role in marine food webs in many ecosystems. They are small and medium-sized pelagic species that occupy a key position in marine food webs, linking the energy produced by plankton to large-bodied fish, birds and mammals. The characteristics of forage fish include small body size, rapid growth, schooling behaviour, and strong population responses to environmental variability.

Forage fish have the propensity to form large shoals. This behaviour probably evolved as a defence against natural predators but it makes them easily detectable and catchable by modern fish spotting and catching technologies. Pelagic trawls and purse seine nets that surround and capture very large shoals result in fishing that is highly efficient and effective, even after a population declines. Fisheries for forage species are among the largest in the world, and the demand for products derived from forage fish, especially fishmeal for fish farming, is increasing at a tremendous rate. Forage fish have been particularly important to the development of the aquaculture sector, which globally now supplies almost half of the total fish and shellfish for human consumption.

THE PRIMARY CHALLENGE FOR FISHERIES MANAGERS AND POLICYMAKERS

The primary challenge for fisheries managers and policymakers is to determine a level of catch that accounts for the important ecological role that forage fish play in the larger marine environment. To ensure sustainable forage fish resources, precautionary management is necessary for three fundamental reasons:

- The abundance of forage fish can be difficult to quantify, and they exhibit large natural variations in abundance over space and time.
- Forage fish are prone to booms and busts, with large associated impacts on dependent organisms.
- Single-species quotas have shortcomings that are most apparent when applied to forage fish.

SUSTAINABILITY AND THE IMPLEMENTATION OF AN ECOSYSTEMS-BASED APPROACH TO FISHERIES MANAGEMENT

To date, scientific guidance for implementing an ecosystem-based approach to forage fisheries management has mostly focused on broad principles rather than specific goals, targets, or thresholds. In part, the reason is a lack of information about the impact of forage fish removal on marine ecosystems. There has been a global call for research and synthesis to advance scientific understanding of forage fish and to inform management recommendations for these species. The South African government is committed to an ecosystems-based approach to fisheries management and over the past five years much progress has been made in attempting to incorporate the needs of at least some of the top predators in the ecosystem that depend on forage fish, for example penguins, into the management procedures.

PLANNED REVISION OF THE CURRENT JOINT SOUTH AFRICAN PELAGIC OMP DURING 2011/2012

The joint South African pelagic OMP was developed specifically to deal with the risks inherent in fishing for short-lived species, such as sardine and anchovy, in the highly dynamic and changeable marine environment, which characterises our temperate waters where these two species are found in great but fluctuating abundance. The OMP goes to great lengths to minimise year-on-year fluctuations in TACs to ensure industry stability; of course, within the constraints of the dynamics of the resources themselves. However, the duty cycle of an OMP is usually only four years, whereafter it has to be adapted, as new and updated information about the two main pelagic species, as well as new insights into the role of these two species as forage fish in the ecosystem, particularly their effect on top predators, such as penguins, become available.

Important issues that will be examined during the revision include:

- How recruitment and its future variability is best modelled for both sardine and anchovy.
- How best account is taken for implementation uncertainty in the OMP, particularly regarding likely undercatches of anchovy.
- How to best calculate the TAC if abundance estimates from the most recent hydroacoustic survey, upon which computations are highly dependent, are unavailable (e.g. because of a survey vessel breakdown).
- How to best calculate the risks to the resources, which are used to adjust the OMP.
- How to address potential spatial management issues, i.e. how to best determine the relative plausibility for alternative sardine stock-structure hypotheses, by testing the hypothesis that two sardine stocks exist in South African waters and whether they should be managed separately or jointly in the new management procedure.
- How to include broader ecosystems objectives in the management procedure, as improved clarity in this area would assist management and decision-making.

This revision started in 2011 and will continue during 2012 in full consultation with the industry and other role players involved in the management of the pelagic fishery with implementation planned for 2013. A number of constraints and control parameters are in place in the OMP to ensure maximum industry stability, without exceeding generally accepted levels of risk for the two main pelagic species. These constraints and control parameters include, inter alia, maximum and minimum TACs for sardine and anchovy, maximum year-on-year deviations in TACs for both species, and the proportions of the total biomass that may be taken of each species. These, and other constraints, will be tested during exhaustive simulation studies by scientists of the two resources during the course of 2012. In addition, the revised OMP will also consider the needs of top predators, in this case as a first step, taking into account the interactions between the fishery and penguins.

FINAL SARDINE AND INITIAL ANCHOVY TAC ALLOCATIONS FOR 2012

The Small Pelagic Working Group of the Branch Fisheries Management of Department of Agriculture, Forestry and Fisheries met on 15 December 2011 to consider the results of the November 2011 spawner biomass survey (figure 1) and to recommend the final sardine and initial anchovy TACs for 2012. The anchovy spawner biomass was estimated at approximately 750 000 tons, substantially lower than that estimated in 2010, and well below the long-term (1984–2010) average of 2,2 million tons. The sardine biomass of 1,04 million tons was considerably higher than the 508 000 tons estimated in 2010 and similar to the long-term (1984–2010) average of 1,02 million tons for this stock. The estimate of round herring biomass almost doubled from the earlier level of around 1,1 million tons in 2010 to just less than 2 million tons in 2011. This biomass is considerably higher than the long-term (1984–2010) average of 960 000 tons.

NOVEMBER SURVEY BIOMASS ESTIMATES

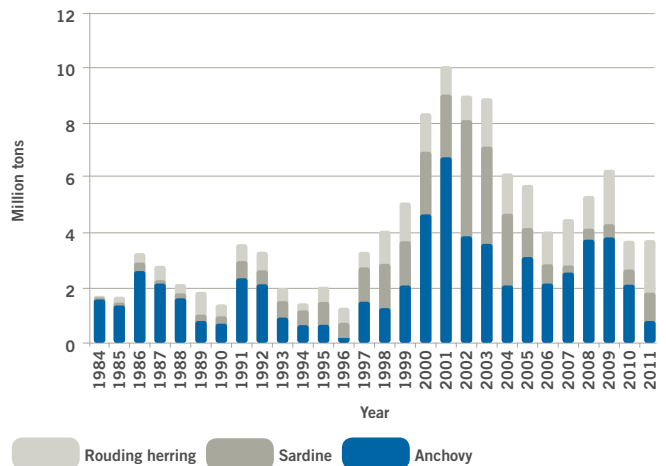


FIGURE 1

The distribution of horse mackerel was patchy over most parts of the survey area, particularly towards the inshore and shelf edge, where low densities were recorded. On the west coast, a large area between Hondeklip Bay and Doring Bay had no horse mackerel. Horse mackerel occurred patchily between Lambert's Bay and Cape Agulhas, with low densities close inshore. This indicated that the problems with high horse mackerel by-catch that hampered the industry greatly in 2010 would most likely not occur in 2012 (this later proved to be the case).

Given the low anchovy recruitment measured earlier in 2011, it was anticipated that the biomass of anchovy would decline. The unexpected increase in the biomass of sardine appears to suggest that the strong recruitment measured in 2010 had now recruited successfully to the population, particularly in the area to the east of Mossel Bay. The population is now dominated by fish that are at least two years old, with recruits from 2011 making up only a small proportion of the total sardine biomass. Only 18% (< 200 000 tons) of the sardine biomass was found in the area to the west of Cape Agulhas. This suggests that the recent observed "reversal" of the eastward shift in the distribution of sardine had only been a temporary phenomenon.

Following the results from the biomass survey, the 2012 final directed sardine TAC, initial normal season TAC (A-season) for anchovy, and initial normal season TAB for sardine were recommended in terms of OMP-08 as follows (with the 2011 values given in brackets):

- Directed sardine TAC: 100 595 tons (90 000 tons)
- Initial normal season anchovy TAC: 202 718 tons (247 500 tons)
- Initial normal season sardine TAB for anchovy-directed fishing: 21 947 tons (28 830,5 tons)
- Sardine TAB for round herring-directed fishing: 3 500 tons (3 500 tons)

The recommendations were accepted by the Minister and declared the final TAC (for sardine) and initial TAC (for anchovy) for 2012.

STATUS AND MANAGEMENT OF THE SOUTH AFRICAN SMALL PELAGIC FISHERY - AUGUST 2013

Acknowledgements: Janet Coetzee (Department of Agriculture, Forestry and Fisheries, South Africa) and Dr Awie Badenhorst (Consultant biologist)

The South African small pelagic fishery

The small pelagic fishery is the largest in South Africa in terms of volume of the landed catch, as well as direct and indirect employment, and after the demersal fishery is the second most important in terms of value. This fishery's management procedure is the most complex of all the commercial fisheries.

Small pelagic fish species of importance here are small forage fish that live in the surface and near-surface waters over the continental shelf of most of South Africa's coast. Forage fish are small schooling fish that feed on plankton and occupy a vital place in marine foodwebs. Generally, these species eat herbivorous (phytoplankton) or carnivorous (zooplankton) plankton (primary and secondary producers), and are eaten by larger predators that occur higher up in the foodweb. Forage fish therefore play a fundamental role in marine ecosystems by converting energy from lower trophic levels into food for larger fish, marine mammals, and seabirds—essentially all predators at higher trophic levels in the marine environment.

Two species are the main targets, namely sardine (*Sardinops sagax*) and anchovy (*Engraulis encrasicolus*), with associated bycatch species being redeye round herring (*Etrumeus whiteheadi*) and Cape horse mackerel (*Trachurus trachurus capensis*). Fishing for these small pelagic fish occurs inshore, primarily along the Western Cape's West and South Coasts (anchovy and sardine) and the Eastern Cape Coast (sardine). Anchovy and sardine are caught using purse-seine nets in the midwater. They, and the other two species, tend to form large shoals, which make them vulnerable to the large purse-seine nets used by the South African purse-seine vessels (a mixture of wooden and steel-hulled purse-seine vessels), which can catch up to 400 tonnes in a single haul. Sardines are canned or frozen for human consumption, pet food and bait, although/whereas anchovy, redeye round herring and horse mackerel

are reduced to fishmeal, fishoil and fish paste in factories situated primarily on the West Coast.

The management system for the South African small pelagic fishery

South Africa's Small Pelagic Fishery is managed through limitations on effort, through access rights and vessel licensing and limitations on catches, through annual total allowable catches (TACs) for anchovy and sardine and precautionary upper catch limits for redeye round herring and juvenile horse mackerel.

The Total Allowable Catches (TACs) for sardine and anchovy are set using a joint Operational Management Procedure (OMP) that consists of formulae that base TAC levels on observed stock sizes. Juvenile sardine and anchovy school together during the first few months of their life and the young sardines are then prone to be taken as an unwanted, but unavoidable bycatch with the recruiting anchovy, which are targeted from April/May onwards as recruiting juvenile fish. This is usually the period when the juveniles of both species begin their southward migration along the west coast, from as far north as the Orange River, then via St Helena Bay and around Cape Point, back to their main spawning grounds on the eastern and western Agulhas Bank. A sardine Total Allowable Bycatch (TAB) is also calculated to allow for reasonably unrestricted anchovy-directed fishing during the five or so months when the two species are quite extensively mixed in the sea. These formulae aim to maximize average sardine and anchovy catches in the medium term, while ensuring that the risk to either population is not above previously agreed levels. The OMP also includes constraints on the extent to which TACS can vary from year-to-year in order to enhance industrial stability.

Input data for the joint OMP are derived from annual hydroacoustic surveys during November to measure the adult biomass of sardine, anchovy, and redeye round herring. Additional input data are also derived from dedicated annual hydroacoustic surveys during May/June the following year, to measure the amount of recruitment stemming from spawning by the adult component measured during the previous November.

The primary challenge for fisheries managers and policymakers

Forage fish worldwide are characterized by highly variable recruitment, which results in large fluctuations in population size. Because these are plankton feeders and are highly fecund, they can respond very rapidly to plankton booms attributable to environmental reasons, they can be highly productive given the right conditions and they are therefore prone to “booms and busts”, with large associated impacts on dependent organisms. The abundance of forage fish can be difficult to quantify, because they exhibit such large natural variations in abundance over space and time. The primary challenge for fisheries managers and policymakers is to determine a safe level of catch that also accounts for the important ecological role that forage fish play in the larger marine environment by the implementation of an ecosystems-based approach to fisheries management.

To date, scientific guidance for implementing an ecosystem-based approach to forage fisheries management has mostly focused on broad principles rather than specific goals, targets, or thresholds. In part, the reason is a lack of information about the impact of forage fish removal on marine ecosystems. There has been a global call for research and synthesis to advance scientific understanding of forage fish and to inform management recommendations for these species. The South Africa government is committed to an ecosystems-based approach to fisheries management and over the past five years much progress has been made in attempting to incorporate the needs of at least some of the top predators in the ecosystem that depend on forage fish, for example, penguins, into the management procedures.

Finalization of the revision of the current joint South African pelagic OMP during 2013

The joint South African pelagic OMP was developed specifically to deal with the risks inherent in fishing for short-lived species, such as sardine and anchovy, in the highly dynamic and changeable marine environment that characterizes our temperate waters, where these two species are found in great, but fluctuating abundance. The OMP goes to great length to minimize year-on-year fluctuations in TACs to ensure industry stability; of course within the constraints of the dynamics of the resources themselves. However, the duty cycle of an OMP is usually only four years, whereafter it has to be adapted, as new and updated information about the two main pelagic

species, as well as new insights into the role of these two species as forage fish in the ecosystem; particularly their effect on top predators, such as penguins, become available.

This revision of the then current OMP (OMP-08), which started in 2011 and which had been envisaged to be completed by the end of 2012, was delayed for a number of unforeseen, but critical reasons. Development work, however, continued unabated during 2012, and it is hoped that OMP-13 it will be finalized towards November 2013. The revision of the OMP was in particular plagued problems related finding a comparable definition of the level of risk for anchovy in circumstances where the best choices for both natural mortality and the form of the stock–recruitment relationship curve have changed. In addition, modelling the two-stock hypothesis for sardine further delayed the finalization of the new OMP.

Important issues that have so far been examined and will be finalized during the 2013 revision include:

- A better understanding of the stock–recruitment relationship for anchovy and a more acceptable and plausible value for natural mortality for this species.
- How recruitment and its future variability is best modelled for both sardine and anchovy.
- How best account is taken for implementation of uncertainty in the OMP, particularly regarding likely under catches of anchovy.
- How to best calculate the TAC if abundance estimates from the most recent hydroacoustic survey, upon which computations are highly dependent, are unavailable (e.g. because of a survey vessel breakdown).
- How to best calculate the risks to the resources, which are used to tune the OMP.
- How to address potential spatial management issues, i.e. how to best determine the relative plausibility for alternative sardine stock-structure hypotheses, by testing the hypothesis that two sardine stocks exist in South African waters and whether they should be managed separately or jointly in the new management procedure.

- How to include broader ecosystems objectives in the management procedure, because improved clarity in this area would assist management and decision-making.

The revision has been conducted with full consultation with and cooperation of the small pelagic industry and other role players involved in the management of the pelagic fishery, for implementation in 2013. A number of constraints and control parameters are in place in the OMP to ensure maximum industry stability, without exceeding generally accepted levels of risk for the two main pelagic species. These constraints and control parameters include *inter alia* maximum and minimum TACs for sardine and anchovy, maximum year-on-year deviations in TACs for both species, and the proportions of the total biomass that may be taken of each species. In addition, the revised OMP will also consider the needs of top predators, in this case as a first step, taking into account the interactions between the fishery and penguins. These, and other constraints, have been tested during exhaustive simulation studies by scientists of the two resources during the course of 2012, and further testing has to be concluded before the final OMP (OMP-13) can be accepted.

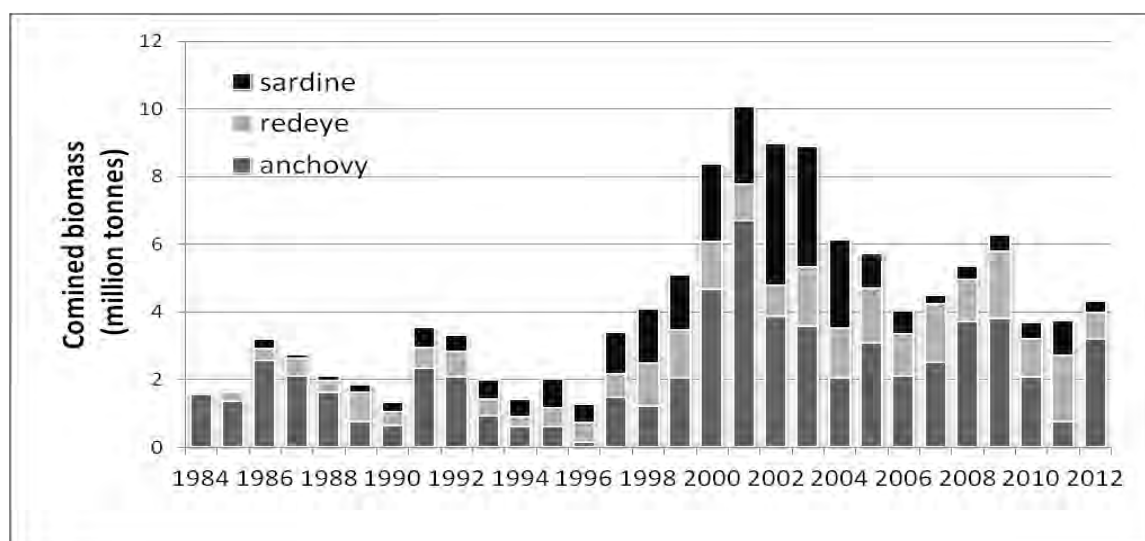
Final sardine and initial anchovy TAC allocations for 2013

The Small Pelagic Working Group of the Branch Fisheries Management of the Department of Agriculture, Forestry and Fisheries met on 21 December 2012 to consider the results of the November 2012 pelagic spawner biomass survey and to recommend the final sardine and initial anchovy TACs for 2012.

The 29th consecutive annual November biomass survey was conducted in two stages by two different vessels; the first leg was between 23 October and 4 November aboard SAS *Africana*, and the second leg was between 24 November and 14 December 2012 aboard MFV *Compass Challenger*. The MFV *Compass Challenger* was chartered to the Department to complete the survey following mechanical failure of the SAS *Africana* off Cape Point.

The anchovy spawner biomass was estimated at approximately 3.2 million tonnes, substantially higher than that estimated in 2011, and well above the long-term (1984–2011) average of 2.2 million tonnes. The sardine biomass of 345 000 tonnes was

considerably lower than the 1.04 million tonnes estimated in 2011 and similarly lower than the long-term (1984–2011) average of 1.02 million tonnes for this stock. The estimate of redeye round herring biomass had decreased by more than half from the previous level of approximately 1.96 million tonnes in 2011 to just 795 000 tonnes in 2012 year. This biomass was also lower than the long-term (1984–2011) average of 961 000 tonnes.



The combined biomass of 4.3 million tonnes for anchovy, sardine, and redeye round herring was slightly higher than that observed in 2011, with the sharp decrease in sardine and redeye biomass being countered by a large increase in the biomass of anchovy.

About 54% (<200 000 tonnes) of the sardine biomass was found in the area to the west of Cape Agulhas and the remaining 46% on the east of Cape Agulhas. This suggests that the recent observed “reversal” of the eastward shift in the distribution of sardine persists in certain years. It also suggests that the large biomass of sardine found to the east of Cape Agulhas and which accounted for 80% of the sardine biomass in 2011 had decreased substantially. For anchovy, the biomass found in the area to the west of Cape Agulhas represents a small proportion of the total biomass (27%) suggesting that the reported eastward shift and mechanisms for maintaining such are still active.

Given the high anchovy recruitment measured earlier in 2012, it was anticipated that the biomass of anchovy would increase. The unexpected decrease in the biomass of sardine appears to suggest that older fish, principally from the good recruitment in

2010, have not survived. The poor recruitment measured in 2011 and 2012, which seems to have successfully recruited to the population, now dominates the population.

Given the generally poor recruitment resulting from spawning to the east of Cape Agulhas in recent years, it was, however, encouraging that some sardine were spawning high up on the west coast too.

Following the results from the biomass survey, the 2013 final directed sardine TAC, the initial normal season TAC (A-season) for anchovy, and initial normal season TAB for sardine were recommended in terms of Interim OMP–13 as follows (with the 2012 values given in brackets):

- Directed sardine TAC: 90 000 tonnes (100 595 tonnes)
- Initial normal season anchovy TAC: 247 500 tonnes (202 718 tonnes)
- Initial normal season sardine TAB for anchovy-directed fishing: 25139 tonnes (21 947 tonnes)

These recommendations were accepted by the Minister and declared as the final TAC (for sardine) and initial TAC (for anchovy) for 2013.

**WASTE CONTROL**

DOC. NO: AFR-PRP-06	REVISION NO: 2	DATE FIRST ISSUED: 11 February 2013
ORIGINATOR: M. Carstens		DATE REVISED: 23 May 2013

1. PURPOSE

The purpose of this document is to ensure that waste removal on the premises is conducted according to prescribed regulations to prevent cross contamination within the process area, protect our staff from health hazards and to prevent any pollution to our environment.

2. SCOPE

This document is applicable to all personnel responsible for waste removal

3. RESPONSIBILITY

It is the responsibility of management to ensure this procedure is adhered to. Waste removal personnel are appointed by management.

4. PROCEDURE

Waste removed from premises is registered on AFR-F-19

4.1 WASTE CLASSIFICATION

- Fish trimmings and waste (tails, heads, guts, scales)
- Dropped Fish (also refer Fish drop policy)
- Cooked Fish
- Empty tomato drums
- Liners of tomato drums
- Empty ingredients bags
- Raw material packaging (Labeling waste and damaged cans & ends)
- Labeling waste
- Canteen and office waste
- 'Not for Sale' defect cans for destroy
- Damaged canned product for destroy

4.2 PRODUCT WASTE

Fish heads, tails and gut from the cutting tables are removed by a belt from the cannery to a conveyor which removes the waste from the cannery and into a transport waste tanker or into a waste tank. Waste that lands on the floors are removed before every break.

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**WASTE CONTROL**

DOC. NO: AFR-PRP-06	REVISION NO: 2	DATE FIRST ISSUED: 11 February 2013
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The waste tank has a capacity of 40cu.metres. The waste tank is emptied as required during production into a transport waste tanker.

The enclosed transport waste tankers are removed by Southern Cape Fish Meal (Pty) Ltd to the outskirts of Mossel bay for further processing.

Southern Cape Fish Meal (Pty) Ltd.
Mossdustrial
Mossel Bay
6500

Other product waste (fish scales) will be discarded from the screens into coloured bins outside the cannery and emptied as required into the waste tankers. Fish oil is distracted from the waste water and accumulated in tubs wich are closed and taken to the fish meal plant. Cooked fish waste is discarded into coloured bins without drainage holes. These coloured bins are emptied into a waste tub identified for cooked fish waste only. The waste tub is lined with plastic, fitted with a secure lid and the outlet is sealed. The tub is removed and emptied into the waste tanker with every shift change.

Infrequent contract removal of waste may occur from other fish meal plants. The raw waste is placed in tubs and loaded on trucks for removal off the premises. Waste tubs must at all times be closed at the bottom and lined with plastic to prevent leakage of waste.

4.3 PACKAGING WASTE

4.3.1 Cans, lids and tomato paste containers

All metal waste which includes discarded cans, lids and tomato paste containers are collected and recycled by a Port Net approved company. Damaged lids and cans in the cannery are collected in blue bins and quantities documented before removing after every shift for recycling.

4.3.2 Labels ,cardboard, paper and plastics

All labels, cardboard, paper and plastic waste generated by labeling are collected in a blue metal bin where after it is removed as normal municipal waste after every shift. Labels must be torn before being placed in the blue bin.

4.3.3 Consumable product packaging

All consumable ingredient packaging is discarded as per normal municipal waste

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**WASTE CONTROL**

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4.4 INGREDIENT WASTE

All expired or spoilt sauce ingredients are discarded as per normal municipal waste

4.5 DAMAGED CANS

Damaged filled cans from brightstock, labeling and storage that are to be destroyed, are opened on the premises. The cans to be destroyed are documented and the cans and lids placed in a bin for recycling while the content is discarded in blue skips which are emptied into the transport waste tankers to be taken to the fish meal plant.

4.6 'NOT FOR SALE' CANS

All product made 'Not for sale' will only be destroyed with permission from the NRCS.

- Application for destruction to be sent to NRCS
- NRCS issues a directive for destruction of product
- Original directive to be signed by Managing director
- Sworn affidavit for destruction of cans
- NRCS board approval
- Permission for destruction

Cans must be removed from premises by the municipality for destruction and a proof of removal certificate must be issued to Afro Fishing.

4.7 OFFICE AND CANTEEN WASTE

Waste generated from the offices and the canteen area is removed as normal municipal waste.

5. INSTRUCTIONS**5.1 Transport Waste Tankers**

- Prevent access water from entering the waste tank.
- Be cautious not to overfill waste tanker.
- Report waste spills immediate to Management.
- Waste tanker must always be clean when there is no production.

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WASTE CONTROL

DOC. NO: AFR-PRP-06	REVISION NO: 2	DATE FIRST ISSUED: 11 February 2013
ORIGINATOR: M. Carstens		DATE REVISED: 23 May 2013

5.2 Protective clothing

Personnel working with waste must wear the correct protective clothing to protect themselves.

- Overall
- Gloves
- Apron
- Protective footwear
- mask (if required due to possible health risk)

5.3 Hygiene

Personnel working with waste must wash their hands and remove all protective clothing used for waste removal before entering the canteen area.

Also refer Hygiene Policy (AFR-P-02)

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WASTE CONTROL

DOC. NO: AFR-PRP-06	REVISION NO: 2	DATE FIRST ISSUED: 11 February 2013
ORIGINATOR: M. Carstens		DATE REVISED: 23 May 2013

Distribution List

Date	Distributed to	Position	Department	Copy nr	Signature

Amendments

Date	Old Revision nr	Section nr	Amendment	Made by
23.05.2013	1	4.1	Add cooked fish waste	
23.05.2013	1	4.2	Add procedure for the handling of the waste container in cannery for cooked fish waste.	

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QUARTERLY AIR QUALITY COMPLIANCE AND PERFORMANCE REPORT FORM

Name of Company:

PERIOD: 1 October 2013 – 31 December 2013

Information from company									Comments from authorities
1 Number of complaints received	Month	Total Complaints	Attributed to Utility	Not attributed to Utility	Noise	Smell	Fallout	Black Smoke	
	January								
	February								
	March								
	Total								
	April								
	May								
	June								
	Total								
	July								
	August								
	September								
	Total								
	October	0							
	November	0							
	December	0							
	Total	0							

	Annual total								
2 Nature of complaint <i>(Give a brief description of the complaints)</i>									
3 Detected non-compliances <i>Indicate conditions that were not in compliance with permit conditions or state – None</i>									
4 Enforcement actions <i>(Indicate what actions, if any, were taken during the quarter).</i>									
5 Emergency incidents <i>(Indicate any emergency incidents and if Section 30 NEMA reports were lodged)</i>									
6 Process upsets <i>(Indicate any process upsets, bag filter not operating etc)</i>									
7 Media reports <i>(Has any air quality incident resulted in media reports? Give details)</i>									

8 Authorisations status <i>(State if any EIA or licensing applications were lodged with the authorities)</i>		
9 EIA applications submitted, pending or finalised		
10 Environmental improvements implemented in quarter <i>(State any improvements effected, i.e., bag house replaced)</i>		
11 Environmental improvements planned for next quarter		
12 Changes in management or key personnel		
13 Available ambient emissions monitoring data (air, dust) <i>(Attach reports or graphs as measured against applicable standards)</i>		
14 Available in-stack emission monitoring data		

<i>(Attach reports or graphs as measured against permit conditions)</i>		
15 Availability of emission control equipment on site (% expressed over 24H periods)		
16 Other information You may wish to bring to the attention of the authorities		

COMPILED BY:
Position
Date submitted



CONTENTS

1. Introduction
2. Scope
3. Steam Generator Identification
4. Items to be Verified
5. Inspection Findings
6. Recommendations
7. Conditions of Inspection
8. Personal details of Competent person
9. Personal details of Competent Person in Training
10. Statutory Inspection Dates
11. Declaration by Competent Person
12. Declaration by Registered user



GENERAL INFORMATION

Date:	25 November, 2013
Client:	AFRO FISHING
Client Reference: ORDER NO	5359
Location:	Mossel Bay
Contact Person:	Ruan
CIES Job Number:	DET 934/13-001

1. Introduction

- 1.1 De-Tect Unit Inspection was appointed by AFRO FISHING to perform the 1 YEARLY statutory inspection on the steam generator as outlined in this report.

2. Scope

- 2.1 The 1 YEARLY statutory periodic inspection was performed in accordance with the requirements of the OHS Act - Pressure Equipment Regulations, 2009, Part 11 (1) (c).

3. Steam Generator Identification

- 3.1 The following information was collated and documented prior to performing the statutory periodic inspection activities.

1	Name of Manufacturer:	JOHN THOMPSON
2	Model:	382
3	Code of Manufacture:	BS2900
4	Year of Manufacture:	1967
5	Country of Origin:	SOUTH AFRICA
6	Capacity (cubic metres):	6 TON / HOUR
7	Maximum Working Pressure:	150 POUNDS
8	Authorized Working Pressure:	150 POUNDS
9	Maximum Design Pressure:	150 POUNDS
10	Test Pressure:	275 POUNDS
11	Manufacturer's Serial Number:	7676
12	Official Number:	
13	Registered User:	AFRO FISHING
14	Telephone Number of Registered User:	044-6905520
15	Place of Erection:	MOSSEL BAY HARBOUR
16	Date of Last Internal Inspection:	DEC2012
17	Date of Last External Inspection:	DEC 2012
18	Date of First Hydrostatic Pressure Test:	1967
19	Date of Last Hydrostatic Pressure Test:	DEC 2011
20	Hazard Category SANS 347:	CATEGORY (IV)
21	Unique Mark of AIA:	YES





4. Items to be verified

4.1 The following items must be verified prior/during the inspection.

Item	Inspection Verification Checklist	Decision - Yes, No, N/A or Remarks
1	Is the steam generator registered?	YES CERTIFICATE OF REGISTRATION DISPLAYED
2	Are the pressure equipment markings fitted securely?	YES
3	Are the pressure equipment markings legible?	YES
4	Are the pressure equipment markings in accordance with the OHS Act?	YES (PRESSURE EQUIPMENT REGULATIONS)
5	Is the pressure and safety valve sealed, fitted and locked?	YES
6	Were safety valves serviced and tested?	YES/AT PREVIOUS INSPECTION (2012)
7	Hot testing of safety valves in-service witnessed?	YES 2012
8	Were the safety valves re-set?	YES 2012
9	High water indication alarms. Audio / Visual?	YES MOWBREYS CONTROL'S WATER LEVELS
10	Normal high water pump cut-out and alarm?	YES ALARM FUNCTIONAL
11	Normal low water pump cut-out and alarm?	YES ALL ALARMS FUNCTIONAL
12	Ultimate low water lock-out. Manual re-set?	YES ALL ALARMS FUNCTIONAL
13	High pressure alarm?	BOILER FITTED WITH PRESSURE CONTROL SWITCH
14	Water treatment verified?	YES AND WATER TREATMENT PROVED TO BE EFFECTIVE, NO SCALE AND UNDESOLVED SOLIDS NOTED.
15	Pressure gauge range within regulation (e.g. Bourdon type gauge)?	YES, PRESSURE GAUGE RECALIBRATED 2012
16	Verify Mobrey function? (e.g. Mobrey type control units).	MOWBREY SWITCHES ARE FULLY FUNCTIONAL
17	Daily log book in place and reviewed?	YES
18	Access to valves and fittings accessible?	YES ALL VALVES ACCESSABLE
19	Pressure gauge red lined on MAWP (Maximum Allowable Working Pressure)?	YES NOT REQUIRED AS PER PRESSURE EQUIPMENT REGULATIONS
20	Operation of level gauge glass?	GAUGE GLASSES FULLY OPERATIONAL AND REFURBISHED. 2012
21	Fuel shut-off facility (Gas/oil)?	OIL -YES, SOLENOID SWITCH CONTROLLED AUTOMATICALLY
22	Are there any additional remarks or observations? (If yes, add to comments)	YES (REF COMMENTS SECTIONS)
23	Training / competence of operator verified?	YES OPERATOR COMPETANT AND CAPABLE.





5. Inspection Findings

- 5.1 The findings and observations must be noted in the comments section following during the performance of the inspection activities.

Item	Inspection Requirements Checklist	Comments
1	Was the steam generator properly de-scaled, prepared and, so far as construction permits, made accessible for thorough internal inspection of steam and water spaces?	YES ALL BOILER MUDHOLES AND MANHOLES WERE NOT OPENED FOR INSPECTION.
2	State clearly what parts were inaccessible and the reason therefore and state the date on which these parts were last exposed?	ALL BOILER COMPONENTS WERE ACCESSABLE AND ALL SECTIONS OF BOILER WAS INSPECTED, AT PREVIOUS INSPECTION (3 YEARLY)
3	To what extent was the lagging, brickwork or other covering removed to permit external inspection of pressure parts?	THIS WAS A 1 YEARLY INSPECTION.
4	OBSERVATIONS: Comment clearly on the following in every case. Were there any indications of weeping/ leaking under steam from tube expansions, seams, welds, rivets, fittings etc?	BOILER DISPLAYED NO SIGNS OF LEAKING OR WEEPING.
5	EXTERNAL AND FIRESIDE	
5.1	Was there evidence of firescale, soft/hard and/or thick/thin?	THE FIRE SCALE WAS REMOVED PRIOR TO INSPECTION NO SIGNS OF ANY SCALE OBSERVED AFTER CLEANING.
5.2	Shell, furnace, firebox, drum, plating, mudholes and manholes: Were they distorted, bulged, blistered, overheated, wasted, corroded, eroded and/or cracked?	THE MUD HOLE COVERS WERE INSPECTED AND NO VISIBLE SIGNS OF DAMAGE OR DETERIORATION NOTED.
5.3	Riveting: Were they hammer-tested or not, having heads missing, wasted, broken and/or cracked?	THE BOILER WAS OF WELDED CONSTRUCTION NO RIVETING PERFORMED.
5.4	Welded seams: Were there any signs of being corroded?	ALL THE WELDED SEAMS DISPLAYED NO VISIBLE SIGNS OF DEFECTS OR DETERIORATION.
5.5	Tubeplates, tubeplate ligaments and headers: Were they distorted, bulged, wasted, corroded and/or cracked?	ALL THE TUBE PLATES AND TUBE PLATE LIGAMENTS DISPLAYED NO VISIBLE SIGNS OF DEFECTS OR DETERIORATION.
5.6	Tubes: Were they sagged, hogged, blistered, signs of overheating, corroded and/or pitted?	THE TUBES WERE STRAIGHT AND DISPLAYED NO SIGNS OF BULGING OR HOGGING AS SEEN THROUGH THE INNER DIAMETER OF THE TUBES.





5.7	Tube projections and expansions: Was there any signs of them being wasted, cracked and/or corroded? REF PHOTO	THE ATTACHMENT WELDS OF THE TUBES TO TUBE PLATES DISPLAYED NO VISIBLE SIGNS OF DEFECTS OR DETERIORATION, 1 WELD OF THE STAY BAR TO TUBE PLATE IN THE FIRE BOX/ COMBUSTION CHAMBER DISPLAYED SIGNS OF WORM HOLES ON THE WELDING. HOWEVER THIS WAS NOT REGARDED AS INTEGRITY RELATED DEFECT AS THIS WAS A DEFECT SINCE MANUFACTURE AND AS SUCH SHOULD JUST BE MONITORED FOR FUTURE REFERENCE.
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Item	Inspection Requirements Checklist	Comments
6	WATER AND STEAM SPACES	
6.1	Were there scale deposits in tubes and/or submerged surfaces and if so were they hard/soft or thick/thin?	ALL THE SCALE DEPOSITS WERE REMOVED PRIOR TO THE INSPECTION AND NO SCALE WAS OBSERVED WHERE VISIBLE AT TIME OF INSPECTION.
6.2	Shell surface, firebox, drum, header, plating, stays: Were there any signs of being pitted, corroded, eroded, wasted and/or cracked?	ALL THE SURFACES THAT WERE VISIBLE FOR INSPECTION ON THE WATER SIDE DISPLAYED SIGNS OF SUPERFICIAL TO SLIGHT CORROSION WITH NO SIGNS OF INTEGRITY RELATED PITTING OR ERROSION.
6.3	Riveting: Were they hammer-tested or not, have heads missing, wasted, broken and/or cracked?	ALL THE BOILER JOINTS WERE WELDED NO RIVETING PERFORMED.
6.4	Welded seams: Were there any signs of being corroded?	ALL THE BOILER WELDED SEAMS WHERE VISIBLE WERE INSPECTED AND NO VISIBLE SIGNS OF CORROSION WAS OBSERVED AT TIME OF INSPECTION.
6.5	Tubeplates, and/or headers: Were there any signs of being pitted, corroded and/or cracked?	THE TUBE PLATES AND FLUE WAS NOT INSPECTED AS THE BOILER WAS NOT OPENED ON THE WATER-SIDE FOR INSPECTION.
6.6	Tubes, tube projections and expansions: Was there any signs of them being pitted, wasted, cracked, distorted and/or corroded?	THE TUBE PROJECTIONS AND EXPANSIONS DISPLAYED NO VISIBLE DEFECTS OR ANY SIGNS OF DETERIORATION AT TIME OF INSPECTIONS.
7	FITTINGS	
7.1	Are all the fittings provided and do they comply with the regulations?	THE FITTINGS PROVIDED COMPLIED WITH ALL THE REGULATIONS. (NEW MOWBREYS FITTED TO BOILER)
7.2	Were all fittings cleaned, overhauled and opened for inspection? If not why not?	THE FITTINGS ALL COMPLIED WITH THE REGULATIONS AND ALL FITTINGS ARE COMPLIANT TO THE PRESSURE EQUIPMENT REGULATIONS.
7.3	Are the fittings and studs in a satisfactory condition as far as is ascertainable when not under pressure?	THE FITTINGS WERE ALL REFURBISHED AND NUMEROUS STUDS WERE REPLACED AS PER CLIENT AND INSPECTION REQUEST.





**De-Tect
Unit Inspection**

Management System
STANDARD INSPECTION FORM
In-Service Steam Generator/Boiler Inspection & Test Report

Form No: DIF 017.14.02

Rev. No. 1

Date: 09/10/2012

Page: 6 of 9

8	HYDRAULIC TEST	
8.1	Hydraulic test performed Yes/ No? NOTE: Fittings must be in position for the hydraulic test.	THE HYDRAULIC TEST WAS NOT PERFORMED.
8.2	What was the test pressure in kilopascals (kPa)?	N/A 1 YEARLY INSPECTION.
8.3	What was the duration of the hydraulic test in minutes?	N/A 1 YEARLY INSPECTION.

Item	Inspection Requirements Checklist	Comments
8.4	Comment on the tightness of the steam generator, including all fittings and attachments except safety valves?	NO VISIBLE DEFECTS WERE NOTED AT TIME OF INSPECTION.
9	GENERAL CONDITIONS	
9.1	Is the steam generator feed water treated and if so is the treatment effective?	THE FEED WATER TREATMENT WAS EFFECTIVE.
9.2	Are there any defects or weaknesses which are of immediate danger to the safe working of the steam generator?	THE INSPECTION REVEALED NO INTEGRITY RELATED DEFECTS OR DETERIORATION.
9.3	State clearly any defects materially affecting the maximum working pressure?	NONE NOTED AT TIME OF INSPECTION.
9.4	What repairs are considered to be required and how soon should they be executed?	THERE ARE NO OUTSTANDING REPAIRS REQUIRED.
9.5	What other measures are considered necessary for securing safe working of the steam generator?	NONE NOTED AT TIME OF INSPECTION.
9.6	What is the safe permissible working pressure of the steam generator in view of the comments above?	1000 KPA





Other Comments:

IN CONCLUSION PLEASE NOTE THE FOLLOWING; (1) ALL STUDS WERE REPLACED WHERE REQUIRED. (2) ALL MUDHOLE COVERS REFURBISHED. 2012. (3) TWO MOWBREYS WERE REPLACED IN KIND AND WERE TESTED IN COMPLIANCE TO THE PRESSURE EQUIPMENT REGULATIONS.

6. Recommendations

- 6.1 The following recommendations are made as a result of the inspection. (IF APPLICABLE)
- 6.2 N/A

7. Conditions of Inspection

- 7.1 The following conditions of inspection have been noted during the inspection. (IF APPLICABLE)
- 7.2 N/A

8. Personal Details of Competent Person

- 8.1 The following details are applicable to the Competent Person.

NAME: MDH KIVIDO

ADDRESS: 5 HOUT STREET VREDENBURG

IDENTITY/PASSPORT NUMBER: 6604075253081

QUALIFICATIONS: OLIFANTS FONTEIN CERTIFIED FITTER, CP BOILERS AND PRESSURE VESSELS, NDT LEVEL 2 – MPI, UT LIMITED THICKNESS GAUGING, DYE PEN INSPECTIONS, 3 YEARS EXPERIENCE API 653 TANK INSPECTIONS (CHEVRON REFINARY)





PREVIOUS EXPERIENCE IN STEAM GENERATOR MAINTENANCE AND INSPECTION:

20 YEARS MAINTENANCE EXPERIENCE, 10 YEARS INSPECTION OF STEAM GENERATORS AND PRESSURE VESSELS

9. Personal Details of Competent Person in Training (if applicable)

9.1 The following details are applicable to the Competent Person in training:

NAME: RM KIVIDO (RYAN)

IDENTITY/PASSPORT NUMBER: 861030 5178 08 7

10. Statutory Inspection Dates

10.1 The following statutory inspections must be carried out on the steam generator.

a) Three Yearly Inspections

- Date on which last 36 monthly inspection and pressure test was carried out NOV/DEC-2012
- Next 36 monthly inspection and pressure test : 18/11/2015

b) Annual Inspections

- Date on which last 12 monthly inspection and pressure test was performed: NOV/DEC-2012
- Next 12 monthly inspection : NOV/DEC-2014

11. Declaration by Competent Person

11.1 The following declaration is made by the Competent Person/Competent Person in Training.

I declare that this steam generator has been inspected by me in accordance with the Occupational Health & Safety Act and applicable Regulation. I confirm that all information provided in this report is a true reflection of the condition of the steam generator at the time of inspection. The owner / user has been informed of all outstanding documents and/or requirements, weaknesses or defects as indicated in this report. This report is not valid if the design pressure and temperature as per the nameplate is not adhered to and if the equipment is not operated by adequately trained personnel. Furthermore, any unauthorised welding repairs/modifications will invalidate this report. This report may not be reproduced without written approval from the Inspection Body and the Client, in which case it must be reproduced in full.

Date
15/12/2013

Signature of Competent Person



12. Declaration/Decision by Registered User

12.1 The following declaration is made by the Registered User of the steam generator. (Please cross out the non-relevant wording).

- i) I accept/do not accept the report of the competent person on the condition of the steam generator as indicated in this report.
- ii) I, intend/do not intend having repairs affected to the steam generator.
- iii) I undertake to affect the repairs on ...N/A
(State proposed date when repairs will take place).

Date

Signature of User



Issue Number:

F/2014

INSPECTION CERTIFICATE

Name of Establishment: Afro Fishing (Pty) Ltd
Establishment number: E
Physical address: Bland Street, Quay 1, Mossel Bay Harbour
Postal address: Bland Street, Quay 1, Mossel Bay


This is to certify that the Establishment satisfactorily addressed the Food Safety and HACCP requirements in terms of:

EU Regulation 852, 853, 854 and various relevant EU Directives
FDA Regulation 21 CFR 123
Relevant Compulsory Technical Standards

The Establishment must note that any non-conformances pointed out to Management during an inspection shall be addressed within a specified period. Failure to comply with this requirement or with any of the requirements in terms of the relevant Regulations may result in the cancellation of this certificate.

Date issued: 2014/03/06
Expiry date of Certificate: 2015/03/06
Operational Manager: Mr JJ Dreyer, NRCS

Signature:



Date:

14-03-06

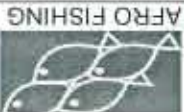
This document does not imply NRCS approval of any commodities manufactured.

Head Office

SABS Campus 1 Dr Lategan Road Groenkloof Pretoria

✉ NRCS Private Bag X25, Brooklyn Square 0075

@ Web www.nrcs.org.za

	Afro Fishing (PTY) LTD	
	WATER MANAGEMENT	
DOC. NO: AFR-PP-12	REVISION NO: 1	DATE FIRST ISSUED: 08 December 2012
ORIGINATOR: M. Carstens		
DATE REVISED: 08 August 2013		

1. PURPOSE

The purpose of this document is to ensure the correct handling and treatment of water used for the processes at Afro Fishing to prevent any contamination which could cause a food safety hazard to our product

2. SCOPE

This document is applicable to the water used at Afro Fishing for processing, cleaning and disinfecting.

3. RESPONSIBILITY

It is the responsibility of management to ensure this document is adhered to.
It is the responsibility of water handling personnel to ensure they follow the instructions given in this document.

4. PROCEDURE

Also refer SANS 241: 2011

4.1 Municipal water

The municipal water at Afro Fishing is tested annually to validate the quality of the potable water as acceptable for processing of food products. If the presence of any organisms indicating faecal pollution is present a retest must be conducted and a corrective action initiated to resolve the problem before further production can continue.
Municipal water is also tested by the NRCS for approval.

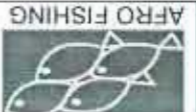
4.2 Sea water

Sea water can only be used in production if the sea water complies with the specifications for potable water – refer SANS 241.

If sea water is used for production or cleaning, samples of the treated sea water is drawn every second week during continuous production for microbiological analysis.
Where more than 2 weeks passed without any production, treated sea water samples will be drawn on the first day production commences.

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	<p>Afro Fishing (PTY) LTD</p>
<p align="center">WATER MANAGEMENT</p>	
<p>DOC. NO: AFR-PRP-12</p>	<p>REVISION NO: 1</p>
<p>DATE FIRST ISSUED: 08 December 2012</p>	<p>DATE REVISED: 08 August 2013</p>
<p>ORIGINATOR: M. Carstens</p>	

The following microbiological parameters are analyzed:

Escherichia Coli	: Not detected / 100ml
Faecal Coliforms	: Not detected / 100ml
Coliforms	: ≤ 5 / 100ml
Intestinal Enterococci	: ≤ 5 / 100ml
Clostridium Perfringens	: Not detected / 100ml

If sea water do not comply to the above specifications, the water may not be used. Report the non-conformance to the NRCS inspector and implement a corrective action.

4.3 Boiler water

The boiler water used for steam production is treated with food safety approved chemicals – refer AFR-PRP-08.

The boiler water is pH regulated to ensure the efficient working of the chemicals added. A scale inhibitor is added to prevent hardness of the water and precipitation.

4.4 Retort water

Refer AFR-PROD-07 for retort water system operating.

The retort cooling water is treated with food safety approved chemicals – refer AFR-PRP-08. Due to the formation of possible rust on cans the following parameters are monitored:

pH	: 6.5 – 8.0
Chlorine	: 2 – 3ppm
TDS	: less than 500
Water clarity:	visual check

Cooling water inlet is tested every 2 hours by the Boiler operator and verified by the Retort Quality.

Cooling water outlet is tested during first can cooling and then every 2 hours by the Retort Quality. The chlorine at the outlet may not be less than 0.2ppm.

Retest the out of specification parameters 30 minutes after the required adjustments were made and until corrected. Report any deviances to the operator and to the Quality manager. (Refer AFR-F-31)

Retort water samples are drawn every second week during continuous production from tank nr. 1 for microbiological analysis. (refer process flow on page 4)

Where more than 2 weeks passed without any production, retort water samples will be drawn on the first day production commences.

The following microbiological parameters are analyzed:

Escherichia Coli	: Not detected / 100ml
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Coliforms : <1 / 100ml
 Intestinal Enterococci : <1 / 100ml
 Total microbial Activity (TMA) : ≤100 / 1ml - take corrective action (accepted till ≤1000/1ml)
 Clostridium perfringens : Not detected / 100ml (test once per month)

If the micro test results for the retort water is out of specification, the affected product will be double incubated to ensure no microbiological growth is present. Resamples of the water will be sent for analysis and tests will be conducted until 3 consecutive samples are within the specification.

Report the non-conformance to the NRCS inspector.

Retort water is dumped after every 5 days whether there is production or not to prevent any possible microbiological contamination. During production water is drained to lower the TDS level – refer AFR-PROD-07

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	WATER MANAGEMENT		
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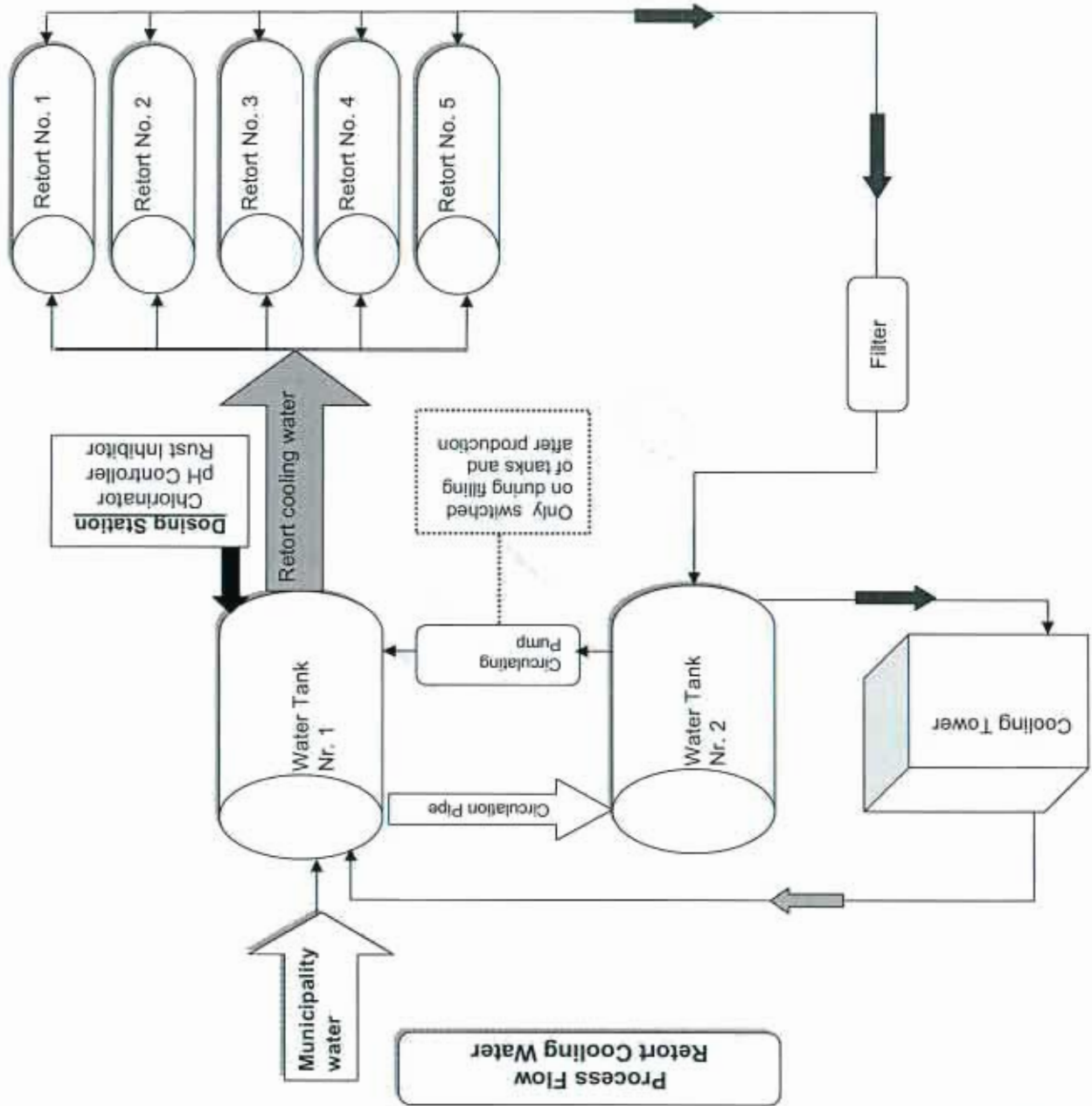
AFRO Fishing (PTY) LTD

WATER MANAGEMENT

DOC. NO: AFR-PRP-12 REVISION NO: 1 DATE FIRST ISSUED: 08 December 2012


ORIGINATOR: M. Carstens

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<p>ORIGINATOR: M. Carstens</p>	

4.4 Ice

Ice is produced with potable municipal water. Ice samples are drawn monthly for microbiological analysis.

The following parameters are analysed:

Escherichia Coli	: Not detected / 100ml
Faecal Coliforms	: Not detected / 100ml
Coliforms	: < 1 / 100ml
Intestinal Enterococci	: < 1 / 100ml
Total microbial Activity (TMA)	: < 200 / 100ml (Internal specification)
Clostridium Perfringens	: Not detected / 100ml (Test once every 2 nd month)

If ice do not comply to the above specifications, a resample is drawn as well as a water sample from the ice drums. Samples are submitted until 3 consecutive results are within specification Report the non-conformance to the NRCS inspector. If ice is not within specification it is dumped and the ice bunker cleaned before producing new ice.

Test the new ice produced.

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AFRO Fishing (PTY) LTD

WATER MANAGEMENT

DOC. NO: AFR-PRP-12

REVISION NO: 1

DATE FIRST ISSUED: 08 December 2012

ORIGINATOR: M. Carstens

DATE REVISED: 08 August 2013

Distribution List

Date	Distributed to	Position	Department	Copy nr	Signature

Amendments

Date	Old Revision nr	Section nr	Amendment	Made by
08.08.2013	0	4	Revise specifications for water micro according to SANS 241 and compulsory specifications	M Carstens
08.08.2013	0	4	Revise retort water specifications and dumping of water for preventive measures	M Carstens

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PEST CONTROL

DOC. NO: AFR-PRP-07	REVISION NO: 0	DATE FIRST ISSUED: 12 February 2013
ORIGINATOR: M. Carstens		DATE REVISED: NA

1. PURPOSE

The purpose of this document is to ensure a pest free storage and processing environment

2. SCOPE

This document is applicable to all departments of Afro Fishing

3. RESPONSIBILITY

It is the responsibility of management to ensure this procedure is adhered to.
It is the responsibility of all personnel to report any sighting of pests.

4. PROCEDURE

The Pest Control Program shall comply with SABS 0133 - 1977: The code of practice for the application of pesticides

Pest Control on the premises of Afro Fishing is undertaken by an outside contractor: Rentokil. The pest control system is managed through an online internet website – Pest online – which can be accessed by the quality manager.

The pesticides used by Rentokil must be approved by the Department of Agriculture. Rentokil must be registered with the Department of Agriculture and have to comply to Act no 36 of 1947: Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act.

The following service are being supplied:

- The monitoring of installed and numbered bait stations around the premises to eliminate the presence of rodents.
- The monitoring of insectecutors to determine the quantity and type of flying insects present.
- The visual inspection of the premises to look for crawling insects
- The use of approved pesticides to eliminate or prevent any pests on the premises
- A trend analysis on the pest activity of the premises (available on website)
- Advice on the removal or elimination of pests
- A detailed diagram of the location of all pest control equipment.

Routine visits which include inspections and treatments by Rentokil will be conducted once per

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PEST CONTROL

DOC. NO: AFR-PRP-07	REVISION NO: 0	DATE FIRST ISSUED: 12 February 2013
ORIGINATOR: M. Carstens		DATE REVISED: NA

month. The inspector will report any activity and the Quality manager will sign off the inspection sheet electronically.

Internal pest Control will be conducted together with the weekly Good manufacturing practices inspections of the premises. (Refer AFR-F-14)

In the incident of any activity (rodents, insects, birds and cats), it must be reported to the Quality and Production Manager immediately – if activity continuous for more than a week, register a Corrective and Preventive Action Report.

The following records and documentation shall be available :

- Pest control technician registration certificate;
- List of approved pesticides used on site;
- Product Labels;
- Material Safety Data Sheets;
- Application procedure of pesticides;
- Bait station plan;
- Bait station register;
- Flying insect control system plan
- Monitoring documentation of pest inspections
- Treatment reports
- Corrective actions taken.

All the above mentioned data shall be kept for a minimum of 3 years on site.

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Afro Fishing (PTY) LTD



PEST CONTROL

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ORIGINATOR: M. Carstens	DATE REVISED: NA	

Distribution List

Date	Distributed to	Position	Department	Copy nr	Signature

Amendments

Date	Old Revision nr	Section nr	Amendment	Made by

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