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Draft codes of practice for the rendering industry M.746

1995

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Published: June 1995

MEAT & LIVESTOCK
AUSTRALIA

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CODE OF PRACTICE FOR THE RENDERING INDUSTRY

1 SCOPE

This Code of Practice applies to the construction, equipment and operation of Australian rendering plants. It contains the minimum standards necessary to produce rendered products that are free of micro-organisms, parasites and substances that may represent a hazard to animal health. This Code of Practice also contains guidelines for the establishment at rendering plants of Quality Assurance programs to accepted international standards. It is assumed that premises to which this Code refers are licensed by relevant State Authorities for the purposes of procurement, transport, handling processing and security of waste products.

This Code of Practice has three parts as follows;

- Part 1.-Inedible rendering,
- Part 2.-Prime tallow processing and
- Part 3.-Quality assurance guidelines incorporating HACCP.

For the purpose of this Code of Practice the word "shall is used where the requirements are mandatory and "should" where requirements are advisory (strongly recommended.)

2 PREAMBLE

This Code of Practice is intended as a guide to all people involved in the management and handling of rendered animal products with special emphasis being placed on prevention of post processing contamination of meat meals with pathogenic and spoilage organisms and in particular with Salmonella.

The administration of this Code of Practice shall be the responsibility of the "Controlling Authority".

The Code of Practice is based on knowledge and technology available at the time of publication and may need to be varied in the light of new knowledge.

This Code does not attempt to cover micro-organisms of Veterinary Public Health significance which may survive conventional rendering processes.

3 AIMS OF THE CODE

This Code is designed to prescribe standards and give guidance to Rendering Plant management on how to apply modern Quality Assurance production and supervision procedures to the production of rendered animal products. Its aim is to build quality into

the production system rather than accept a lower quality of product than is practically achievable.

The Code describes Quality Assurance principles including the application of Hazard Analysis Critical Control Point (HACCP) which, if followed should prevent the re-contamination of meat meals with Salmonella or other similar bacteria subsequent to heat processing.

4 GENERAL SYNOPSIS

(Note; *meal* includes meat meal, meat and bone meal, meal cake and dried blood and in the context of Prime tallow processing, crackling or greaves has the same meaning.)

Raw materials used to produce meal are likely to be heavily contaminated with salmonella and other bacteria. At the point rendered (cooked) product is discharged from the cooking vessel, it is virtually free from Salmonella and most other vegetative bacteria.

If Salmonella or other vegetative bacteria are detected in meat meal, the contamination probably has occurred after the cooking process. It is essential therefore to put in place a system of controls that prevents re-contamination of the cake or meal.

After cooking, there are two types of contamination which can cause hazards in meal production.

1. Casual Contamination

This may occur via direct or indirect contact between meal and raw materials, for example via splashes, equipment and personnel, or may be caused by insects, birds, vermin or other material likely to carry Salmonella.

Casual contamination may introduce a small number of Salmonella organisms to the meal and be difficult to detect. It is intermittent and results in occasional detection of Salmonella

Casual contamination has the potential to become endemic contamination.

2. Endemic Contamination

This type of hazard occurs if Salmonella can grow in any part of the equipment used to handle rendered product. Endemic contamination has the potential to re-contaminate large quantities of meal.

Endemic Contamination is persistent and results in regular detection of Salmonella in meal.

5 MECHANISMS FOR CONTROL

Salmonella will only grow and survive in meal if the meal is recontaminated after cooking and there is moisture in the meal. Salmonella will not multiply in cake or meal if the moisture content remains at about the level present immediately after pressing or separating.

To locate potential hazards it is necessary to examine the rendering plant and procedures in detail to detect:-

b) where casual contamination of meal may occur.

a) where meal may become wetted by condensation, splashes or leaks, and

c) where contaminated or wetted meal may accumulate in the post cooking processing, handling, storage or transportation phases.

Where any of these hazards are found it is necessary to put in place means of control including a clear, workable program that can be understood by all plant operatives.

It is the aim of this code to prescribe standards and describe modern Quality Assurance techniques based on HACCP that are the basis of a control program

6 ACKNOWLEDGEMENTS

MRC
CSIRO
ARA

7 GLOSSARY AND ACRONYMS

In this manual the meanings of the words and phrases set down below apply throughout the manual, unless the context otherwise requires.

Abattoir	a slaughtering premises which, in addition to having suitable facilities and equipment for the humane slaughter and dressing of livestock, has full time meat inspection, refrigeration and facilities for the hygienic disposal of inedible materials and effluent.
Animal	includes cattle, sheep, pigs, goats, buffalo, deer, horses or any other species approved for slaughter by the respective controlling authority.
Approved	means approved by the Controlling Authority.
Audit	a systematic and independent examination to determine whether quality activities comply with the stated objectives in the quality manual.
Cleaning	means the removal of objectionable matter that may influence the production of a contamination free product.
Condemned	in relation to a carcase or carcase part means that carcase or carcase part is not suitable for use for human or animal food unless processed.
Contamination	means the direct or indirect transmission of objectionable matter to finished meat meal, tallow, or processed blood products.
Controlling authority	means the official authority charged by the Government of a State with the control of processes at a rendering works within that State.
Crackling	means the proteinaceous material derived from Prime tallow processing.
Rendered co-products	means products of animal processing industries that are heat processed and refined into (meat) meal and tallow.

Desk audit	means the initial audit of the Quality Assurance manual.
DAF waste	means dissolved air flotation wastes being recovered solids and fats.
Disease	in relation to an animal, means the presence of an infectious agent or pathological process that: a) affects the health of an animal to an extent that would prevent acceptance of the carcases, the meat or the parts derived from the animal for human consumption; or (b) may not necessarily affect the health of the animal, but may be transmitted to other animals or humans who, (I) contact the animal (ii) contact the carcase (iii) might consume goods derived from the animal.
Edible	means fit for human consumption.
Edible offal	means edible parts from a slaughtered animal other than meat.
Greaves	has the same meaning as crackling.
Heat processing	means treatment by heat for an appropriate period of time at an appropriate temperature to destroy micro-organisms.
Inedible	means unsuitable for human consumption.
Meal	includes meat meal, meat and bone meal, meal cake, dried blood, blood meal and feathermeal.
MAM	means Mixed Abattoir Material and may include all unwanted animal parts and condemned material from abattoirs, further processing facilities, pet food processing facilities and poultry processing facilities.
Objectionable matter	means any raw material of animal origin, non-potable water, or other matter likely to be contaminated with Salmonella or other like bacteria and that is so situated that it has the potential to contaminate finished meat meal, tallow or processed blood products.
Operator	means the person, owner or manager, licensed or approved by the Controlling Authority, who is legally responsible for

	the management of procurement, control, processing and storage of material at a rendering plant.
Quality	means fitness for purpose.
Quality assurance	all the planned and systematic actions to be implemented and demonstrated as needed, necessary to provide adequate confidence that a product will satisfy given requirements for quality.
Quality manual	a document stating the quality policy and describing the quality system of an organisation.
Post processing	means any operation that follows heat processing (cooking) including drying of solids.
Post processing areas	means areas where the discharge from the heat processing equipment and subsequent operations, including storage and final despatch takes place; and where measures are taken to avoid re-contamination.
Prime tallow processing plant	means any premises registered or licenced for the rendering of fat and bone and other co-products for the production of prime tallow and greaves or crackling.
Raw materials	means waste materials of animal origin including MAM that are permitted by the Controlling Authority to be processed at inedible rendering plants.
Receival areas	means the areas where raw materials are received, stored, prepared and passed into processing.
Rendering plant	means any premises approved and registered by a Controlling Authority for the inedible rendering by heat treatment of raw materials for the production of tallow and meal.

Registered/licensed establishment	means premises licensed in accordance with the requirements of the Controlling Authority.
Sanitise	the application of approved chemical and/or physical agents or processes to cleaned surfaces with the intention of ensuring that micro-organisms are at a level that ensures product is not placed at risk.

8 INEDIBLE RENDERING

8.1. SITE AND SERVICES

Rendering plants shall conform with all Government and statutory body requirements with especial reference to planning, environmental protection and water supply and disposal authorities.

New rendering plants should be located;

- On land not subject to flooding
- In an area free from adverse environmental contamination
- On land away from existing or proposed human habitation. A buffer of 1000 metres is recommended

Rendering plants shall be accessible by road in all weather conditions.

Rendering plants shall have;

- Adequate supplies of hot and cold water under pressure
- A reliable electricity supply and a gas or other energy supply
- Open drains (if present) designed to prevent overflow onto the ground
- An effective non hazardous effluent disposal system

Rendering plants shall have a stock proof perimeter fence and gates or gateways to exclude entry of animals and prevent pilferage.

Rendering plants shall have, within the perimeter fence,

- Paved roadways that are graded and drained to avoid accumulation of surface water
- All other areas within 30m of buildings shall sealed or treated to prevent dust or mud accumulating
- Load-in areas and truck wash areas that are curbed, graded and drained to confine wash water and discharge it to the effluent system. To facilitate washing hose points shall be available which should provide hot water for washing of the receival hopper and adjacent facilities and truck washing.
- Paved pathways between staff amenities and the place of work.
- All other areas shall be kept in a tidy condition so as not to attract vermin.
- Storage areas where material and equipment is kept in an orderly manner, above the ground in well drained positions or on pallets so as not to attract vermin.

The licensee shall ensure that the name of the licensee's operator and of the licensee are displayed at the main entrance of the rendering plant covered by the licence.

8.2 CONSTRUCTION PRINCIPLES OF RENDERING PLANTS

The rendering plant shall be capable of processing all raw material delivered on a normal working day.

To avoid post processing contamination by raw materials rendering plants shall be so constructed or internally separated so that there are clearly defined areas as follows;

a) Receival Area - where raw materials are received, stored, prepared and passed into the heat processing area.

b) Heat Processing Area - where heat processing takes place and where measures are taken to avoid re-contamination.

c) Post processing (clean) Area - where the discharge from the heat processing equipment and the subsequent operations, up to final despatch of meal and tallow, take place; and where measures are taken to avoid re-contamination.

A room or separate area should be provided to store packaging materials such as bags or sacks. The packaging storage facility should be capable of being readily dry cleaned.

A designated area should be provided for drum storage.

Design and construction shall be such that cleaning of receival facilities shall be capable of being easily cleaned using wet cleaning methods and cleaning of post processing (including storage) areas shall be capable of being easily cleaned using both wet and dry cleaning methods such as the use of sweeping or vacuuming systems.

Design and construction should be such that there is a minimum of ledges and flat surfaces where meal dust can accumulate.

Design and construction shall be such that liquids and moisture flow from raw materials handling and processing areas to post processing (including storage) areas is minimised.

Design and construction should be such condensation in equipment in post processing areas is minimised.

Design and construction shall be such that direct movement of personnel from receival areas and heat processing areas to post processing (including storage) areas is restricted.

8.3 BASIC CONSTRUCTION - BUILDINGS

All buildings where raw materials are received, processed and stored prior to despatch, should be constructed in a manner that does not permit access to, and can be maintained as far as is practicable free from animals, birds and vermin.

8.3.1 Floors

Shall be constructed of a smooth, non slip, impervious material such as concrete, so that cleaning is facilitated and drainage is unimpaired. Floors should be free of cracks, crevices or inequalities and contain adequate floor drains and be graded to ensure complete and rapid drainage.

8.3.2 Roofing

Shall be kept in a good state of repair and shall be completely weather proof in finished product storage areas.

8.3.3 Walls

Should be constructed of approved impervious materials and finished smooth to a height of at least 1.8 m above floor level. Floor to wall junctions should be coved.

8.3.4 Doors

Any doors between the receival and heat processing areas should be soundly constructed, close fitting and have self closing devices and be kept closed except for personnel traffic.

8.3.5 Stairways

In post processing areas shall have solid treads and risers to avoid the possibility of dirt falling onto meat meal.

8.3.6 Drainage

All water within the facility shall be through trapped floor drains protected by grates, or other such drains or devices which may be approved. Wet areas should be curbed to prevent the spread of contaminated effluent. Drainage shall be so arranged and maintained so there is no flow or seepage into post processing areas.

Save-alls, sumps and catch basins, should be located outside buildings.

Effluent disposal from the premises shall be by a system that is approved by the relevant authority and should not cause or create odour or drainage hazards..

8.3.7 Storage

Suitable facilities shall be provided for storage of finished product in an area separate from raw material storage or receival facilities.

8.3.8 Lighting
In work areas lighting shall comply with Australian Standard AS 1680-76 Code of Practice for Interior Lighting and Visual Environment. Natural lighting using sky light systems is recommended.

8.3.9 Hose points
Shall be conveniently located with hose storage reels or racks provided.

Note; the above building standards do not apply to buildings housing sealed tanks in which tallow is stored

8.4 BASIC CONSTRUCTION- EQUIPMENT

Equipment should be designed and constructed to meet the following criteria;

- Materials used which directly contact the product should be non-absorbent, non-toxic, odourless and unaffected by the product and cleaning compounds.
- Metal used in the construction of equipment should be resistant to rust and corrosion. Galvanised steel may be used for certain applications, provided the galvanising is to the standard of 'high quality and smooth finished' commercial hot dip.
- Plastic and resinous materials should be resistant to abrasion and heat, shatterproof and non-toxic
- Paint is not acceptable on any product contact surface.
- All surfaces in contact with product should be smooth and free of open seams, crevices, gaps and inaccessible recesses that allow product to accumulate.
- Surfaces in contact with product should be readily accessible for cleaning and visible for inspection. Cover plates should be easily removed.
- All interior surfaces in contact with product should be self emptying or self draining.
- Equipment should protect the contents from external contamination.
- The exterior or non product contact surfaces should not harbour soils or meal dust.
- Equipment requiring lubrication should not allow lubricants to contact product.
- Door seals and shaft glands should be located so they are easily serviced.
- Where discharge is likely to flow onto heat processed product cover plates should be installed to deflect the discharge.
- Equipment should be selected and designed to contribute to a good working environment, with care and attention being given to factors such as safety, noise, vibration and heat.

8.4.1 Dead stock handling facilities

Areas where cadavers are skun and/or cut up shall be curbed and drained to contain and direct all blood and body fluids into the drainage system. A handwash basin providing warm (35^0-45^0 C) water and liquid soap and a steriliser for knives and other cutting equipment capable of maintaining steriliser water at 82^0 C or hotter shall be provided. Dead stock facilities should be under cover and shall be located so there is ready access to receival hoppers or bins to minimise contamination of walking or vehicular surfaces. Access to deadstock holding and handling facilities by dogs, foxes and other animals shall be prevented.

8.4.2 Receival hoppers, bins or facilities

Shall be large enough to hold all incoming raw materials received without resorting to dumping raw materials on the ground. The hoppers or bins or facilities shall be maintained in a leakproof condition. The receival area shall be curbed, graded and drained using concrete or similar to contain and dispose of all spillage. Access to receival hoppers and bins by dogs, foxes and other animals shall be prevented.

8.4.3 Blood tanks

Shall be enclosed and maintained in a leakproof condition. Blood storage tanks shall have coved internal corners. Blood tanks shall be installed on a curbed graded and drained apron constructed of concrete or similar material to contain and dispose of all spillage.

8.4.4 Handwash basins

Shall be located in positions readily accessible to staff and shall be capable of supplying clean, warm (35^0-45^0 C)water and be fitted with liquid soap dispensers.

8.4.5 Hose points

Shall be provided to service all parts of the rendering plant and should have hot water supplied especially for removal of spilled tallow.

8.4.6 Shovels, brooms and similar utensils

Should be colour coded for each area to avoid contaminated utensils from the raw materials areas being used in post processing areas.

8.4.7 Drinking fountains

If provided, shall be placed so splash from handwash basins or other sources does not contaminate the drinking faucet.

8.4.8 Prebreakers

Shall be readily accessible for clearing, cleaning and servicing

8.4.9 Screws, augurs, conveyors, bucket elevators
Should not have recesses where meal can accumulate, and should, if covered have a means of easily removing covers for cleaning and inspection.

8.4.10 Conveyors
In post processing areas should be protected from falling contamination. If open conveyors pass under open stairways or catwalks or stands or other sources of contamination deflector plates shall be installed.

8.4.11 Cookers
Shall have accurate temperature recording devices that are capable of calibration. Cookers shall be effectively sealed between the loading and discharge points to prevent contamination of processed material by raw material. Deflector plates may be necessary to prevent contamination.

8.4.12 Centrifuges and presses
Shall be located to allow ready access for inspection, cleaning and servicing.

8.4.13 Centrifuge liners
Off floor storage facilities should be provided for centrifuge liners when not in use.

8.4.14 Meal cake handling facilities
Shall be raised off the floor or be designed to prevent people walking over the meal cake.

8.4.15 Waste disposal bins
Waste disposal bins or other Approved systems shall be provided for holding and/or disposal of contaminated or spilled meal for reprocessing. These containers shall be identified.

8.4.16 Fume extraction or odour control systems
Shall be installed to conform with Environmental Protection Agency requirements.

8.4.17 Condensation control systems
Should be installed to prevent wetting or dampening of meal.

8.4.18 Tallow handling and storage systems
Shall be built to allow spilled tallow to be directed into catchment drains and minimise tallow build up on floors causing both accident hazards and meal contamination hazards. Curbing around tallow handling and storage facilities is strongly recommended.

8.5 EMPLOYEE AMENITIES

8.5.1 Provision of Amenities

Amenities for employees should be provided in accordance with appropriate State legislation. Where State legislation does not exist, the following standards apply.

8.5.2 Location and Access

Amenities for employees should be convenient to the workplace in an area free from undue noise and odour.

Access to the amenities should not cause employees from raw materials areas to pass through post processing areas or vice versa.

Paved walkways shall be provided from the workplace to the amenities.

8.5.3 Basic Construction

Walls, and ceilings shall be constructed of durable materials that are easy to dean. All floors shall be constructed of material which presents a hard, smooth, impervious surface which is graded and drained to an efficient exterior drain.

Walls and ceilings should be of light colours that will reflect light and give a bright appearance to the rooms, and be rendered solid, smooth and impervious to a height of not less than 1.8 m above the floor.

Exterior openings shall be insect proof and construction shall ensure that rodents and other vermin are excluded.

Fresh air intake for mechanical ventilation shall be located in such a way that air is not contaminated.

8.5.4 Required facilities

8.5.4.1 Dining Room

Dining rooms shall be provided with lunch tables with smooth impervious tops and edges, and be constructed so the tables can be readily cleaned.

Seating which can be readily cleaned, shall be provided in dining rooms for all employees who may use the facility at one time.

8.5.4.2 Toilet Rooms

Toilet rooms shall be provided in association with the change and shower rooms.

8.5.4.3 Shower Rooms

An adequate supply of hot and cold water shall be connected to showers.

8.5.4.4 Change Rooms

A separate change room equipped with lockers and seating and having direct access to showers should be provided.

8.5.4.5 Handwash Basins

Handwash basins should be provided in close proximity to the toilet room with an adequate supply of warm water connected to the basins. The water supply should be non hand operated.

Liquid soap dispensers with odourless liquid soap and a means of drying hands shall be provided. Receptacles for used paper towels should be provided if paper towels are used.

8.5.4.6 Lockers

One locker, large enough to hold street clothes should be provided for each person employed at the premises.

8.6 COLLECTION VEHICLE STANDARDS

8.6.1 Types of Vehicles

The types of vehicles used are large tipping bodies or semi trailers, open topped with fixed sides that may have self-contained mechanical loading, external screw or hopper loading. They may be fitted with fully enclosed blood storage tanks. Structural designs shall include the ability to carry semi-liquid waste.

8.6.2 Construction of vehicles

All vehicles carrying MAM shall be designed and built to prevent leakage or spillage or overflow of contents from the carrying compartment.

In carrying compartments any internal ribs and corners should be coved to facilitate ease of cleaning. Compartments of trucks carrying wet material should be baffled with front and rear lids on long vehicles to reduce load mobility.

Discharge doors shall be fitted with heavy duty rubber leakproof door seals. All seals including rear discharge door tank hatch and valve seals must be properly maintained to prevent leakage and replaced on a regular basis

Blood tanks (where fitted) shall be either constructed or lined with corrosion resistant materials and be sealed to prevent overflow. A self sealing valve should be fitted to prevent leakage while in transit.

Vehicles are to comply with the requirements of the relevant State or Federal legislation, for example

- Litter Acts
- Road Safety Act.
- Road Safety (Traffic) Regulations

8.7 PROCESSING

8.7.1 RAW MATERIALS COLLECTION AND TRANSPORT

Collection vehicles shall be checked on a weekly basis for leakage from the carrying compartment. Leakage repair shall be given high priority.

Collection should be on a daily basis from each supplier.

Inedible meat co-products destined for inedible rendering shall be stored in labelled bins. Bins shall be constructed from durable, rust proof materials and able to be easily cleaned.

Material to be loaded should be free from extraneous water.

All paunches should be opened and cleaned before loading.

Loading of collection vehicles should be carried out within the curbed drained apron where provided.

Collection vehicles shall be filled so wet raw materials are 150 mm or more below the top of the carrying compartment.

Drivers should be instructed on measures to be taken in the event of accidental spillage of raw materials on public roadways.

Immediately after discharging each load the carrying compartment of raw material vehicles shall be cleaned using an Approved system in the vehicle wash area. Management should encourage drivers to maintain the exterior of the vehicle in a clean condition.

8.7.2 RAW MATERIALS HANDLING

8.7.2.1 Cadavers

At rendering plants where cadavers are held, stored, skun, gutted or dismembered this shall be done only in curbed, drained areas provided for this purpose.

Cadavers shall be processed promptly after arrival at the rendering plant and placed in the receival hopper or bin for heat processing.

Facilities shall be provided for the handling and disposal of paunch contents where these are not heat processed.

The curbed drained area on which cadavers are processed shall be cleaned by regularly picking up solid material and hosing when in use and at the completion of each processing period.

8.7.2.2 Mixed abattoir material (MAM)

MAM shall on receival be placed directly into a receival hopper, bins or other Approved facilities.

The curbed drained MAM receival area shall be cleaned by regularly picking up solid material and hosing when in use and at the completion of each processing period.

MAM received shall be processed on the day of receipt unless extenuating circumstances such as equipment breakdown occurs.

8.7.2.3 Blood

Blood shall on receival be pumped or drained into enclosed tanks.

The curbed, drained apron under blood tanks shall be kept clean by hosing.

8.7.2.4 DAF waste

DAF waste that is not sterilised shall be treated as raw materials

8.7.2.5 Raw materials security

Staff shall be instructed through training that removal of raw materials by any person for personal use, sale, feeding to dogs or cats or other animals or for any other purpose is forbidden.

All raw materials received onto the rendering plant shall be subjected to heat treatment on the plant. The only exception is where raw materials are transhipped to another rendering plant for heat processing.

8.7.2.6 Feathers

Every effort should be made to contain feathers and avoid contaminating the local environment.

8.7.3 COOKER LOADING AND HEAT PROCESSING

All spillage during loading shall be cleaned up promptly and returned to the receival containers or loaded into the cookers.

Accurately calibrated temperature gauges or recorders shall be used continuously to monitor the heat processing conditions.

Records shall be kept in an orderly manner to demonstrate the operating conditions have achieved the time/temperature parameters adopted by the Rendering plant necessary to achieve microbial destruction.

Records shall be maintained of calibration procedures for the temperature recording system of each heat processing unit.

8.7.4 COOKER UNLOADING

Prior to unloading, percolator bins or any container into which processed material is discharged shall be checked for uncooked, partially cooked, damp or otherwise contaminated material. Such material shall be removed and re-heat processed.

Deflector plates are recommended to minimise contamination where leakage of unprocessed material is unavoidable.

Discharge doors on batch cookers shall be securely closed before cookers are refilled

8.7.5 SCREWS AND CONVEYORS

Screws and conveyors should be checked before start-up for accumulated meal which should be scraped out and re-heat processed. This is especially important if the meal is damp due to condensation or other moisture contamination.

Every effort should be made to empty and scrape out screws and conveyors at shut down.

8.7.6 MEAL / TALLOW SEPARATION (PRESSING, CENTRIFUGING ETC.)

When not in use centrifuge liners shall be stored off the floor in suitably designed racks.

Centrifuges presses and other separating equipment shall be checked for contaminated or damp residual meal which shall be removed and re-heat processed.

Centrifuges, presses and other separation equipment should be emptied and as far as is practicable, meal scraped out at shut down.

8.7.7 HANDLING OF MEAL CAKE

Where meal cake handling is done manually every effort shall be made to minimise cross contamination.

Transfer of contamination from any source such as dirty boots, implements or hands to meal cake should be avoided. Only implements which are colour coded for post processing areas shall be used.

A control system shall be in place to ensure contaminated or damp meal cake is re-heat processed.

8.7.8 MILLING, BAGGING AND STORAGE OF MEAL

Before start up hammermills should be checked for accumulated meal which should be scraped out and re-heat processed.

Care should be taken to minimise meal falling onto floors. All meal on floors shall be regularly swept up and re-heat processed.

Meal shall be packed in new bags or in sterilised bags.

Storage bins shall be maintained in a clean condition and the stored product should be protected from faecal or other contamination by rodents, birds and other small animals.

Where meat meal is stored in buildings or in bays the surfaces on which meal is stored shall be cleaned and allowed to dry before use. All storage facilities shall be completely emptied and cleaned each time meal is loaded out.

8.7.9 LOAD-OUT AND DESPATCH OF MEAL

Vehicles or containers used for transporting meal shall be covered to avoid dust or rain.

Vehicles used for transport of raw materials shall be thoroughly cleaned, allowed to dry and then inspected before loading.

Prior to loading transport vehicles or containers shall be inspected for cleanliness and to ensure the product will be protected from contamination and rain or water during transport. Unsatisfactory vehicles or containers should not be loaded unless so instructed by the owner or person in charge of the vehicle.

8.8 HYGIENE AND SANITATION

8.8.1 PERSONAL HYGIENE

All persons working in rendering plants shall wear clean outer garments when starting work each day and if necessary garments shall be changed if they become excessively soiled throughout the day.

All persons engaged in processing of cadavers or handling of raw materials shall wash their forearms and hands and sterilise their knives frequently and when chance contamination with diseased tissues occurs.

Employees shall wash their hands thoroughly after using the toilet with clean water and soap or other cleansing agent and then dry their hands.

Management shall ensure a suitable waterproof dressing is applied to a skin infection or an open wound or on an exposed part of the anatomy before the employee so affected starts work.

Food should not be consumed at rendering plants other than in a lunch room as provided under this code.

Management should discourage employees from smoking whilst engaged in handling cadavers and raw materials.

8.8.2 GENERAL HYGIENE

Dogs, cats, birds and other domestic animals and wild animals shall be excluded from all parts inside the perimeter of rendering plants.

Appropriate signs advising that the entry of dogs, cats and other animals into the rendering plant is prohibited should be prominently displayed.

Hoses when not in use shall be stored on reels or racks.

The premises shall not be used for any purpose other than rendering and the production of meals and tallows.

All unused equipment and extraneous material should be removed from processing premises and its environs or stacked off the ground in areas provided.

8.8.3 CLEANING PROGRAMS

Cleaning procedures must be properly established for all parts of the premises, equipment and vehicles. These procedures shall be set down in written schedules for each rendering plant.

The cleaning schedule shall describe in detail cleaning procedures and inspection procedures for each area of the rendering plant as follows;

- Roadways and surrounds
- Receival area
- Heat Processing area
- Post processing (clean) area
- Milling and bagging areas.
- Storage areas.
- Amenities (and offices).
- Raw material and meal transport vehicles.

Cleaning programs shall include the following elements;

- Use of Approved cleaning chemicals,
- Frequency of cleaning
- Cleaning procedures and rinse down.
- Inspections and corrective action.
- Hygiene report forms.

In Rendering plant cleaning programs particular attention needs to paid to product contact surfaces and their immediate surroundings including;

- All cooker and drier discharge doors, augers, grids and gaskets,
- Change of direction points on auger or conveyor belts,
- In milling, bagging and storage areas where meal dust may accumulate on ledges or floors or any other flat surfaces.
- In tallow handling areas where spillage may occur.

Solids, fats removed during the cleaning operations should be re-heat processed.

8.8.4 INSECT, RODENT AND VERMIN CONTROL

All rendering plants shall have a program to cover the following aspects of insect, rodent and vermin control;

- Maintenance of screens and self closing doors on amenities,
- If necessary, provision for surface spraying for insects in times of heavy infestation,
- Provision for a rodent baiting program,
- Provision for control of any other vermin that may be a problem at the premises e.g. dogs, foxes, cats, birds.

8.9 FINAL PRODUCT VERIFICATION - SAMPLING & TESTING

A testing program of final product shall be implemented using the following or similar sampling regime for Salmonella testing.

An employee shall be trained in sampling techniques.

Twice a year samples shall be collected over a one month period.

The sample size shall be 250 grams of final product, (meat meal or blood meal.).
Aseptic sampling techniques shall be used with sterile containers, gloves, sampling implements etc.

Samples shall be taken at load-out at the rate of one sample per day on five days of each week.

Each sample shall be clearly identified with the sample number, name of the company, the date of sampling and the type of product.

A submission form with the sample details including company name, date of sampling nature of samples, name of sampler etc. shall be sent with the samples and a copy of the submission form held on file at the plant for reference.

Samples are to submitted in batches to the testing laboratory of not more than 10.

At the laboratory a sample from each of five samples shall be pooled and examined for salmonella. If salmonella is detected in the pooled sample then each of the individual samples is examined for salmonella.

Where the results of sampling indicate failure the following procedures should be adopted;

a) An immediate review of the hygiene procedures in operation and, where indicated, corrective action to rectify deficiencies.
b) Identification of causative factors by intensifying the frequency of sampling.
c) Sampling of other points in the process and additional samples from other parts of the building and plant.

9 PRIME TALLOW PROCESSING

9.1 SITE AND SERVICES

The standards set down in para. 8.1 shall apply.

9.2 CONSTRUCTION PRINCIPLES OF PRIME TALLOW PROCESSING PLANTS

The standards set down in para. 8.2 shall apply

9.3 BASIC CONSTRUCTION - BUILDINGS

The standards set down in para. 8.3 shall apply.

In addition Prime Tallow Processing Plants shall have buildings where processing and storage takes place which are constructed in a manner that does not permit access to, and can be maintained free from, animals, birds and vermin by the use of external self closing doors, flaps or air curtains or other approved devices.

Buildings where processing and storage takes place should have all horizontal ledges on walls sloped to an angle of at least 45^0 to minimise accumulation of dust and dirt.

The above conditions for buildings do not apply to sealed tanks in which tallows or fats are stored.

9.4 BASIC CONSTRUCTION- EQUIPMENT

Equipment should be designed and constructed to meet the criteria set down in section 8.4.

The standards set down in paras. 8.4.2 and 8.4.4 to 8.4.18 shall apply.

All or crackling or greaves shall be held in containers constructed of approved materials that are smooth, easily cleaned, impervious to moisture, rust resistant, non toxic and not subject to chipping or flaking.

9.5 EMPLOYEE AMENITIES

The standards set down in Section 8.5 shall apply.

9.6 COLLECTION VEHICLE STANDARDS

9.6.1 Types of vehicles

The types of vehicles used are large tipping bodies or semi trailers, open topped with fixed sides that may have self-contained mechanical loading, external screw or hopper loading.

9.6.2 Construction of vehicles

All vehicles carrying materials destined for prime tallow production shall be designed and built to prevent leakage or spillage or overflow of contents from the carrying compartment.

In carrying compartments any internal ribs and corners should be coved to facilitate ease of cleaning.

Discharge doors shall close tightly to avoid discharge of contents en route to the plant.

Collection vehicles shall comply with the requirements of the relevant State or Federal legislation, for example

- Litter Acts
- Road Safety Act.
- Road Safety (Traffic) Regulations

9.7 PROCESSING IN PRIME TALLOW PROCESSING PLANTS

9.7.1 MATERIALS COLLECTION AND TRANSPORT

Collection shall be on a daily basis. Held over materials shall be directed to inedible rendering.

Material destined for prime tallow rendering shall not contain animal paunch (rumen) contents nor condemned material from abattoirs,

Material destined for prime tallow rendering shall be stored in bins made from durable, rust proof materials that are easily cleaned.

Material to be loaded shall be free from extraneous water.

Loading of collection vehicles should be carried out within the curbed drained apron where provided.

Collection vehicles shall be filled so contents are 150 mm or more below the top of the carrying compartment.

Drivers should be instructed on measures to be taken in the event of accidental spillage of the contents of carrying compartments on public roadways.

Immediately after discharging each load the carrying compartment of collection vehicles shall be cleaned using hot water in the vehicle wash area. Management should encourage drivers to maintain the exterior of the vehicle in a clean condition.

Management of Prime Tallow Processing Plants should advise suppliers of the specification for materials destined for prime tallow processing. Ideally this should be in the form of a brochure or leaflet. The information provided should advise suppliers not to put foreign material into fat and bone containers. Suppliers should be encouraged to provide rubbish bins at their premises for waste paper, string, drink bottles, cigarette butts and packets etc.

9.7.2 MATERIALS HANDLING

9.7.2.1 Fat, bone and other materials

Materials destined for prime tallow processing shall on receival be placed directly into a receival hopper or suitable bins with tight fitting bins, if outside, or other Approved facilities.

Pieces of materials that fall onto the ground shall be promptly picked up and placed into the receival hopper or bins.

The curbed, drained receival area shall be cleaned by picking up solid material and hosing regularly, when in use, and at the completion of each processing period.

9.7.3 COOKER LOADING AND HEAT PROCESSING

All spillage during loading shall be cleaned up promptly and returned to the receival containers or loaded into the cookers.

Accurately calibrated temperature gauges or recorders shall be used continuously to monitor the heat processing conditions.

Records shall be kept in an orderly manner to demonstrate the operating conditions have achieved the time/temperature parameters adopted by the Prime Tallow Processing Plant necessary to achieve microbial destruction.

Records shall be maintained of calibration procedures for the temperature recording system of each heat processing unit.

9.7.4 COOKER UNLOADING

Prior to unloading, percolator bins or any container into which processed material is discharged shall be checked for uncooked, partially cooked, damp or otherwise contaminated cooked material. Such material shall be removed and re-heat processed.

Deflector plates should be used to minimise contamination where leakage of unprocessed material is unavoidable.

Discharge doors on batch cookers shall be securely closed before cookers are refilled

9.7.5 SCREWS AND CONVEYORS

Screws and conveyors should be checked before start-up for accumulated cooked material (crackling or greaves) which should be scraped out and re-heat processed. This is especially important if the cooked material is damp due to condensation or other moisture contamination.

Every effort should be made to empty and scrape out screws and conveyors at shut down.

9.7.6 CRACKLING / TALLOW SEPARATION

Presses and other separator machinery should be checked before start-up for accumulated cooked material which should be removed and re-heat processed. Again this is especially important if the cooked material is damp due to condensation or other moisture contamination.

Every effort should be made to empty and scrape out presses and other separator machinery at shut down.

9.7.7 HANDLING OF CRACKLING OR GREAVES

Where crackling or greaves handling is done manually every effort shall be made to minimise cross contamination.

Transfer of contamination from any source such as dirty boots, implements or hands to crackling should be avoided. Only implements which are colour coded for post processing areas shall be used.

A control system shall be in place to ensure contaminated or damp meal cake is re-heat processed.

9.7.8 MILLING, BAGGING AND STORAGE OF CRACKLING

Before start up hammermills should be checked for accumulated crackling which should be scraped out and re-heat processed.

Care should be taken to minimise meal falling onto floors. All meal on floors shall be regularly swept up and re-heat processed.

Crackling shall be packed in new bags or in sterilised bags.

Crackling shall be held in storage bins that are maintained in a clean condition and the stored product should be protected from faecal or other contamination by rodents, birds and other small animals.

9.7.9 LOAD-OUT AND DESPATCH OF CRACKLING

Vehicles or containers used for transport of crackling shall be covered to avoid dust or rain

Vehicles used for transport of raw materials shall be thoroughly cleaned, allowed to dry and then inspected before loading with crackling.

Prior to loading transport vehicles or containers shall be inspected for cleanliness and to ensure the product will be protected from contamination and rain or water during transport. Unsatisfactory vehicles or containers should not be loaded unless so instructed by the owner or person in charge of the vehicle.

9.8 HYGIENE AND SANITATION

9.8.1 PERSONAL HYGIENE

Standards set down in Para. 8.8.1 shall apply.

9.8.2 GENERAL HYGIENE

Standards set down in para. 8.8.2 shall apply.

9.8.3 CLEANING PROGRAMS

Standards set down in para. 8.8.3 shall apply.

Where in-place cleaning systems are used these shall be fully documented along with verification procedures that establish the in-place cleaning system is effective.

9.8.4 INSECT, RODENT AND VERMIN CONTROL

Standards set down in para. 8.8.4 shall apply.

9.9 FINAL PRODUCT VERIFICATION - SAMPLING & TESTING

An appropriate testing program of final product shall be developed using a sampling regime based on sampling for Salmonellae or other suitable indicator micro-organisms.

The system described in para. 8.5 may be used as a guide.

10 QUALITY ASSURANCE GUIDELINES INCORPORATING HACCP

10.1 INTRODUCTION

These guidelines are to assist management of rendering plants with the development of a Quality Assurance program that will provide confidence that the processes and products will meet ever more discerning customer expectations and requirements.

The program outlined below will address modern trends in Quality Assurance based on standards outlined by the International Standards Organisation and incorporating pathogen (disease) control in the rendering industry by the use of HACCP (Hazard Analysis Critical Control Path). HACCP is used as a tool to determine the points in the rendering process where hazards are most likely to occur and then put into place measures that will minimise the hazards and corrective action that can be taken in the event of system failure.

The basis of a modern Quality Assurance program is to accurately and fully document the production system in a company manual and put into place methods that ensure the documented procedures are followed. An important part of an effective Quality Assurance program is in-house and external checks known as audits which measure whether the program is being followed and is resulting in the out-turn of product which meets customer quality expectations.

To be effective Management must demonstrate it is **committed** to the Quality Assurance program as described in the Quality Assurance manual. Committed Management is essential to demonstrate to all employees the need to produce or provide goods or services that are suitable for the needs of customers.

The Quality Assurance Manual shall be specific to each particular rendering plant and the processes involved at the plant. Off the shelf or converted generic Quality Assurance manuals do not prove effective under audit.

These guidelines provide the basic requirements of a Quality assurance manual. They are produced as a guide to the **MINIMUM REQUIREMENTS ONLY**.

10.2 QUALITY MANAGEMENT SYSTEMS

The most effective level of quality is achieved when it is managed into a product. It is based upon:-

Prevention, not cure.	Prevention of quality problems is the most effective way to manage quality.
Plan for Quality	Planning and organising production factors to avoid quality problems is fundamental.
Produce to customer specification	Conduct the business so that it is designed to produce product that conforms to agreed specifications and requirements.
Provide a permanent fix	Whenever quality problems occur take effective action to prevent them re-occurring

Quality is about satisfied customers.

It is useful to consider the needs of customers and what is necessary for them to be satisfied with the quality of goods and/or service provided to them. **The service supplied is the assurance that the supplier is meeting minimum standards every day it operates.**

Quality Management Systems is all about fulfilling customer's needs.

Defining customer's needs is the first step in designing the system. This will include considering many items, for example

- always delivering on time
- the correct quantity and specification
- at the agreed price
- invoices, without errors
- packaging as specified

The various regulatory needs also have to be satisfied. The customer has both the right and expectation that legislative requirements are being met.

10.3 STARTING QUALITY ASSURANCE PROGRAMS

Acquire an understanding of Quality Systems.

Seek advice from other business contacts who are implementing systems.

Consider hiring a consultant. There are consultants with experience in the industry.

There are a number of structured training courses. Get advice on which are the most appropriate. Some State licencing bodies provide a structured QA seminar for interested industry personnel.

The manager or operator of the facility to which the QA program applies will need to assess the number of tasks required to complete the QA Manual.

A management task group is a useful means of setting up the Quality Assurance program. Such a group usually has all the combined skills and knowledge to form the basis of the program. This group should have the commitment necessary for effective Quality Assurance and produce a simple statement to be signed by the licensee/operator. This statement should indicate that the licensee/operator is responsible for the writing and introduction of the program.

10.3.1 Implementation

- Introduce a program of formal inspections, or 'internal audits'. Get someone not associated with that particular process to OBJECTIVELY (not vindictively) assess whether what is documented as procedures is being followed. It is important to record the results.

- Have a regular review of the internal audits by management. It should include someone who has the authority to introduce any necessary changes that the management review believes will improve the system or remedy failures identified by the internal audits.

10.3.2 The Desk Audit

- When the procedures are working, combine them into the manual. Arrange for a "Desk Audit" of the manual when all the required sections have been completed. The desk audit is to make sure the manual and procedures cover all

of the areas that they need to, and are complete. Desk audits will be arranged by the controlling authority.

10.3.3 The Compliance Audit

Once the desk audit process is completed, and any inadequacies in the manual have been attended to, a "Compliance Audit" will be undertaken on site. The purpose of this visit is to ensure that all of the procedures in the manual are actually being carried out in practice.

10.3.4 Surveillance Audits

Regular audits of the system will be provided by external auditors to ensure the quality system is being maintained.

Use these visits by the auditor in a positive way. Seek his advice on why something may not comply, or on any proposed changes to the system that may be contemplated.

10.3.5 Changes to the program

Good systems are ones that introduce changes to improve them. Changes to both documentation and procedures need to be formally recorded and accepted by the auditors.

10.4 DEVELOPING A QUALITY ASSURANCE PROGRAM

Senior Management's commitment and support for the quality system should result in a person being appointed who will have overall responsibility for the development of the quality system. For smaller businesses this person could on his or her own, be responsible for and co-ordinate all the development activities described in this section.

However, a committee approach has some distinct advantages as each member can be assigned one or more specific tasks which spreads the workload and a greater consensus of opinion is obtained. The people who do the job are the experts and can make valuable contributions to the program. In a committee situation each member provides a sense of ownership on behalf of his or her area/department.

Some of the development tasks may be delegated by the committee to those with line responsibilities, however, the committee must ensure that these tasks are accomplished.

To be successful, the development of a quality system must build on the good parts of the existing system, be carried out with the least disruption and aim to achieve compliance to the standards with a minimum of documentation. Standards include State Meat Industry Acts and Regulations and Codes of Practice relevant to the rendering industry.

There are four distinct phases in developing a quality system, these are:

a) A detailed examination of the existing systems, procedures controls, and documentation.
b) Development of an action plan.
c) Documentation of all procedures and controls.
d) Review and adjustment of procedures, controls and documentation.

A detailed examination of existing systems should be conducted by those who understand the requirements of the Legislation and Codes of Practice and who are familiar with the procedures and processes being operated. Results of the examination should be carefully documented in a report.

The examination report should highlight deficiencies in terms of the standards, areas that need further development, and additional procedures and controls that are required. From these results the development program or action plan can be compiled which will define the time scales, responsibilities and actions to be carried out.

Without this program, and particularly without set time scales, the development process could drift aimlessly from month to month with no sense of purpose or targets to achieve.

An action plan should be developed which includes;

a) The structure of the Quality Manual and procedures to be documented.
b) The system controls and procedures to be implemented including new or revised documents.
c) Clearly defined responsibilities for a) and b) above.
d) Time scales for achieving the above. This should include target dates for obtaining first drafts of all documentation, and carefully planned review periods in the program.

Each process line needs to be thoroughly described using a flow chart system and developing hazard analysis based on HACCP which is described below. In most instances there are controls built into the process to avoid hazards which may affect the final product. The documentation of these controls can have significant benefits.

In addition there are numerous other procedures and controls that need to be described in the Quality Assurance manual. These are also described below.

Initial audit and review processes will identify the need to modify processes and controls. The modifications must be documented by amendment to the quality assurance manual. An important concept in quality assurance is the need to be constantly reviewing and improving procedures and controls. Review and improvement are key factors in an effective quality assurance program.

10.5 STAFF AWARENESS

All employees concerned with the quality system should be made aware of the development program and what their contribution will be. A series of awareness sessions, on a departmental basis, if necessary, should be conducted to discuss and explain:

a) The purpose of establishing a formal quality system, its benefits to the organisation and employees, and senior management's policies and commitment.

b) The quality development program and their involvement.

c) The requirements of the standards applicable to their particular tasks.

The awareness sessions are good opportunities to obtain individual contributions and are essential in eliminating fears and misunderstandings.

New or modified procedures, controls or associated forms should be given a trial run for specific periods, followed by a formal review and feedback. The best procedures are those which are followed by habit, therefore the sooner these are implemented the better.

There will be of course be some resistance, but provided the procedures, forms, etc., are not "over the top", and good sound reasons can be given as to why they are needed, then they will, in time be accepted.

The success of the development program will depend largely on the commitment and support of management, and the resources available to create a quality system orientated culture within the company.

10.6 MONITORING THE PROGRAM

Quality assurance programs are monitored using a system of internal (company) audits and reviews as well as both announced and unannounced audits by an external body. The external audit may be undertaken by regulatory authorities or approved commercial auditors. Auditors are trained and certified and must conduct audits in an impartial, objective manner

Auditors review the quality program at each premises. They look for "Objective Evidence" that the system is working. This will normally include auditing the documentation system, eg. product records, training records, etc. It may also include discussing the procedures in the manual with the personnel performing the stated tasks.

Emphasis is placed upon the organisation's own internal audits to establish that the quality program is being followed, that the results are being recorded, and that management is following up an correcting problems where they are identified.

Usually it is necessary to make changes to the quality assurance systems in the first year or so as improved ways of recording or operating are identified. Changes demonstrate that the quality system is being followed. Auditors look to see that the staff are following quality assurance manual procedures by questioning staff.

If a procedure is not being followed the auditor will raise a **"non-conformance"**. These can vary in seriousness. The terms used are "observation", "minor", "major" or "critical" non-conformance. Time will be given to rectify serious non conformities depending on the nature of the problem. Regulatory authorities or audit bodies are obliged to follow up serious non-conformances by a return visit to the premises to check the problem(s) have been rectified.

11 THE QUALITY ASSURANCE MANUAL

The purpose of a Manual is to document how the business is conducted, the controls that are in place and the levels of authority. A manual should first concentrate on the activities which directly effect quality and are the "core" of the business.

A quality assurance manual is designed to be USED by staff, therefore adequate numbers of copies should be available wherever they are needed.

The quality assurance manual can be prepared by company staff or outside consultants. It is essential that for the system to work the manual must accurately reflect the operations and processes at the plant. This will require personal involvement and management commitment to the system.

The manual style and format should be as follows;

- A two hole, loose leaf page system in a ring binder is the most practical
- Page numbering is not necessary but all pages must be accountable by the use of paragraph or section numbering.
- Every effort should be made to keep the manual simple
- Use easy to understand grammar in a user friendly style.
- Enlist people who will use the manual to help prepare it. It is essential that the end user understands the manual.
- To assist staff in remembering manual detail keep all items concise and as short as possible.
- Use "expert advice" to describe procedures.
- Control the number of manuals and who they are issued to.
- Control the procedures and records which are used by numbering them.
- Start with a table of contents.
- Use tables, diagrams, and other forms for ease of understanding. There is never a requirement that everything must be written out in longhand.
- Use sections as described below.
- Cross reference records by a number, so that when the manual is audited, document flow can be traced.
- Make sure that all documents tables and records are clearly labelled and referenced.

Procedures conducted at the plant will need to be accurately described in manuals and developed on an individual plant basis. Documents that can assist rendering companies in the preparation of manuals include:

a) ***Meat Inspection Legislation***
b) ***This Code of Practice***
c) ***Information from the licencing authority such as premises licence conditions***

The current standards applicable to your business need to be available on site. These are needed for the purposes of internal audits, which is where operators or licensees check their own premises against the minimum standards.

12 CONTENTS OF A QUALITY ASSURANCE MANUAL

The International Standards Organisation has developed many standards which have international recognition and are aligned with Standards Australia standards. There is widespread acceptance of ISO standards and many companies and organisations have adopted or are adopting these in their organisation. The ISO 9000 series cover quality management and quality assurance and the ISO 10000 series cover auditing of quality assurance systems

The following is a summary of the requirements of ISO standard ISO 9001 as they could be applied to a quality assurance program in a rendering plant. The description is not complete and for a more comprehensive understanding the actual ISO 9001 document should be referred to.

Please note that the numbering system is that used in ISO 9001

3	*Glossary*
4	*Quality system requirements*
4.1	*Management responsibility*
4.1.1	*Quality policy Statement*
4.1.2	*Organisation & personnel*
4.1.3	*Management review*
4.2	*Quality system operation*
4.3	*Contract review*
4.4	*Design control (Not relevant)*
4.5	*Document and data control*
4.5.2	*Document approval*
4.5.3	*Document changes*
4.6	*Purchasing*
4.7	*Control of customer supplied product*
4.8	*Product identification and traceability*
4.9	*Process control*
4.10	*Inspection and testing*
4.11	*Inspection, measuring and test equipment*
4.12	*Inspection and test status*
4.13	*Control of non-conforming product*
4.14	*Corrective and preventive action*
4.15	*Handling, storage, packaging and delivery*
4.16	*Control of Quality records*
4.17	*Internal quality audits*
4.18	*Training*
4.19	*Servicing*
4.20	*Statistical techniques*

3 Glossary of terms

A glossary is a list of terms which are specific to the particular operation, used in the manual and with which auditors may not be familiar. The glossary in the front of this Code may be a useful guide.

It is better to include as many terms as possible to ensure minimum confusion. Those terms specific to the plant or industry should be included.

4 Quality system requirements

4.1 Management responsibility

Company policy statement

A policy statement shall be written in the company manual. The policy statement should be an unambiguous statement which describes the quality aims of the company and demonstrates a total commitment to the quality system contained in the manual.

The company must give a clear intention regarding commitment to comply with stated goals

The Company policy statement shall be signed by the most senior executive of the company.

The following type of wording is suggested as part of the policy statement:

"Company management and employees will continually assess procedures for improvement in efficiency and effectiveness, and to control defective operations before they affect product quality."

This would be considered the absolute minimum statement. Examples of statements that could be included in the quality Policy statement are;

The management's objective is to ensure that the company conforms to licence conditions, government regulations and the Codes of Practices related to the production of a wholesome product as outlined in this quality assurance manual.

Quality is built into the goods we produce and the service we provide.

This company shall ensure that management and all staff are fully conversant with the company objectives and that these are adopted throughout all levels of employment at this establishment.

Licensee/operator declaration

This is a mandatory declaration signed by the Licensee, or Operator that formalises the Quality Assurance Arrangement between the Controlling Authority or Regulatory Authority and rendering plant management.

I,.....,Licensee/Operator of ..... , rendering facility, licence number ..... , situated at .....advise that on behalf of the company I agree to comply with the rules, procedures, specifications and any other undertaking as outlined in this quality assurance manual.

I herein specify that all products, procedures and services undertaken at this establishment are covered by this Quality Assurance Manual.

As Licensee/Operator, I take responsibility for appropriate action as necessary for maintaining the quality assurance program as specified in this manual.

Signed, witnessed and dated

4.1.2 Organisation and personnel

It is essential that companies have a management structure which reflects a workable approach to the Quality Assurance program.

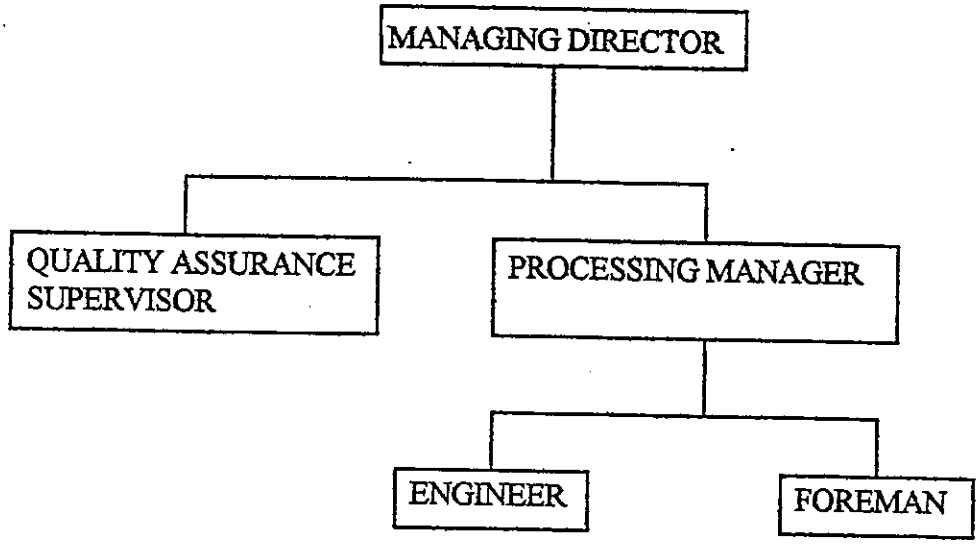
It is recommended that the Quality Assurance Supervisor reports to the Works Manager or someone senior to him/her.

The company position responsible for ensuring satisfactory operations in each area of the plant shall be identified.

Deputies should also be considered and the positions from which they are drawn indicated (they need to be trained to take the place of the nominated personnel).

The company management structure must be demonstrated by an organisational chart, such as in the example below:

A list of the names of persons occupying each position shown shall be provided with the organisation chart.



MANAGING DIRECTOR	J. SMITH
PROCESSING MANAGER	A. BROWN
QUALITY ASSURANCE SUPERVISOR	P. GREEN
ETC.	

The date of issue, document numbers, etc., must be placed on the organisational and all other charts.

Duty Statements for quality related duties

Describe the positions of all persons responsible for supervising the operation of the Quality Assurance program and how his/her responsibilities will be co-ordinated within the management structure. This statement shall include their Quality Assurance duty statements, which should be brief and can be cross-referenced to details in other parts of the manual

Also include what responsibilities they will have and what is expected of them and a description how QA staff will relate to operational supervisors.

Include a procedure for replacement of the Quality Assurance Supervisor.

Emphasise the responsibilities of individuals and define their authority to take corrective and further preventative action. For example, who has the authority to stop production or down grade non-conforming product?

Identify staff who are authorised to train others and those who work unsupervised; this will require review to ensure that people promoted are given the necessary training.

Example of a Quality Assurance Supervisor duty statement

1. Ensures that the company operations comply with the quality assurance program.
2. Establishes the main causes of non conformities and quality loss and makes recommendations for their improvements.
3. Conducts internal audits every six months.
4. Is responsible for document control, administration, issue retrieval and storage of quality assurance documents

Some responsibilities that can be included within the staff duty statements are:-

- preparing and maintaining the quality assurance manual.
- cleaning after processing.
- repairs and maintenance of premises.
- purchasing chemicals.
- administration of licence requirements & renewal.
- collection of meat meal samples.
- inspection of incoming product.

4.1.3 Management review

To ensure the ongoing effective operation of the quality assurance system there will need to be a documented plan in the quality assurance manual for the regular review of the system, The internal review program should state the frequency, method and personnel responsible for the review, along with the person/s responsible for maintaining records of the internal reviews.

A suggested method for the internal review is through a management committee. This committee would consist of members of senior management and quality personnel such as the Quality Assurance Supervisor. The management committee would be required to meet regularly over a period of time to review the efficiency of the quality assurance system. As a guide, the committee should meet monthly.

The management committee meetings should review the results of internal audits, as well as the results of routine monitoring and any incidents that have arisen since the previous meeting.

The structure of the management committee meetings should be documented in the manual.

It is advisable to include a checklist for the review of the quality assurance records relating to all monitoring, results, internal audits and problem follow-up methods.

The reviews should develop confidence that specifications are being met or exceeded under the Quality Assurance program, or a realisation by the company that the QA system needs amendment.

4.2 Quality system operation

In this section, describe the company system including information on whether the company manual will be one unit, or will be divided into two or more manuals and whether other company operations or specifications are combined or separately presented for each step in production or in *Work Instructions*

Describe the monitoring system for each area of the plant and whether quality assurance staff, supervisors or a combination will be monitoring each area.

Also describe how quality assurance staff and supervisors will report their findings and who has responsibility for any lines of action to be taken.

Detailed information relating to the actual operational aspects of the system can be cross-referenced to other sections of the manual.
Quality system procedures and planning are a requirement of this section

4.3 Contract review

Rendering plant management shall when negotiating to supply product check that the processes and processing conditions and any other requirements of the purchaser are met. For example the European Union have specific requirements for the production of rendered products imported from Third Countries. The system needs to include the specific needs of customers where this is appropriate.

4.4 Design control

Design control is necessary where new products or process are involved. This not the usual situation in processing industries such as the rendering industry.

4.5 Document and data control

All company staff responsible for the operation of the quality assurance program must have access to relevant legislation and documents. This may include information on electronic media. The quality assurance manual shall identify where the legislation and documents are kept and detail the names of staff responsible for keeping such legislation up-to-date, and the method of ensuring that all those people who need to know are informed of changes.

A list of controlled copies of the quality assurance manual is necessary (especially one which details who has which parts if it is broken up for various sections).

Any proposed procedural amendments to the manual (to expand, delete or alter) shall go through an approval procedures by the Controlling Authority or Audit body.
Amended areas of the quality assurance manual must be indicated in some way; for example, an * in the margin is a good method. The bottom of the page should show the amendment number and date of the amendment, e.g. Amended by 1/95 * Amended by 2/95, etc.

A system of auditing needs to be in place to ensure that all copies of the manual are updated when amendments have been approved. This may involve nominating responsibility to a particular staff member.

Once the number of amendments becomes excessive consideration should be given to reissuing the manual.

The procedures to followed for Quality Assurance manual amendment shall be described in the manual.

An Example of a Q.A Manual Amendment Register column layout

MANUAL AMENDMENT REGISTER

ITEM NUMBER	DATE	SUBJECT	PARA/ PAGE NO.	APPROVAL DATE	COMMENTS

5.0 Purchases or acquisitions

The quality assurance manual shall describe the company policy and procedures for purchase or acquisition of raw materials and other items used in conjunction with product preparation.
Examples of company policy may be related to excess water or foreign material in raw materials. The course of action if such defects are found in raw materials shall be described in the quality assurance manual. Delivery documentation should be described.

The specifications and checking procedures for items such as bags or drums or cleaning chemicals shall be described. For example all steel drums shall be cleaned by a company approved cleaning facility. On receipt, the Foreman checks drums using a torch or light and returns unsatisfactory drums to the cleaning facility. A description of the documentation for recording rejected drums is provided in the manual

Only chemicals which comply with, (a) the AS 2997-1987 "Cleaning and Sanitising of Plant and Equipment in the Red Meat Processing Industry", or (b) chemicals which are approved under the Export Control Act 1982 should be purchased for use in rendering plants.

All materials used shall be from suppliers which the company agrees to use. Products shall meet agreed specifications, and those suppliers which are approved must be listed in the manual.

6. *Process control (including HACCP)*

This is a key section of the quality assurance program. The quality assurance manual shall describe the production, installation and servicing processes which directly affect product quality and the means of ensuring these processes are controlled at all times.

The use of product flow charts and HACCP examples of which can be seen in APPENDIX 1 is an integral means of achieving the necessary control by establishing work instructions that describe the process and the precautions taken to minimise hazards.

HACCP is a systematic approach to product safety consisting of seven steps.

STEP No. 1
Conduct a hazard analysis. Prepare a list of steps in the process where significant hazards to the product may occur and describe the *Preventive Measures* which are procedures, equipment or other factors that can be used to control the hazard.

STEP No. 2
Identify the points or steps or procedure (Critical Control Points [CCPs]) in the process at which controls can be applied and the hazard can be prevented or reduced to acceptable levels.

STEP No. 3
Establish *Critical Limits* (values or levels which are acceptable) for *Preventive Measures* associated with each identified CCP.

STEP No. 4
Establish CCP monitoring requirements. Establish procedures for using the results of monitoring to adjust the process and maintain control.

STEP No. 5
Establish Corrective Actions to be taken when monitoring indicates that there is a deviation from an established *Critical Limit.*

STEP No. 6
Establish effective record keeping procedures that document the HACCP System.

STEP No. 7
Establish procedures for verification that the HACCP System is working correctly.

To facilitate the understanding of the control processes an accurate plan or diagram of the establishment which indicates the process areas, production flow, duty stations of employees shall be provided.. All alterations to this plan shall be recorded as a manual amendment.. All major structural changes, alterations and additions shall first be approved by the controlling authority and a record of these approvals will be kept in the quality assurance filing system.

Control methods for some of the more general aspects of the production process can be usefully documented in this part of the manual, such as:

- hygiene and sanitation
- pest control
- facilities and equipment maintenance.

Hygiene and Sanitation

Hygiene and sanitation are a fundamental part of legislative requirements and feature in many parts of the quality assurance program.

The quality assurance manual shall document how the hygiene and sanitation standards set down in Parts 1. And 2. (as applicable) are achieved in the rendering plant.

To ensure that General and Personal Hygiene Instructions and Operational Hygiene Practices are performed, they need to be included in individual employee *Work Instructions*, therefore becoming part of company monitoring procedures. Hygiene monitoring sheets are an effective means of achieving adequate standards. The concept of applying levels of risk to hygiene and sanitation monitoring is most useful.

An example of hygiene monitoring sheet columns

WEEKLY HYGIENE MONITORING SHEET (FORM...) DATE...../...../.....

AREA OR EQUIPMENT	RATING	+	-	CORRECTIVE ACTION
Roadways	B			
Surrounds	B			
Receival area	B			
Receival hopper	B			
Conveyor screw	B			
POST PROCESSING				
Conveyor screw	A			
Bucket elevator	A			
Etc.				

Rating; A = Higher risk, B = Low risk, + = Satisfactory, - = Unsatisfactory

Cleaning Chemicals

List all chemicals and indicate evidence of their approved status(cross-reference to the section on Purchasing is acceptable).

For each chemical indicate what it's use. As part of the *Work Instruction* for the cleaners, describe the dilution and application methods. This applies especially to dangerous toxic chemicals which could contaminate the product and be detected as a residue.

Indicate the storage conditions for all chemicals including special storage for dangerous or toxic chemicals, such as rat baits and fly sprays.

Pest Control

The quality assurance manual shall give details of the contractors (or works) program and chemicals used, including diagrams of bait stations.

Describe methods of reducing pest hazards such as storage of unused equipment, control of long grass etc.

Include an example of the reports produced and indicate who will take action when problems are discovered. Indicate the system of feedback from production/cleaning staff observations to the pest controller.

Explain the methods to be used for pest problems which occur during production, e.g. fly control

An example of a pest control form

PEST CONTROL REPORT (FORM ....)

BAIT STATION NUMBER DATE...../...../.....

BAIT STATUS	1	2	3	4	5	6	7	8	9	10	11	12	13	14
COMPETELY GONE														
PARTIALLY GONE														
UNDISTURBED														

CORRECTIVE ACTION (where indicated)

INSECT REPORT
Report on any activity related to insect control such as inside knockdown spraying, outside surface spraying, maintenance of air curtains, fly doors, insectocutor cleaning

SIGNED.....

Facilities and Equipment Maintenance

Give an overview of the plant's maintenance strategy, include time for regular maintenance of product-contacting equipment and other equipment that may have a direct or indirect effect on the product,

Explain the method of feedback from production supervisors to maintenance staff to inform them of urgent (non-scheduled) work, and the method of prioritisation used.

Indicate the contact staff member positions responsible for liaising with the Controlling Authority. Records of maintenance reviews shall be provided.

An example of a maintenance review sheet columns

PREMISES MAINTENANCE REVIEW SHEET (FORM ...)

PAGE 1. DATE...../...../.....

CODE NO.	LOCATION	ITEM & DEFICIENCY	DEFECT m, M, C	FIX BY DATE	FIXED DATE

Defect Codes :M=minor, M=major, C=critical.

4.10 Inspection and testing

Documented procedures for inspection and testing activities shall be detailed in the quality assurance program. plan in order- to verify that the specified requirements for the product are met.

There shall be procedures for checking or testing

- incoming raw materials,
- product during processing and
- final product

The Quality Assurance manual shall also describe procedures to deal with non conforming raw materials or product. e.g. at a Prime Tallow Processing Plant, materials intended for prime tallow processing that contains excessive foreign matter is diverted to an inedible rendering plant.

No product shall be dispatched until all the checking and testing specified in the quality Assurance manual have been satisfactorily completed.

Records which provide evidence that the product has been inspected and/or tested shall be kept. These records shall show clearly whether the product has passed or failed the checks and/or tests.

4.11 Calibration of equipment

Documented procedures shall be maintained to control, calibrate and maintain inspection, measuring and test equipment used to demonstrate the conformance of product to the specified requirements.

For example the temperature recording equipment on all cookers shall be checked against a standard thermometer at regular intervals and if errors are found the recording equipment is repaired.

An example of a calibration of equipment record columns

CALIBRATION OF EQUIPMENT RECORD (FORM....)

DATE	EQUIPMENT ITEM	RECORDING DIFFERENCE	ACTION	INITIALS

4.12 Inspection and test status of product

The quality assurance manual shall describe how product that has not passed prescribed checks or tests shall be identified or segregated. A system of tags or labels is needed to apply to any batch or lot that is rejected or awaiting test or check results.

4.13 Control of non conforming product

The quality assurance manual shall describe how product that does not meet the standards or specifications or standards in the manual is dealt with. This may involve reworking, downgrading or scrapping the product. Records describing any such action are necessary.

4.14 *Corrective and preventative action*

The Quality Assurance manual shall describe procedures for implementing corrective and preventative action.

Corrective action procedures include dealing with customer complaints, investigating the cause of non-conformities, determining how to eliminate non conformities and ensuring the problems remain corrected.

Preventative action includes reviewing records to detect analyse and eliminate potential non conformities and implementing the necessary steps to prevent non conformities.

4.15 *Handling, storage, packaging, preservation and delivery*

The quality assurance manual shall describe the methods used at the rendering plant prevent damage and deterioration to the product during handling, storage and delivery and by preservation. Also the packaging methods including labelling shall be described.

4.16 *Control of quality records*

Records shall be maintained in an efficient manner to demonstrate conformance with the quality system described in the quality assurance manual.

The retention time for records shall be documented. A summary of all recording forms is recommended.

An example of a summary of recording forms columns.

SUMMARY OF RECORDING FORMS

PARA. NO	FORM NO.	FORM TITLE	LOCATION	HOLDING TIME	PERSON RESPON SIBLE

4.17 *Internal quality records*

The quality assurance manual shall describe procedures for planning and implementing internal audits to verify the quality assurance activities and results comply with the arrangements described in the manual and to see if the quality system is effective.

Internal audits are scheduled to cover all aspects of the manual with emphasis on the critical areas of operations. It is important that deficiencies found by internal audits are corrected and subsequent audits confirm the corrective action has been effective. Internal audits shall be fully documented.

An example of an internal audit record form columns

INTERNAL AUDIT SHEET (FORM....)

Date...../...../..... Auditor.....

ITEM NO.	REQUIREMENT	MANUAL PARA. NO.	COMPL -IANCE	OBSERVATIONS	RAT-ING

Provision can be made on the lower part of this form to record results of management reviews and outcomes of the internal audits.

4.18 *Training*

The Quality Assurance manual shall describe procedures for identifying training needs and the training program. Training shall take two basic forms; induction for new employees and ongoing training for all staff whose work affects product quality. Records of training activities shall be kept

Example of training record sheet columns

TRAINING RECORD SHEET (FORM ....)

DATE	NAME(S) ATTENDED	TOPICS COVERED	TIME SPENT

4.19 Servicing

Where servicing is a specified requirement procedures to document and verify servicing are necessary.

4.20 Statistical techniques

The sampling of product for Salmonella is an example of the need for statistical techniques

TABLE 1.

FLOWCHART - RENDERING PROCESS

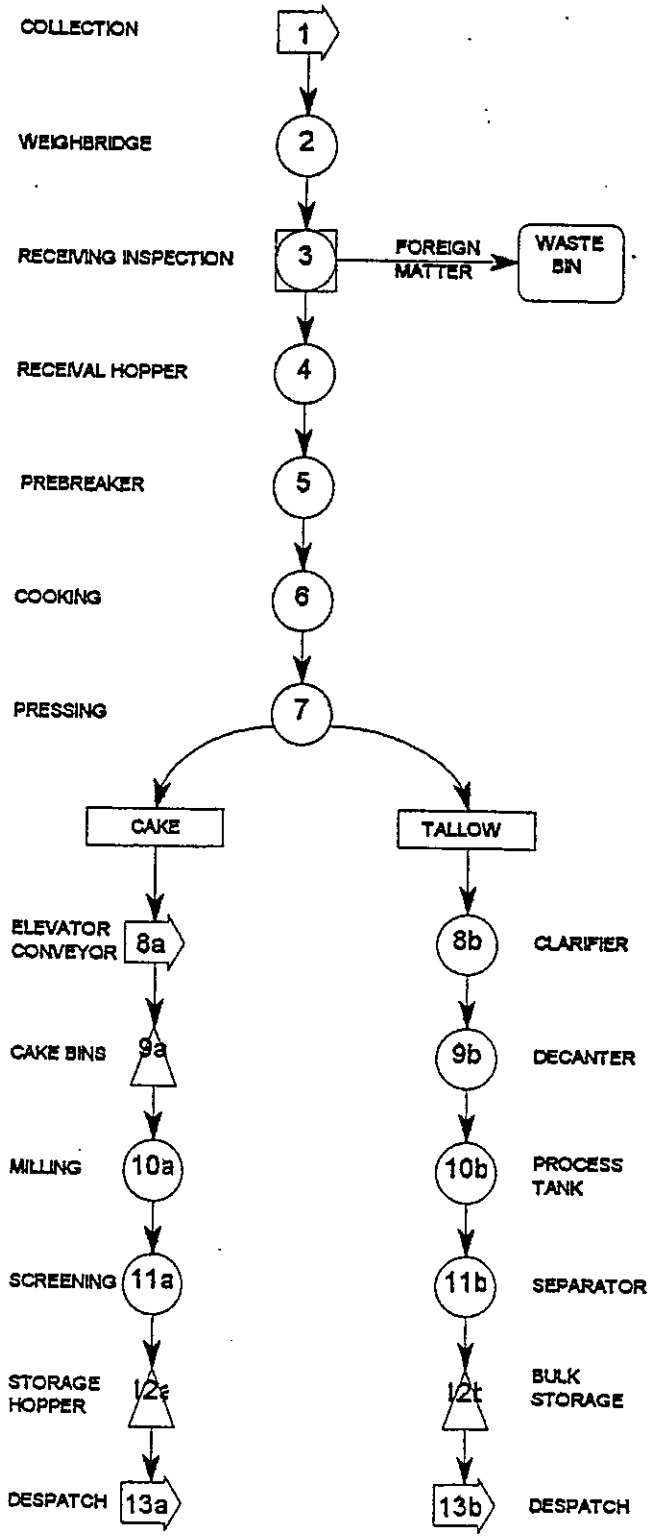


TABLE 2A EXAMPLE HACCP TABLE FOR RENDERING PROCESS

CRITICAL OPERATION	POTENTIAL HAZARD	CRITICAL CONTROL POINTS	PREVENTATIVE MEASURES	SPECIFICATIONS & RELATED DOCUMENTS	MONITORING PROCEDURES	PERSON RESPONSIBLE	CORRECTIVE ACTION	WHERE RECORDED
COLLECTION	SPILLAGE ONTO PUBLIC ROADS CAUSING DISEASE SPREAD AND PUBLIC NUISANCE	LOADING ONTO VEHICLE. DRIVING METHODS	AVOID OVERFILLING VEHICLE, MODIFY DRIVING METHODS	DRIVER WORK INSTRUCTIONS	CHECK VEHICLE ON ARRIVAL AT PLANT FOR OVERFILLING	TRANSPORT FOREMAN	SUPERVISOR TO INSTRUCT/ RETRAIN DRIVER	WEEKLY MONITORING SHEET, TRAINING RECORD
RECEIVING INSPECTION	FOREIGN MATERIAL DAMAGING EQUIPMENT & ADULTERAT-ING FINAL PRODUCT	SUPPLIER MISUSE OF RAW MATERIALS BINS. INSPECTION AT RECEIVAL	ADVISE SUPPLIER OF SPECIFICATION. CAREFUL INSPECTION OF INCOMING MATERIALS	SUPPLIER ADVISEMENTS INSPECTION WORK INSTRUCTIONS	ONGOING INSPECTION OF INCOMING MATERIALS	RAW MATERIALS FOREMAN. Q.A. SUPERVISOR CHECKS	REMOVE FOREIGN MATERIAL . FEEDBACK TO SUPPLIER	WEEKLY MONITORING SHEET
RECEIVAL HOPPER	SPILLAGE & CONTAMINAT-ION SPREAD TO POST PROCESSING AREAS CAUSING CONTAMINAT-ION OF MEALS	HOPPER LOADING	AVOIDANCE OF SPILLAGE DURING HOPPER LOADING. MINIMISE TRAFFIC FROM RECEIVAL AREA TO POST PROCESSING	WORK INSTRUCTIONS	REGULAR CHECKING OF LOADING PROCEDURES	RAW MATERIALS FOREMAN. Q.A. SUPERVISOR CHECKS	CLEAN UP SPILLED MATERIALS. INSTRUCT/ RETRAIN OPERATOR	WEEKLY MONITORING SHEET, TRAINING RECORD
COOKING	UNDER-PROCESSING ALLOWING MICROBIAL SURVIVAL & GROWTH	COOKER OPERATIONS	MONITORING OF COOKING PROCEDURES	OPERATIONS MANUAL	MONITORING THERMOGRAPH PERIODIC MICRO TESTING OF CAKE EX COOKER	COOKER OPERATOR. Q.A. SUPERVISOR CHECKS	CALIBRATE THERMOGRAPH RETRAIN OPERATOR.	COOKER & PRESS MONITORING SHEET TRAINING RECORD

TABLE 2B EXAMPLE HACCP TABLE FOR RENDERING PROCESS

CRITICAL OPERATION	POTENTIAL HAZARD	CRITICAL CONTROL POINTS	PREVENTATIVE MEASURES	SPECIFICATIONS & RELATED DOCUMENTS	MONITORING PROCEDURES	PERSON RESPONSIBLE	CORRECTIVE ACTION	WHERE RECORDED
PRESSING	WARM MOIST MATERIAL IN BARREL DURING SHUTDOWN CAUSES MICROBIAL GROWTH	PRESS OPERATION	CLEAN PRESS AT SHUTDOWN. DIVERT START-UP MATERIAL FROM CAKE ELEVATOR	OPERATIONS MANUAL. HYGIENE PROGRAM IN Q.A. MANUAL	VISUAL INSPECTION PRIOR TO START-UP	PRESS OPERATOR. Q. A. SUPERVISOR	DISCARD CONTAMIN-ATED CAKE. RETRAIN OPERATOR	COOKER & PRESS MONITORING SHEET. TRAINING RECORD
ELEVATOR	CONDENSA-TION & WASH WATER SUPPORT MICROBIAL GROWTH	ELEVATOR VENTILATION. CLEANING PROCEDURES	VENTILATE ELEVATOR TO PREVENT CONDENSAT-ION. DRAIN WASH WATER FROM ELEVATOR AFTER CLEANING	OPERATIONS MANUAL. HYGIENE PROGRAM IN Q. A. MANUAL	VISUAL INSPECTION PRIOR TO START-UP.	PRESS OPERATOR CHECKS BY Q.A SUPERVISOR	IMPROVE DRAINAGE FROM ELEVATOR. TRAIN CLEANING STAFF	COOKER PRESS MONITORING SHEET TRAINING SHEET.
CAKE BIN STORAGE	CONTAMINAT-ION FROM BOOTS OF PERSONNEL STEPPING ON GRID OVER BIN. CONTAMINAT-ION BY BIRDS, VERMIN, INSECTS	PROTECTION OF CAKE FROM CONTAMINAT-ION DURING STORAGE PHASE.	USE DEFLECTOR PLATE OR SOLID CURBED PLATFORM OVER BIN. PEST CONTROL PROGRAM	PEST CONTROL PROCEDURES IN Q.A. MANUAL	AS PER Q. A. MANUAL	Q.A. SUPERVISOR	INCREASE INTENSITY OF PEST CONTROL PROGRAM.	PEST CONTROL REPORT FORM