

The future of the environment in the meat industry

EG Green & Sons – Harvey, WA

The problem

The E.G.Green and Sons Pty Ltd owned Harvey Beef processing plant has grown from a “handful” of cattle each week in 1919 to an annual kill and process of in excess of 160,000 head of cattle per year on a multi shift 7 days per week basis. During this time the township has grown significantly to its current population of 3000, and its production industries have diversified. Traditional dairy farming has been slowly replaced with viticulture and tourist based industries such as B&B’s. It’s proximity to Perth makes it an idyllic weekend retreat. This influx of tourists and wine connoisseurs has led to complaints in regard to odour and noise emanating from the site, especially considering the 7 day operation.

The solutions – 1. Odour from rendering

The approach

In 2002 Harvey Beef installed an enclosed biofilter system. The project was undertaken to eliminate odours from condensable and non condensable gases released as part of the rendering process as well as general odours released during blood drying and all other activities undertaken through a fully integrated rendering process.

The benefit

Immediate benefit came through compliance to DEP license conditions, immediate reduction in neighbourhood complaints and immediate reduction in raw emissions to the environment.

Cost and payback

The cost to install the biofilter has been determined as \$432,000. The immediate payback has been through the ability to continue rendering activities on a 24 hour basis. The value of this has not been calculated but the investment in the biofilter is considerably less than the cost of additional rendering plant to reduce production to 10-12 hours.

There has also been a reduction of local odour complaints from 32 per month to 1 per month.



The Biofilter Fan Shed



The Biofilter from Rendering to Scrubbers.

The solutions – 2. Odour from waste treatment

The approach

In 2002/2003 Harvey Beef installed what is affectionately called the “RENOIR”, in short reduced nitrogen through aeration for irrigation. It is designed to achieve robust nitrogen reduction from medium strength effluents using biological nitrogen removal. The key features include:

- provision of an anoxic zone incorporating carbon-rich raw feed to fuel denitrification of nitrate;
- provision of directional aerators to provide required recycle of water from aerated to anoxic zones; mixing of pond contents and aeration;
- provision of a sludge settling zone demarked from the aerated zone by a turnover baffle arrangement which permits low vertical velocities in the settle zone to permit sludge settling; sludge capture and management and/or sludge recycle back to the aerated zone.

The previous anaerobic pond system was continually at maximum capacity as far as nitrogen and phosphorous reduction, and treated water was another source of odour as it was dispersed around the surrounding farmland as irrigation water.

The benefit

An immediate reduction in nitrogen and phosphorous levels allowed more water to be dispersed within a smaller irrigation area. This not only significantly reduced the area needed to irrigate but limited the number of neighbours exposed to irrigation water. Secondary to this, the “RENOIR” has allowed the water released to irrigation to be supplied for re-use as trade water by other irrigators if required. The commercial value of this resource has not yet been determined.



“Renoir” Tuarts in background.



NATA Signatory Sherri Christie.

Cost and payback

The cost to install “Renoir” has been determined as \$750,000. The payback is in the ability to achieve compliance to DEP license requirements and the ability to continue processing.

The solutions – 3. The management team, EMS and quality systems

The Approach

To facilitate the process of assessments and ongoing quality management culture a multi-level environment committee has been formed. The committee meets on a fortnightly basis and discusses and actions major environmental challenges and initiatives including:

- Community Liaison Strategy – Complaints and feedback and strategy progress.
- Correspondence from DEP, both incoming and outgoing, and actions to be undertaken
- Project overviews, including analysis of consultant data.
- Discussion of waste minimisation strategies.

The EMS is incorporated into the MSQA (Meat Safety Quality Assurance) manual ensuring:

Management Review, Internal Audit, External Audit and Document control and process conformance monitoring.

The benefits

- A controlled management system in alignment with ISO14001 with the ability to become ISO accredited if marketing opportunity exists.
- Career path progression for quality assurance personnel into environment streams.
- Utilisation of on-site resources for sampling and testing of water, air and environment.
- Excellent rapport with DEP personnel, including knowledge of on-site resources and contact personnel within the company.