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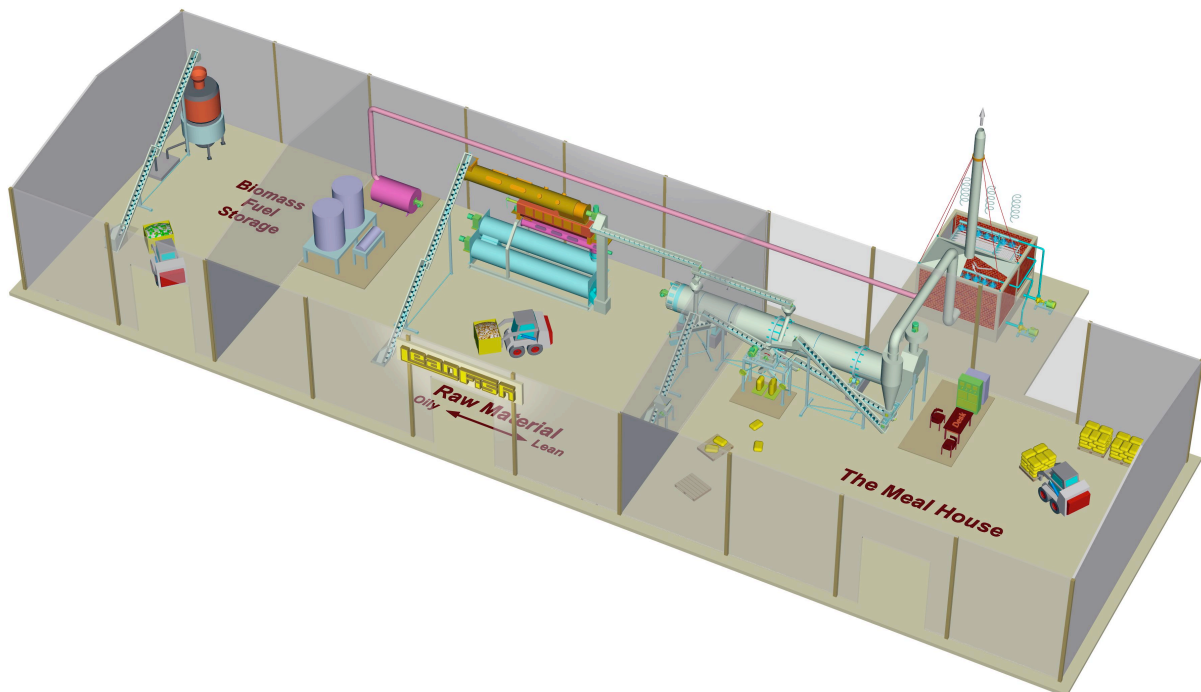
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To Whom It May Concern

Kopavogur, Iceland, 15.November 2006

Ref.: **Versatile Operations and Odor Control in LeanFish Combi WLT Fish Meal Makers**

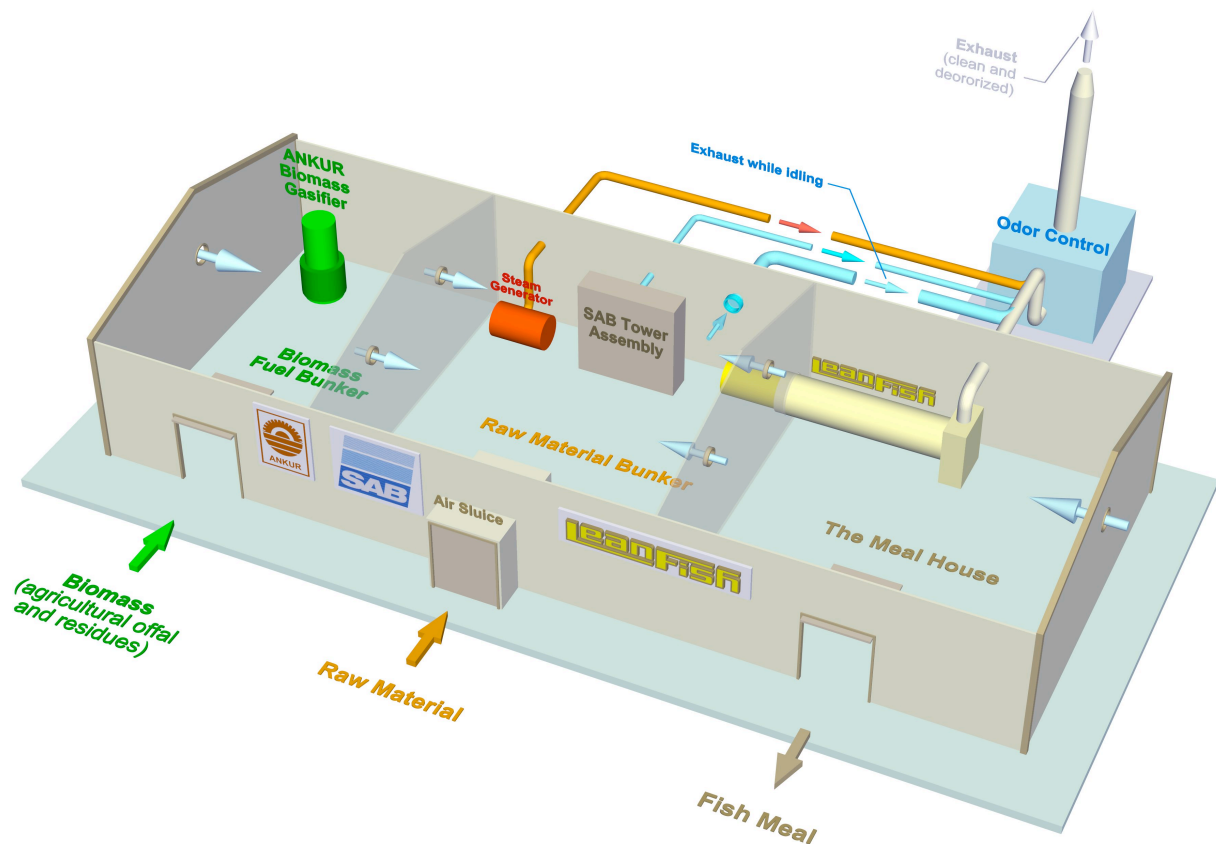
The processing line in a **LeanFish Combi** fish meal plant (Picture 1) is built up from an **SAB Type IB-FMA Tower Assembly** to process 'oily' raw materials and a **LeanFish Rotary Dryer** to handle 'lean' materials. The plants come in **four different sizes** (raw material capacities in brackets): **Half** (600 kg/h), **One** (1.250 kg/h), **Two** (2.000 kg/h) and **Three** (3.200 kg/h) and can be equipped with Biomass Gasifiers, to produce **combustible biogas from agricultural offal and residues**. Firing the plants with biogas makes them **more economical and improves the quality** of the product.



Picture 1 - **Bird's Eye Cut-away View of the LeanFish Combi** (roof removed, walls transparent)

The plants will process **all marine and aquatic harvests**. 'Oily' raw materials, with LOC > 2,5%, can be dealt with (a) in '**conventional**' manner in the **SAB Tower**, disposing of the stickwater following removal of the oil, or (b) in a **state-of-the-art fashion**, by drying up the stickwater mixed into the presscake—**first in the steam dryer of the SAB Tower (pre-drying) and then in the LeanFish Dryer (after-drying)**. The latter **increases the yield**

by about 25% and **raises the crude protein content** of the meal by a few %-points. 'Lean' raw materials, with LOC < 2,5%, are **fed directly to the LeanFish Rotary Dryer**. Please consult <http://www.ingvar.is/Leaflets/LeafletsLF/LOC&WLT&OC.pdf> on our Web Site for exact definitions of **LOC** (Live Oil Content) and **WLT** (Whole Low Temperature Meal).



Picture 2 - Odour Control in the LeanFish Combi plants (roof removed, partitions transparent)

The **most intensive development of odor** in LeanFish Combi fish meal plants takes place in the process itself and is **transferred from the SAB Tower and the LeanFish Dryer directly to the Odor Control**. Odor is also emitted **from the raw material and the finished product (meal)**, the control of which can be achieved through **partitioning of the factory building and installation of an Air Sluice** as shown on Picture 2.

The **Steam Generator (SG, red)** and the **Hot Gas Generator** of the LeanFish Dryer (HGG, yellow) are located in the **Raw Material Bunker**; an **Air Sluice** separates the Raw Material Bunker from the ambient. Both the SG and the HGG consume odor contaminated air for their combustion. To replace the air consumed by the combustion, fresh air entering the **Meal House** and the **Biomass Fuel Bunker** (arrows on the building aspects) is drawn into the Raw Material Bunker (arrows in the transparent partitions). The deodorization is further enhanced through a **direct exhaust from the Raw Material Bunker to the Odor Control**, which can be operated regardless of whether the plant is running or idling.

**LeanFish is a Final Answer
to a Perpetual Question**