UNITED NATIONS DEVELOPMENT PROGRAM (UNDP)

LTA FOR THE PROVISION OF SERVICES FOR CONDUCTING ENVIRONMENTAL STUDIES FOR INDUSTRIAL FACILITIES IDENTIFIED BY LEPAP AND PREPARING SPECIFIC SECTOR GUIDELINES

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR THE CONSTRUCTION AND OPERATION OF A WASTEWATER TREATEMENT PLANT AT HAWA CHICKEN FACILITY, ANFEH

May 11, 2020

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LIST OF ACRONYMS

asl	Above Sea Level
BOD	Biochemical Oxygen Demand
CILT	Clean to Inspect, Lubricate and Tighten
CIP	Cleaning in Place
COD	Chemical Oxygen Demand
DAF	Dissolved Air Floatation
EA	Environmental Audit
EHS	Environment, Health, and Safety
ELARD	Earth Link and Advanced Resources Development
ELV	Emission Limit Values
EMS	Environmental Management System
ESMP	Environmental and Social Management Plan
FAO	Food and Agriculture Organization
FIFO	First In First Out
FSTL	Food Safety Team Leader
GHP	Good Hygiene Practice
GMP	Good Manufacturing Practice
GRM	Grievance Redress Mechanism
HR	Human Resources
HSE	Health, Safety and Environment
LEPAP	Lebanon Environmental Pollution Abattement Project
LOTO	Lock Out-Tag Out
MoE	Ministry of Environment
MoL	Ministry of Labor
MSDS	Material Safety Data Sheet
NLWE	North Lebanon Water Establishment
OHSAS	Occupational Health and Safety Assessment Series
PAC	Poly Aluminum Chloride
PPE	Personal Protective Equipment
RO	Reverse Osmosis
SBR	Sequencing Batch Reactor
SHE	Safety, Health Environment
SOP	Standard Operating Procedure
TBD	To Be Determined

TSS	Total Suspended Solids
UPS	Uninterruptible power supply
WB	World Bank
WWTP	Wastewater Treatment Plant

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1. INTRODUCTION

1.1 OVERVIEW

Earth Link and Advanced Resources Development s.a.l. (ELARD) was commissioned by the United Nations Development Program (UNDP) under the Lebanon Environmental Pollution Abatement Project (LEPAP) in order to develop an Environmental and Social Management Plan (ESMP) for the construction and operation of a Wastewater Treatment Plant (WWTP) at Hawa Chicken. Hawa Chicken currently has a wastewater treatment plant (operating at full capacity of 1,200 m^3/day). During an inspection visit conducted by MoE in the region, Hawa Chicken was found to be non-compliant in terms of wastewater effluent quality, and an upgrade of the existing WWTP was thus requested. The proposed project aims to expand the facility's wastewater treatment capacity and to provide a standby wastewater treatment unit in case of operational failures. The project also falls under the context of the IDF/ Improve Capacity for Environmental Compliance Project under the activity "Supporting Industrial Pollution Abatement in Lebanon III" implemented by MoE, whereby an Environmental Audit was conducted for the slaughterhouse and rendering plant in Anfeh, North Lebanon in 2016-17.

The project will assist Hawa Chicken in fulfilling its obligations towards national legislations by achieving compliance with Decision 8/1 (2001). Hawa Chicken is seeking financing under the Lebanon Environmental Pollution Abatement Project (LEPAP) for the expansion and construction of the upgraded WWTP.

1.2 OBJECTIVE OF THE ESMP

This document is an Environmental and Social Management Plan (ESMP) submitted to the LEPAP, which pertains to the upgrade of the existing WWTP that includes a new biological treatment unit. The WWTP is a category II sub-project according to the Environmental and Social Assessment of the LEPAP, hence an ESMP is required. The aim of the ESMP is to assist in reducing the impacts on the environment and the surrounding communities, and to achieve a set of environmental and social objectives. The ESMP ensures that the social and environmental targets of the projects are met through monitoring in order to prevent and mitigate adverse effects on the environment during both the construction and operation phases.

The ESMP is compiled based on examination of the Environmental Audit (EA) of Hawa Chicken which was conducted in 2016, Lebanese environmental and social laws and guidelines, the World Bank Group Environmental, Health, and Safety Guidelines (EHS Guidelines), the World Bank Safeguard Policies and similar projects' best practices.

The WWTP will be constructed within the Hawa Chicken facility boundaries on plot No. 158 of Anfeh cadastral area. The plot is owned by Hawa Chicken. Therefore, the World Bank Operational policy (OP.4.12) on "Involuntary Resettlement" will not be triggered, and thus an Involuntary Resettlement Plan will not be required.

1.3 BRIEF DESCRIPTION OF THE INDUSTRY

Hawa Chicken plant (34.341592 N, 35.733705 E) is located in Anfeh, Koura Caza, at an elevation of 11 m Above Sea Level (asl) and is located less than 250 meters away from the sea (Figure 1-2). The plant is located on three plots in addition to a fourth plot where the new WWTP will be located;

- Plot No. 196 which includes a three-floor building designated for the slaughterhouse and the further meat processing;
- Plot No. 3856 which includes a one-floor building designated for the Rendering plant;
- Plot No. 3716 which includes a one-floor building designated for the Pet Food plant; and
- Plot No. 158 where the planned WWTP will be constructed.

The zoning classification for the three plots is O; where the conditions allow any investments in line with applicable laws and regulations except for the development of residential buildings. All other investments allowed should have good architectural appearance and acquire a pre-approval from the Higher Council of Urban Planning, and it is prohibited to build more than one establishment per plot.

The surrounding existing facilities mainly consist of the following (Figure 1-2):

- Facility for repairing trucks and a tiles production industry from the North (20 m);
- Public WWTP from the South (20 m); and
- Warehouse from the East (30 m).

The facility is approximately 160 m away from the main sea road, and can be accessed from the main road or from the adjacent access road as shown in Figure 1-1

Figure 1-1 Roads surrounding the Hawa Chicken Facility

The layout of Hawa Chicken and the limits of each plot are presented in Figure 1-3.

Figure 1-2 Aerial Photograph of Hawa Chicken and Its surroundings

Figure 1-3 Facility Layout showing the Plots and their Limits

The detailed layout of the facility is presented in Figure 1-4.

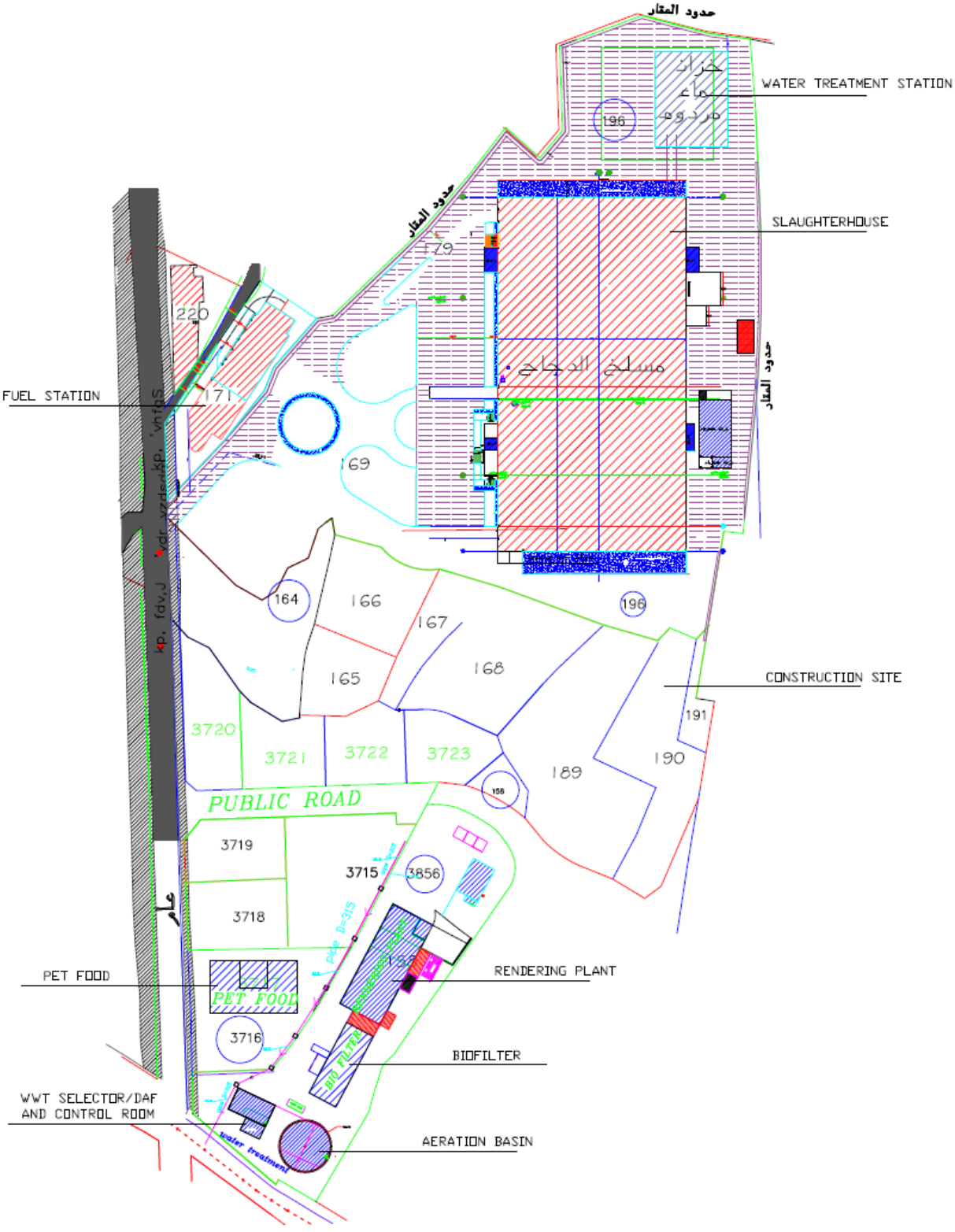


Figure 1-4 Facility Detailed Layout

The total allocated site area amounts to 12,500 m^2 of land area that is the site of a 16,830 m^2 built area divided into:

- Process areas: 14,250 m^2
- Storage area: 1,290 m^2
- Administrative/ offices area: 1,290 m^2

Hawa chicken is a category I, II and III industry (based on the different activities implemented in different plots) falling under the Food industry (ISIC #15) sector and the following sub-sectors:

- Poultry meat – fresh, preserved and slaughterhouse (ISIC code1512)- category II
- Manufacturing different types of meat products (ISIC code1513) – category III
- Rendering Feed Manufactured for Chicken (ISIC code 1571)-category I
- Pet food for domestic animals (ISIC code 1572) – Category III

Main Hawa Chicken Products and their quantities consist of:

Product	**Yearly production**
• Whole broiler	9,000 tons
• Broiler parts	16,380 tons
• Pet food (dogs, cats, and fish)	3,000 tons
• Fresh marinated products (tawook, shawarma, fajita, wings)	517,000 kg
• Processed breaded products (Nuggets, Crispy, Tender, Potato, popcorn, Breaded Burger)	614,000 kg
• Raw processed products (Chicken burger)	72,862 kg
• Ready to eat products (Mortadella, Ham, Roasted C.)	62,136 kg
• Manually stuffed products (Cordon Bleu, Poulet Kiev, Kebbeh)	4,317 kg

The production process at Hawa Chicken can be summarized as follows:

1.3.1. Slaughterhouse Process

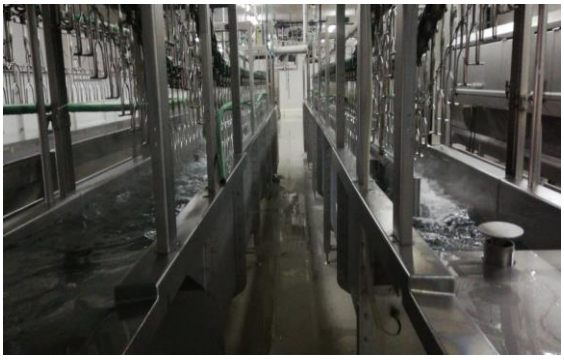
Whole broiler:

Birds received from Hawa Chicken farms are suspended on conveyors from their legs, then stunned by electricity. After that, the birds are slaughtered and left to bleed. The collected blood is sent via a pump to the rendering plant. The conveyor belt then takes the birds to scalding then de-feathering, where the removed feathers are dewatered by a press and then conveyed through underlying troughs to a truck that sends them to the rendering plant. The heads are then removed and sent to the rendering plant while yellow feet are removed, collected in crates and exported.

Then the birds are transferred by the conveyor to a vent opener then vent cutter to reach the maestro where:

- The Gizzards are collected in trays and transferred to a skin remover then washed with water and weighed to be finally transferred to cold storage.
- The Livers are also collected in trays and transferred to sorting lines where they are weighed and transferred to cold storage.
- The intestines are collected in trucks and delivered to the rendering Plant.

The broilers are then transferred to a cropping machine followed by vacuum machine, to reach inside-outside washing. After that, the broilers are sent for air chilling and grading. The broilers are finally transferred to cold storage, where some are sent for packaging and delivery as whole broilers, while the rest are sent for cutting to be sold as broilers parts.



Scalding Machine

Cut up Line

Figure 1-5 Slaughter House

Broiler parts:

Broilers that are not sold as whole units are sent to the cutting department, where they pass through separate cutting lines to obtain broiler parts such as drumsticks and thighs, wings, and breasts. The cut wings and drumsticks are directly transferred by crates or pallets to cold storage rooms. The breasts on the other hand are transferred to a deboning machine where the skin and bones are removed and sent to the rendering plant, while the breasts are sent to a cold room for storage.

1.3.2. Further Chicken Meat Processing

Part of the products of the slaughterhouse at Hawa Chicken are not sent to the market directly; instead, are used in producing further processed foods such as Frankfurter, Mortadella, Nuggets, Smoked Chicken Breast Ham, and Kebbe Rolls. Figure 1-6 shows different segments of the processed food process lines described below.

Weigher

Fryer

Batter Machine

Oven

Metal Detector

Figure 1-6 Processed Foods Production Lines

1. Chicken Frankfurter

Raw meat (broiler parts) is received in crates on pallets and transferred to weighing where it is then sent for grading and sorting to be trimmed to remove bones. The meat is then sent to the grinder. A dry ingredients mixture (different spices) is then added, after which vacuum cutting takes place. The meat is then filled in casings

and transferred to the cooking area where it is placed in ovens and cooked at 72 °C for 15 sec. The Chicken Frankfurter is then cooled at 4 °C before being taken for packaging where the casings are peeled and the meet is filled in shrink bags (shrinking at 95°C for 5 minutes). The product is then labelled, weighed, placed in carton boxes and transferred to cold storage, then to the delivery area to be distributed in cooled trucks.

2. Chicken Mortadella

Raw meat (broiler parts) is received in crates on pallets and transferred to weighing where it is then sent for grading and sorting to be trimmed to remove bones. The meat is then sent to the grinder. After grinding, vacuum cutting takes place. During this stage, a dry ingredients mixture (different spices), ice and smoke flavor are added. The meat is then filled in casings and clipped and transferred to the cooking area where it is placed in ovens and cooked at 72°C for 15 sec. The Chicken Mortadella is then cooled. Finally, it is taken for packaging, where the product is labelled, weighed, placed in carton boxes (3 pieces per box), wrapped and transferred to the delivery area to be distributed in cooled trucks.

3. Breaded Fully Cooked Items (Breaded Burger, Tenders, Crispy, Chicken potato, and popcorn)

Raw meat (broiler parts) is received in crates on pallets and transferred to weighing where it is then sent for grading and sorting to be trimmed to remove bones. The meat is then sent to the grinder before reaching a mixer where a dry ingredients mixture (different spices) and ice are added. The meat is then filled automatically in crates containing labelled packaging materials. The meat is transferred to the freezer where it is left to freeze overnight. The next day, the meat is peeled from the packaging and sent to the slicing machine which cuts them into small pieces. A part is sent to the cooler and the remaining needed quantity is sent to the forming machine which shapes them into the required form. This is followed by shape inspection. The meat then goes through battering where a dry Ingredients mixture (different spices) and ice are added again. The meat is then breaded with breadcrumbs. The product is then flash fried with Soya Oil , oven cooked to a core temperature of 72 °C, and finally cooled (-30 °C to -40 °C). The product is then filled manually in nylon bags and sent for weighing and sealing, then packed in carton labelled boxes and sent for frozen storage (-18°C) to be finally transferred to the delivery area for distribution in cooled trucks.

4. Smoked Chicken Breast Ham

Raw Chicken breast is received in crates on pallets and transferred to weighing where it is then sent for grading and sorting to be trimmed to remove bones. The meat is then sent to the grinder after which vacuum tumbling takes place. During this stage, a dry ingredients mixture (different spices) and water are added. The meat is then sent to a vacuum filling machine where the chicken breast is filled into molds and covered with nylon. The molds are then transferred to the oven where cooking at 72 °C takes place for 15 sec. The molds are then cooled and removed from the oven.

The chicken breasts are then removed from the molds and peeled from the nylon to be then transferred to the smoke oven. The chicken breast is then filled in nylon labeled shrink bags. The product is finally sent for cold storage to be finally transferred to the delivery area for distribution in cooled trucks.

5. Stuffed Chicken Kebbe Rolls

Raw meat (broiler parts) is received in crates on pallets and transferred to weighing where it is then sent for grading and sorting to be trimmed to remove bones. The meat is then sent to the grinder after which the meat is transferred to cutting machine where soaked borghol, ice and a dry ingredients mixture (different spices) are added. The kebbe is then sent to the freezer to be then sent to the kebbe machine where sunflower oil is added. At this stage, the kebbe is filled with the stuffing made of grinded raw meat, onions, and pine nuts. The stuffed kebbe rolls are sent to the freezer again, then sent for packaging where they are filled in nylon bags, weighed, sealed, and filled in labelled carton boxes. The kebbe boxes are finally sent to the freezer (-18 ^{o}C) and finally transferred to the delivery area to be distributed in frozen trucks.

1.3.3. Rendering Process

All the collected chicken waste (blood [around 4.5 T/day], feathers [around 10.5 T/day], bones and intestines [around 37.5 T/day]) from the broilers and broilers parts preparation are collected and weighed. Feathers are hydrolyzed in a batch cooker at the rendering plant and used as soil amendment. The rest of the batch is sent to the steam cooker to be dried before being pressed. In the pressing process, the mash is separated from the fat. The fat then undergoes decantation to excrete the oil. These oils are re-used as fuel for the boiler. On the other hand, the mash resulting from both the pressing and decanting processes is sent to a hammer mill then stored in tanks to be used in pet food production.


Figure 1-7 Rendering Plant

1.3.4. Pet Food Process

Pet food production starts with the reception of rendered food and weighing of batches; the rendered food is grinded into fine 1mm parts and sent to a reservoir to be sieved. Dosing of rendered material and additives is done before mixing the products and sending them to the extruder that gives the product its final form. Following this, the materials are sent for drying then for oil coating to be finally packaged and delivered as pet food.

Figure 1-8 Pet Food Plant

1.4 DESCRIPTION OF THE WORKFORCE

Hawa Chicken currently engages 974 employees in total, out of which 810 are Lebanese. Women are represented at a percentage of 4.2% of the number of employees, and occupy positions in several departments including processing, administration, delivery, and production. The working schedule for production employees is divided over three shifts. The plant operates 24 hours/day and 6 days a week. Details of the workforce are found in Table 1-1.

Table 1-1 Number of Employees

Type	Numbers
Administrative Employees	25
Production Employees	974
Employees Residing on site	0
Number of Lebanese employees	810
Number of non-Lebanese employees	164 non-Lebanese employees: 37 Egyptians 24 Indians 1 Sri Lankan 102 Bangladeshis
Percentage of Female employees	4.2%
Percentage of male employees	95.8%
Work Schedule for admin employees	7:00 am - 4:30 pm
Shifts per day for employees in various processes	Slaughterhouse 18:00 to 2:00
	Rendering Plant

Type	Numbers
	6:00 to 3:30
	Pet food Plant 7:00 to 4:30
	Processing Department (Ready to eat processing department) 17:00 to 1:00 21:00 to 5:00
	Production Department (Fresh whole broiler and chicken parts department) 7:00 to 3:00
	WWTP 7:00 to 15:00 15:00 to 23:00 23:00 to 7:00
Days per week for the high and low seasons	6
Days per year	300

All employees at Hawa Chicken, including the non-Lebanese, are covered by a medical insurance plan. All Lebanese employees are also included in the National Social Security Fund (NSSF).

All employees at Hawa chicken are obliged to undergo training conducted by the Quality Assurance Department covering several topics namely GMP, GHP, and HSE before starting work at the facility. Then depending on their assigned departments, scheduled training programs are offered on a yearly basis, covering different work aspects such as learning and development, and food safety training courses. The aim of these trainings is to close the learning gaps and equip employees with the right capabilities based on performance appraisal, succession planning and business goals.

On the other hand, Hawa Chicken neither has a workers' association for its employees within the facility, nor does it have a compiled code of conduct policy. Hawa Chicken did state however that it is considering developing the latter policy for all of its employees.

1.5 INDUSTRY GRIEVANCE REDRESS MECHANISM

The purpose of the grievance policy is to define the steps that are followed for internal and external grievance redress mechanisms (relating to employees: internal/ and for surrounding community: external). Through this policy, employees and affected communities should be afforded both the rights and the means whereby grievances can be formally raised, lodged and resolved. The procedure allows them to formally discuss and resolve any complaint that they may have and to provide a channel for the equitable settlement of complaints and grievances.

In addition to the above mentioned GRM that should be implemented at Hawa Chicken, the LEPAP GRM is another channel through which the public can submit concerns and complaints they might have relating to any of the sub-projects; the GRM can be accessed online through the LEPAP website under MoE's website (http://lepap.moe.gov.lb/), in the "Publications" tab. Concerns submitted through this GRM are promptly reviewed and addressed by the LEPAP team.

1.5.1. Previous Grievances

A recent complaint against Hawa Chicken was submitted on 23/09/2019 as reported by the facility, and it was related to an odor problem. The complaint report can be found in Appendix C1.

The complaint was resolved with the help of MoE that suggested installing a second internal door at the trucks' entrance to the rendering facility. This measure was implemented by Hawa Chicken and the dispersion of odors was prevented since the two doors do not open simultaneously.

1.5.2. Existing Mechanism (Internal and External)

Hawa Chicken management has recently developed a system for the submission and resolution of internal and external complaints, as per Figure 1-9.

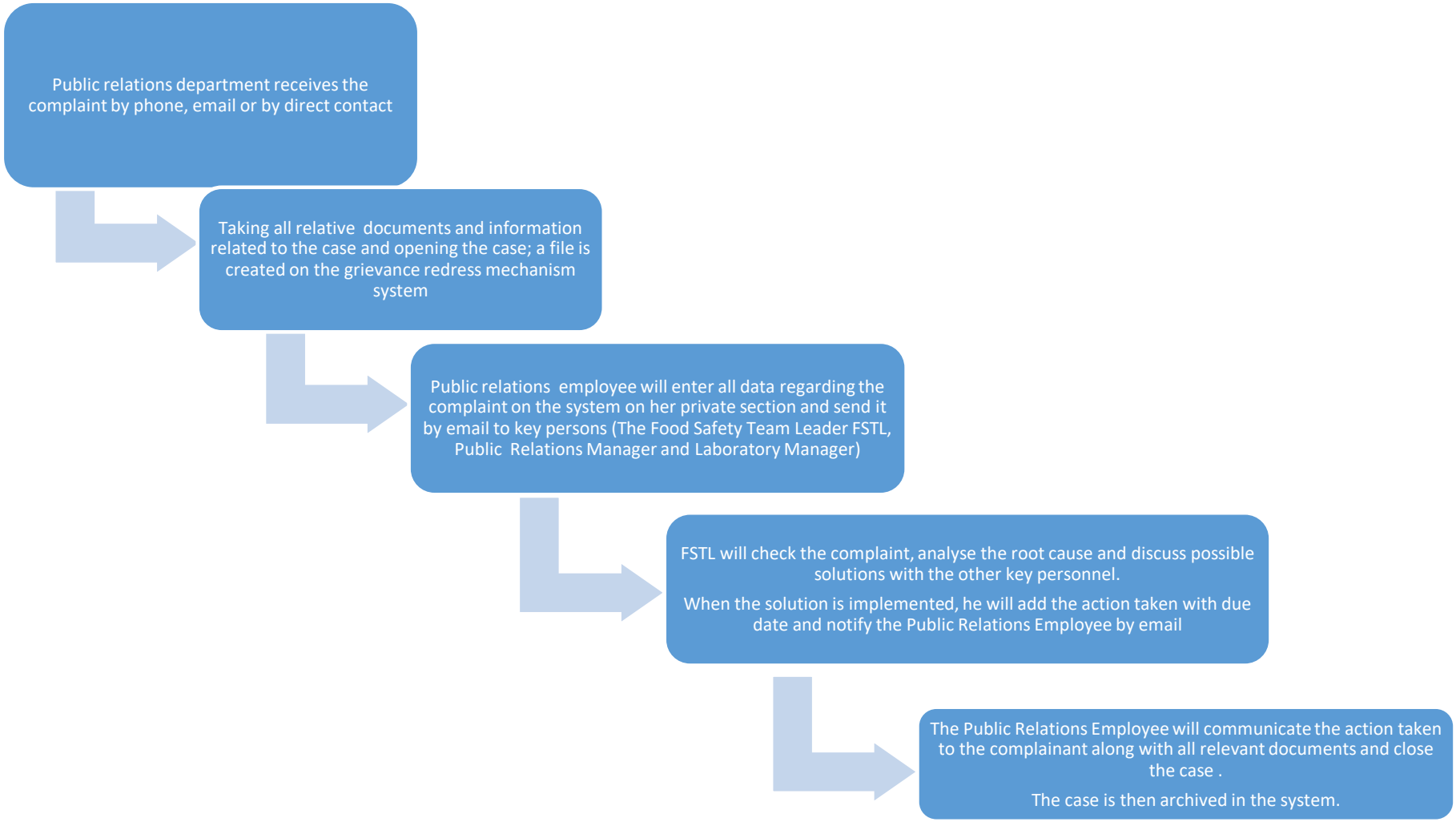


Figure 1-9 Grievance Redress Mechanism Process

In addition to the communication channels presented above, complaints can also be raised via the Hawa Chicken website (www.hawachickenlb.com) or via the Hawa Chicken official social media accounts (Facebook and Instagram). The latter social media accounts are active and regularly checked by Hawa Chicken dedicated personnel for any complaints that might be received.

The developed grievance mechanism is available for workers and surrounding communities to submit any complaint relating to any issue as shown in Figure 1-10 , and detailed in Appendix C2.

External and internal complaints must be resolved by Mr. Miled Jabbour, the Public Relations Manager, and who can be contacted on 06/542642 ext. 600. Employees can directly contact him, while external complaints can be raised through the phone at the Public Relations Department on 06/542642, ext. 404/ hotline (1520) (Mrs. Hoda Ehmejani) or through the Hawa Chicken website.

When a complaint is submitted, Hawa Chicken administration shall register this form through an in-house developed program (Figure 1-10). This program allows the workers and surrounding community to submit a complaint, and ensures that the complaint is resolved.

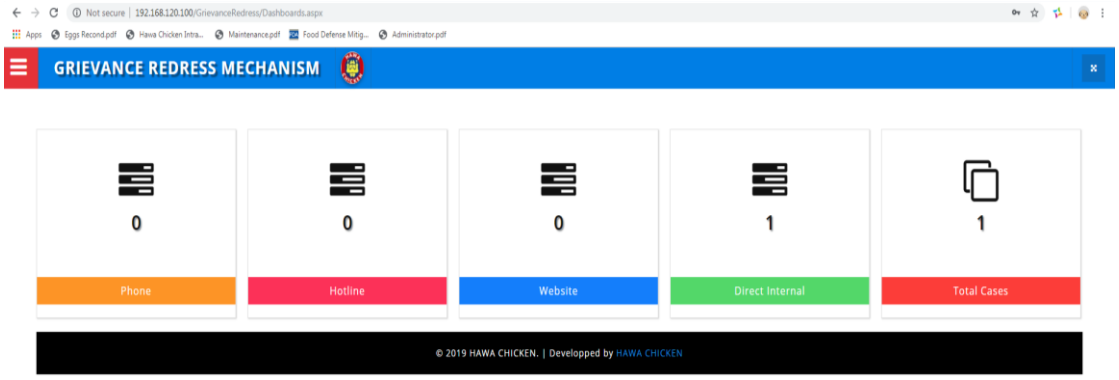


Figure 1-10 Hawa Chicken GRM Program

1.5.3. Recommendations

It is recommended to create two separate GRMs, one for internal complaints, which shall be received and handled by the Human Resources department, and one for external complaints, which should be received and processed by the Public Relations department. This is due to the differences between the two types: internal complaints will cover the working conditions of employees and their wellbeing, while external complaints will focus on the impacts of the facility on the surrounding community. The complainant shall have the right to keep his/her identity anonymous for confidentiality purposes.

In addition, it is recommended to set deadlines for the different steps of the complaint processing and a deadline for the overall process, to ensure that submitted grievances are being handled and resolved in a timely manner. A

suggested template for the internal is elaborated in Appendix C3 and external GRM process is elaborated in Appendix C4. Additionally, a recommended Grievance templates for internal and external complaints are shown in Appendices C5 and C6 respectively.

1.6 SOCIAL IMPACTS

1.6.1. Lebanese Labor Law

Hawa Chicken follows the stipulations of the Lebanese Labor Law, dated 23/09/1946 with Amendment Law No. 207 issued in 26/05/2000, Decision 29/8 issued in 2018 dealing with work regulations for foreigners, Decree 3791 (amending decree 7426 of 2012) published in 2016 setting an official minimum wage for employees and workers, Law 293 published in 2014 for the protection of women and family members from domestic violence, Decree 8987 of 2012 that forbids the employment of adolescents and children under 18 in jobs that pose a risk to their health, safety and behavior, Decree 11802 of 2004 organizing occupational safety and health in all institutions subject to the labor law, and MOL decision 49/1 of 1997 abolishing child labor.

1.6.2. Health and safety Procedures

The facility provides appropriate safety measures for its employees throughout the facility, as applicable. Personal Protective Equipment including masks, gloves and safety boots as well as color-coded coats for workers in the chicken processing areas are provided. At the time of the visit to the facility, it was noted that the PPEs were being used by the workers.

The quality assurance department is responsible for health and safety at the facility. Each department at Hawa Chicken uses specific PPEs as needed depending on their type of work as shown in Appendix D. In general, the following PPEs are used at Hawa Chicken:

- Industrial safety helmet
- Safety goggles/glasses
- Earplugs/earmuffs
- Face mask
- Respirators/face shield headgear
- Stainless steel gloves
- Thermal gloves
- Nitrile/latex gloves
- Safety boots
- Antiskid sole boots
- Chemical resistant aprons
- Disposable barrier gowns
- Hair nets

- Cover shoes
- Coverall
- Safety shower

Additionally, Hawa Chicken is equipped with first aid kits distributed within the facility and a clinic is available within the facility to treat minor injuries.

Hawa Chicken is also equipped with an automated firefighting system mounted on the ceilings, in addition to the following types and numbers of portable fire extinguishers, as shown in Figure 1-11:

- 2 portable powder fire extinguishers (12 kg);
- 17 portable powder fire extinguishers (6 kg);
- 4 automatic powder 6 kg
- 56 aluminum portable CO_2 fire extinguishers (6 kg);
- 17 aluminum portable CO_2 fire extinguishers (3 kg);
- 10 trolley powder fire extinguishers (50 kg);
- 3 trolley CO_2 fire extinguishers (50 kg);
- 1 FM 200 automatic system

The distribution of the fire extinguishers across the whole facility is presented in Appendix E.

Figure 1-11 Portable Fire Extinguishers at the Hawa Chicken Facility

Hawa Chicken is also equipped with an automated cleaning system within the production areas; the system automatically controls the soap to water ratio and sprays a disinfectant to ensure sufficient hygienic standards are adhered to. Figure 1-12 shows the cleaning system.

As a result of this measure and other food safety measures, Hawa Chicken has obtained the Food Safety System Certification (FSSC) 2200, and the ISO 22000:2005 for food safety management as presented in Appendix K.

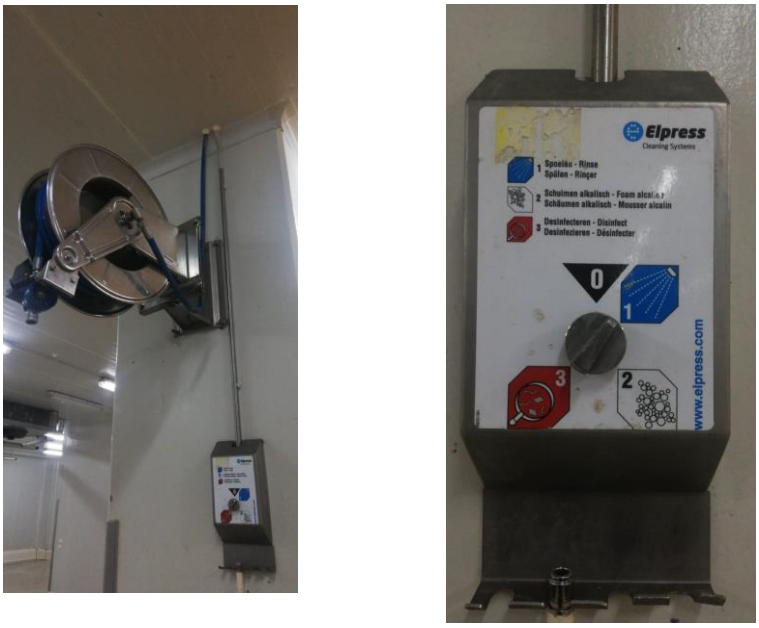


Figure 1-12 Automated cleaning system at the Hawa Chicken Facility

Hawa Chicken has also developed emergency preparedness and response procedures, which are elaborated in Appendix G and cover the following topics:

- Preparedness and response procedure for water source cuts
- Preparedness and response procedure for sewage network blockage
- Preparedness and response procedure for lightning
- Preparedness and response procedure for breakdown of product delivery cars
- Preparedness and response procedure for power outage
- Preparedness and response procedure for breakdown of the facility's cooling system
- Preparedness and response procedure for Ammonia leakage
- Preparedness and response procedure for accidents with employees involving knives
- Preparedness and response procedure for fire
- Preparedness and response procedure for hot water cuts
- Subversion and Bioterrorism
- Preparedness and response procedure for breakdown of the cleaning and sterilizing system
- Preparedness and response procedure for accidents with the product delivery cars.

Additionally, Hawa Chicken has developed an evaluation and development methodology for these procedures, and all emergencies are recorded in details.

With regards to employee Health and Safety trainings, Appendix G shows the list of trainings offered for employees, and details the departments required to take the trainings and the frequency of these trainings.

Table 1-2 summarizes the main training programs conducted at Hawa Chicken

Table 1-2 Training Programs conducted at Hawa Chicken per department

Department	Training Topic	Frequency
Delivery	• Interior work system • Personal Hygiene • Roles and responsibilities within the department • Work system for delivery	Annually
Further Processing	• Training on machines • Critical Control Point monitoring • Food fraud and food defense + FSSC • Traceability and product recall • Proper storage and FIFO • General introduction for working in food industries • Food allergens • Handling of potentially unsafe products • Emergency preparedness	Annually
Maintenance	• Food safety policy and calibration of the metal detector • Emergency preparedness and response • GMP/ GHP • General maintenance • Food fraud and food defense	Annually
Quality assurance	• KFC quality system • Refresh ISO 22000 and HACCP • FSSC 22000, food fraud, and food defense • ISO 17020 (general quality procedures) • Microbiological training • Civil defense • GMP, GHP, and job safety • Onsite monitoring and inspection	Annually

Department	Training Topic	Frequency
	• KFC calibration for personnel	
Rendering and wastewater	• Basic GMP and GHP	Annually
Sales and distribution	• GMP and GHP Training • Food safety policy • Preparedness and response to distribution vehicles breakdowns • Temperature sheets filling • Management of distribution	Annually

1.7 MAIN IDENTIFIED ENVIRONMENTAL AND SOCIAL ISSUES

Hawa Chicken conducted an Environmental Audit (EA) in 2016 in order to assess the environmental impacts of its activities and to achieve a better planning of the actions needed to avoid or reduce undesirable impacts. The EA was financed through a grant to MoE in follow-up with the LEPAP team.

The main environmental and social issues associated with Hawa Chicken as per the EA conducted are summarized below:

Air Quality: A regular maintenance program should be followed in order to ensure the efficient operation of the generators. Additionally, odor generation should be monitored following the complaint that was submitted to the facility regarding odors generated from the rendering plant.
Wastewater: Adjust and tune properly the 2nd Dissolved Air Floatation (DAF) unit either by the maintenance personnel or via the vendor of the unit; and commit to better training of the personnel for efficient operation of the WWTP in order to comply with regulatory limits.

Hazardous Waste: Return the following wastes to the supplier for re-use:

- 225A plastic gallons
- 225B plastic gallons
- Enviro 710 plastic gallons
- Grease metal barrels
- Oil metal barrels

The compliance strategy for Hawa Chicken has been divided into 2 sub-projects as per section 8.3 of the EA. Sub-project No. 1 in the audit suggests adjusting the DAF unit for more efficient treatment of industrial wastewater prior to discharge into surface water to achieve an effluent quality which would meet the Lebanese regulatory standards (MoE Decision 8/1 of 2001) for discharge into surface water.

Additionally, the MoE issued a letter (Registration Numbers: 3180/B and 3486/B dated 30/07/2019) requesting Hawa Chicken to address complaints about poor wastewater management at Hawa Chicken facility that is contaminating local water streams and

the sea, through upgrading the biological section of the existing WWTP and providing an emergency plan. In the aforementioned letter, MoE listed the amendments that are needed from Hawa Chicken as shown in Appendix B2. Table 1-3 and Table 1-4 present the requested mitigation measures requested by MoE and their status of implementation.

Table 1-3 Mitigation measures to be implemented on the Short Term (within one month)

Mitigation Measures Requested by MoE	Status
Immediately and completely abstain from discharging any untreated industrial wastewater in the adjacent natural stream, unless it complies with national environmental standards as per Decision 8/1 of 2001	Complete. Only treated wastewater complying with MoE Decision 8/1 of 2001 is discharged from Hawa Chicken into the adjacent natural stream.
Assign an accredited laboratory to collect wastewater samples before and after wastewater treatment, within a period of one week from receiving the letter, and test it for the following parameters: BOD_5, COD, SS, pH, TN, TP, Hemoglobin, Total Coliforms, and Salmonella	Ongoing. Wastewater samples are collected and sent to the Industrial Research Institute (IRI) biannually.
Provide the Ministry of Environment with the testing results	Ongoing.
Immediately refrain from random discharge of sludge that is produced from the WWTP and the feathers, ensure their proper disposal in a waste disposal site, and track their disposal to make sure they are not haphazardly dumped in nature	Complete. Part of the sludge is used as biofuel for the facility's boilers while the remaining is disposed of as waste at the Tripoli controlled dumpsite.
Equip the rendering plant with an odor control measure to prevent the dispersion of odors beyond the facility (e.g., double door, air curtain, etc.	Complete. A double door system was installed in October 2019 to contain the odors from the rendering plant, and the issue has been solved.

Mitigation Measures Requested by MoE	Status
Regularly maintain the bio-filter to ensure efficient odor control	Ongoing.

Table 1-4 Mitigation measures to be implemented on the Medium term (within one year from receiving the proper legal permits)

Mitigation Measures Requested by MoE	Status
Equip the facility with an additional WWTP for its industrial wastewater, and submitting monthly reports to MoE regarding the work progress in this respect.	In progress.

Based on the information presented above, the following ESMP will include all the necessary actions, mitigation measures, management and monitoring plan set forth in view of not compromising the potential of the project and hence ensuring its sound operation and sustainability.

2. SUB-PROJECT DESCRIPTION

As stated above, sub-project No. 1 of the EA Report consists of adjusting the DAF Unit at Hawa Chicken to achieve compliant treatment results. On the other hand, the MoE communicated to Hawa Chicken the need to upgrade its current wastewater treatment system in place and provide an emergency plan (treatment capacity in case of emergencies). Given the increased demand for an additional treatment capacity, the existing WWTP at Hawa Chicken shall be upgraded by constructing a Fixed Bed Reactor (FBR) aerobic biological treatment plant coupled with a bio-sludge dewatering system. The aim is to comply with the national ELVs for wastewater discharge and the World Bank environmental health and safety guidelines and to alleviate the impacts on the receiving water body.

2.1. WASTEWATER QUANTITIES AND SOURCES

Hawa Chicken consumes an approximate amount of 1,500 m^3 of water per day (around 450,000 m^3 annually) for domestic and production uses.

On the other hand, wastewater at Hawa Chicken is produced from the following processes/operations:

- Production process
  - ✓ Slaughterhouse process (excluding blood, which is rendered in a separate system where blood is coagulated, centrifuged and treated with heat to be used in pet food) and rendering plant (de-feathering of poultry, blood drainage, etc.)
  - ✓ Cleaning of production areas and equipment (including satellite cleaning system, cleaning of crates, etc.)
- RO reject and filter backwash water
- Boilers blowdown
- Discharges from water recovery system's tank
- Wet scrubber for air emissions (odors) located at the exhaust of the ventilation system before the inlet to the Biofilter
- Domestic uses.

The flows from the production processes are collected and sent to a wastewater treatment plant (WWTP). The flow from the wet scrubber for the removal of odors is also drained to the WWTP. The quantities of wastewater per source currently produced onsite are presented in, Table 2-1 along with the collection and management/treatment of each wastewater stream produced onsite.

Table 2-1 Wastewater Flows Produced per Source and Receiving System of Discharge

Sources of wastewater	Annual production[1] (m^3/year)	Daily flows (m^3/day)	Receiving system of discharge
Slaughterhouse process and rendering plant	210,000	700	Sent to existing WWTP and final discharge into the adjacent Water canal
Cleaning of production areas and equipment	105,000	350	
Wet scrubber	6,000	20	
RO reject and filter backwash water	15,000	50	Irrigation and surface water
Boilers' blow down	6,000	20	Storm water drainage of the plant discharging into the municipal storm water network
Discharges from water recovery system's tank	6,600	22	
Domestic uses	12,000	40	Municipal sewage network
Total	**360,600**	**1,202**	

Incoming wastewater from the facility is collected at the pump station and pumped at a flow rate of 120m^3/hr to a rotary screen. The wastewater is then directed into a dissolved air floatation unit (DAF). In the DAF unit, small micro-bubbles are formed that adhere to suspended solids to be later removed by a scraper mechanism. Sediments in the wastewater will accumulate in the sediment gutter that is equipped to be conveyed out of the DAF.

The effluent of the DAF then enters a buffer tank equipped with a mixer/aerator to prevent the formation of toxic/explosive gases and to keep remaining solids in suspension.

From the buffer tank the wastewater is pumped to the selector in the biological treatment area. In the selector, the wastewater is mixed with a certain amount of activated sludge to remove dissolved contaminants. Wastewater in the selector overflows into an aeration basin for biological decomposition and conversion of organic matter into carbon dioxide, water, and Nitrogen. The treated wastewater is finally chlorinated prior to discharge to an adjacent natural stream discharging into the sea.

The sludge collected from the existing WWTP is decanted whereby part of the sludge can be used as biofuel for the facility's boilers while the remaining is disposed of as waste.

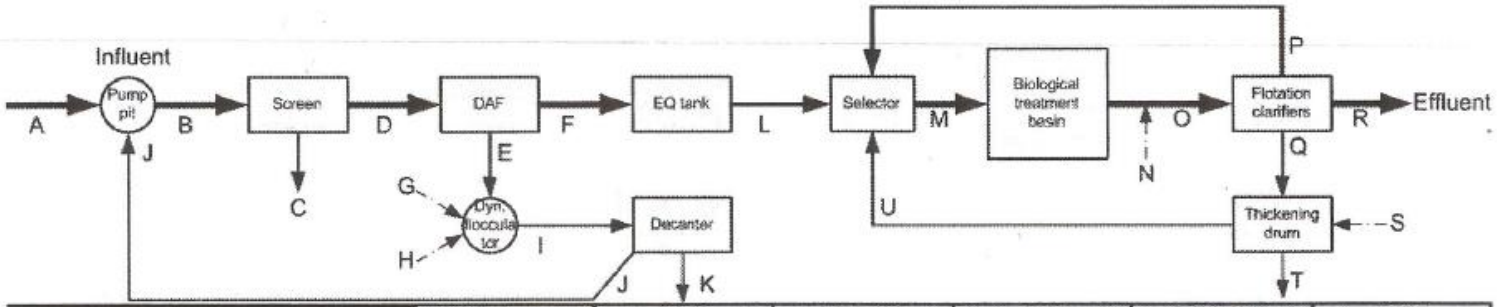
Wastewater from the boilers' blow down along with the periodic discharge of sludge from the water recovery system's tank are drained via the stormwater drainage of the plant to the municipal stormwater network which ends up in the sea nearby. On the other hand, domestic wastewater is discharged via a separate drainage system to the municipal sewage network.

[1] Based on 300 days of annual operation as reported by the facility

The existing treatment process is elaborated in Figure 2-1.

Appendix H shows the network linking the Hawa chicken facility to the Planned WWTP.

The facility reported that the daily flow of wastewater from production processes which ends up at the existing WWTP is 1,100 m^3/day. Currently, Hawa Chicken is planning to expand its production, which will result in the production of an estimated flow of 2,200 m^3/day of wastewater.



Mass balance FYS+FBR		Flow		COD		BOD_5^{20}		FOG		TSS		TKN	
Water flow description		m³/day	m³/h	mg/l	kg/day	mg/l	kg/day	mg/l	kg/day	mg/l	kg/day	mg/l	kg/day
Processing plant waste water	A	1,170	120	3,877	4,536	2,171	2,540	850	995	1,750	2,047	242	284
Influent screen	B	1,186	122	3,866	4,586	2,165	2,568	869	1,031	1,762	2,091	240	284
Screenings	C	3.4	0.3		409		227		10		409		14
Effluent screen	D	1,167	120	3,537	4,127	1,982	2,313	844	985	1,404	1,638	231	270
DAF sludge	E	12.8	1.3		1,178		662		836		1,024		22
Effluent DAF	F	1,154	118.3	2,555	2,948	1,431	1,651	129	149	532	614	215	248
Lime milk 10%	G	0.6	0.1								64		
Flocculant	H	8.2	0.7								8		
Influent decanter	I	21.6	2.0		1,178		662		836		1,096		22
Water fraction sludge	J	16.4	1.6	3,083	50	1,731	28	2,187	36	2,678	44	57	0.9
Dewatered pre-treatment sludge	K	5.3	0.4		1,211		680		859		1,052		22
Effluent EQ tank	L	1,154	50	2,555	2,948	1,431	1,651	129	149	532	614	215	248
Selector to aeration basin	M	1,518	67		15,815		4,224		192		9,192		534
Flocculant	N	13.7	0.6								13.7		
Influent flotation clarifier	O	1,532	64		15,815		4,224		192	6,010	9,205		534
Return activated sludge (RAS)	P	342	14.3		12,841		2,568		43		8,561		285
Waste activated sludge (WAS)	Q	27.1	3.4		1,015		203		3		677		23
Effluent flotation clarifier	R	1,162	46	250	2,906	50	581	10	116	50	581	10	116
Wash water thickening drum	S	8.0	1.0										
Thickened WAS	T	13.2	1.7		990		198		3		660		22
Water fraction WAS	U	21.9	2.7	1,160	25	232	5	4	0	774	17	26	1

Figure 2-1 Effluent Quality throughout the Treatment Process

The wastewater values in the facility (influent, pre-treatment, and effluent) were measured in November 2019 internally at the Hawa Chicken laboratory and externally at the Environmental Core Laboratory at AUB. The values of the effluent wastewater are shown in Table 2-2 and compared against local standards and World Bank guidelines. The results are relatively similar to each other, with the exception of BOD results. Nevertheless, the parameters measured comply with MoE Decision 8/1 for discharges into surface water and World Bank guidelines for poultry processing facilities, except for the BOD external result which exceeds the World Bank guidelines only. However, it should be noted that COD must be superior to BOD, which is not the case in the table, indicating a possible error in the measurement.

The complete list of wastewater sampling results is presented in Appendix I for the most recent internal and external measurements taken.

Table 2-2 Wastewater Outflow Analysis Results

Parameters	Internal Measurement	External Measurement	Regulatory Limit (MoE Decision 8/1 for discharges into surface water)	Regulatory Limit (WB EHS Guidelines for Poultry Processing)
Total Suspended Solids (mg/L)	32	22.8	200	50
COD (mg/L)	57	61	250	250
BOD_5 (mg/L)	12	93[1]	100	50
Total N (mg/L)	8[2]	<10	40	10

2.2. PROJECT COMPONENTS AND DESIGN FEATURES

Hawa Chicken is planning to build another WWTP increasing its wastewater treatment capacity to 2,200 m^3/day and provide a standby wastewater treatment unit in case of operational failures. As shown in Figure 2-1, the planned WWTP will be built on an empty plot within the Hawa Chicken facility. The WWTP will comprise a 2-floor building; the area of each floor is 1200 m^2 while the tank will cover a surface area of 707 m^2.

[1] COD should be higher than BOD, which indicates some kind of

[2] The results refer to Total Kjeldahl Nitrogen for which there is no regulatory limit in Lebanon.

Figure 2-2 Location of the WWTP within the Facility

The proposed WWTP for Hawa Chicken is a Fixed Bed Reactor (FBR) aerobic biological treatment plant coupled with a bio-sludge dewatering system. The wastewater pre-treatment unit will remain the same, and only a biological treatment unit will be upgraded to increase its capacity. The flow leaving the existing pretreatment will be equally divided over the existing treatment plant and the new one. A schematic diagram of the proposed WWTP is presented in Figure 2-3.

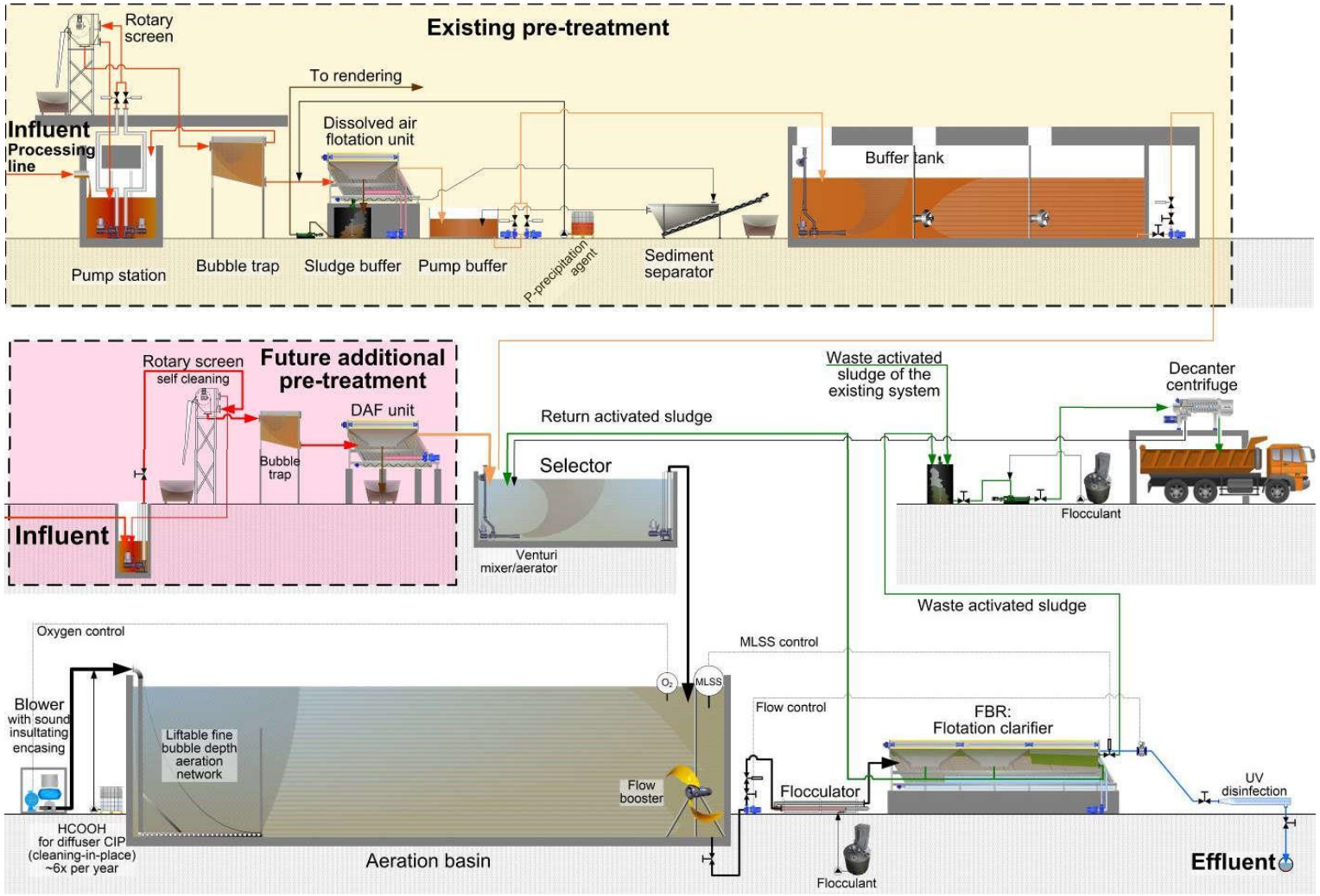


Figure 2-3 Proposed Wastewater Treatment Process

The design of the WWTP was developed taking into consideration the following design parameters presented in Table 2-3.

Table 2-3 Design Parameters

Wastewater source		
Type of industry	**Poultry processing**	
Flow data		
Daily flow	2,200	m^3/day
Average flow	200	m^3/h
Peak flow	240	m^3/h
Peak flow duration	4	hours/day
Parameter1	**Concentration [mg/l]**	**Load [kg/day]**
COD	4,000	8,800
BOD_5	2,250	4,950
FOG	750	1,650
TSS	1,500	3,300
TKN	300	660
TP	70	154
Chlorides	<400	<880
	Average	**Range**
pH	7.0	6.5 < pH < 9.0
Water temperature	20 °C	15 < t < 25 °C
Utility data		
Electricity	Main power supply: 400 V, 50 Hz, 3 phases + "0" + PE (protective earth) Control voltage panel: 240 V AC Control voltage field components 24 V AC	
Environmental data		
Ambient temperature	10 < t < 45	°C
Elevation Barghoun, North Governorate-Lebanon	<20	m above sea level

The wastewater treatment process is further elaborated in the subsequent sections.

2.2.1. Aerobic Biological Treatment (Fixed Bed Reactor)

The aerobic biological treatment unit (FBR) uses aerobic biological bacteria that live in flock-like colonies called activated sludge to decompose organic matter using 4 separate processes. The flow leaving the existing pretreatment will be equally divided between the existing and new WWTPs. Accordingly, both Biological Treatments will be operating below full capacity so as to keep a safety margin and be able to perform

emergency or routine maintenance in any of the two plants without the need to cease or reduce production.

2.2.1.1. Selection

Ensures that the bacteria continues to grow, by providing proper conditions and preventing problems that might limit their growth.

2.2.1.2. Denitrification

Removes nitrogen by converting Nitrate to Nitrogen gas in the absence of oxygen

2.2.1.3. Aeration/ Nitrification

Provides oxygen to the bacteria in the aeration basin to decompose organic matter into carbon dioxide, water, sulfate, and nitrate. Small openings cause air bubbles to form in the water, from which the oxygen is diffused.

2.2.1.4. FBR activated sludge separation

Includes a DAF unit, where small micro bubbles make activated sludge flocks float to the surface to be removed by a scrapper. The treated water is removed from the DAF unit using an overflow weir.

2.2.2. Effluent disinfection

Disinfection is implemented by passing the effluent through the UV disinfection system. During this process the effluent is irradiated by the UV light, which disinfects the treated effluent.

2.2.3. Biological excess sludge dewatering

The waste activated sludge from the FBR DAF is pumped to a decanter centrifuge where a flocculant is added, then the mixture is exposed to high centrifugal forces causing the mixture to separate.

This process was chosen based on these advantages:

- Economically sustainable
- No Biohazard sludge
- Saving in civil works
- Small footprint
- Low treatment cost
- Operates without corrosive chemicals
- High level of automation and high level of service
- Almost no odor generated
- Reliable and tested process including good equipment.

The complete layout of the proposed WWTP is presented in Appendix J.

Table 2-4 shows the expected treated effluent quality from the planned WWTP.

Table 2-4 Expected Effluent Quality

Parameter	Concentration (mg/L)
COD	<125
BOD	<25
FOG	<30
TSS	<60
TN	<30
Fecal Coliform bacteria (per 100 ml)	<2,000
pH	6-9

Expanding and upgrading the wastewater treatment system shall allow Hawa Chicken to increase its production capacity and to have an operational backup wastewater treatment unit in case one of the two plants faces a malfunction. This is achieved simultaneously while maintaining environmental compliance with respect to the National Standards for Environmental Quality (NESQ) stipulated in MoE decision no. 8/1 (2001) and the World Bank EHS Guidelines for wastewater and ambient water quality, by discharging treated wastewater with the characteristics shown in Table 2-5.

Table 2-5 Maximum Allowable Limits for Wastewater Discharge into surface water (MoE Decision 8/1) and WB Guidelines for Wastewater Discharge from Poultry Processing

Parameter	Maximum allowable limits for discharge into the surface water according to MoE Decision 8/1	Maximum allowable limits for wastewater discharge according to the WB EHS Guidelines for Poultry Processing
COD	250 mg/l	250 mg/l
BOD	100 mg/l	50 mg/l
Solids TSS	200 mg/l	50 mg/l
Temperature	30 ºC	Increase <3ºC
pH	5-9	6-9
Total phosphorus	16 mg/l	2 mg/l
Total nitrogen	40 mg/l	10 mg/l
Oil and grease	30	10
Sulphates	1,000.0	-
Coliform bacteria	2,000/100 ml	400 MPN/100 ml

The existing wastewater treatment system will be upgraded to process the pre-treated sludge, by limiting the TSS and fat that can escape the system with the water fraction. This will include 3 main upgrades:

- Automatic lime dosing: Accurately measures the required doses of lime to bind with the fat fraction in the DAF unit
- Automatic Flocculant make-up and dosing system: The system prevents unnecessary over-dosing, and limits problems caused from the dosing of highly viscous flocculant solutions.
- Adaptation of the pre-treatment control panel: allows for the electronic component to control the pre-treatment and dosing process.

The pre-treated sludge will be mixed in the existing sludge tank after the dosing system adds lime to the sludge. The lime binds to the fats enabling their removal from the water fraction via the existing decanter. Then flocculants will be injected in the sludge and the mixture will be exposed to extremely high centrifugal forces that separate the liquid layer, which flows to the pump station and is recirculated into the WWTP, from the solids fraction. The latter is expelled from the decanter at the sloping end of the decanter's bowl, while the centrifuged liquids are recirculated back into the wastewater treatment process.

2.2.4. Project Timeline

The construction phase of the WWTP is estimated to be completed over the course of around 12 months from the time the construction permits become available. The proposed project timetable is shown in Table 2-6

Table 2-6 Timetable for Wastewater treatment plant construction works

Construction phase	Duration
Excavation works	12 days
Foundation and reinforced concrete structure	120 days
Warehouse steel structure	40 days
Concrete blocks for walls	20 days
Plastering and sandwich panel cladding	20 days
Installing electricity, sanitary fixture, and electromechanical works	30 days
Landscaping and pavement	15 days
Machinery procurement	30 days
Equipment installation	11 weeks
Commissioning and mechanical start-up	4 weeks
Process start-up and operators training	7 days

2.2.5. Project Civil Works

The following civil works are required for the excavations and construction works:

- Excavation (estimated volume: 5,000 m^3)
- Landscaping of a 3,000 m^2 area
- Leveling using 1,000 m^3 of fill materials
- Road infrastructure over a 2,400 m^2 area.

The estimated volume of concrete needed for the construction of the wastewater treatment plant is around 2,500 m^3, type B30 for the foundation, and type B40 for walls, columns and slab.

The expected list of equipment and machinery to be used during the construction of the Wastewater treatment plant is as follows:

- Tower crane and mobile crane
- Excavator back hoe
- Loader
- Vibrating compactor
- Grader
- Bobcat excavator
- Air compressor
- water system
- Bar bender
- Concrete vibrator.

The civil works will also require 1 truck and four (4) concrete mixers for the transportation of materials and mixing and delivery of concrete. During construction, traffic is expected to increase, and the construction site will be equipped with all necessary traffic signs to warn the drivers.

The instatement of the equipment will be supplied by Redox that will provide a supervisor to coordinate the work of the local installation crew.

In addition to these equipment, generators will be available to supply electricity during the construction of the Wastewater treatment facility. It is estimated that at least 1 generator of 200 KVA capacity will be needed, and the daily consumption of fuel is estimated at 100 L. The generator will be equipped with acoustic insulation to control the noise produced, and filters to limit its air emissions.
The site will include 4 fuel tanks, with capacities of 30,000 Liters each available at an underground level; an automatic filling system will be used for their refilling.

The civil works are expected to require 20 workers and 3 engineers, no workers will reside at the construction site. Prior to starting the construction works, Hawa Chicken will train the workers on basic HSE requirements that must be adhered to and followed on site. All the workers will be allowed to use the industry's main facilities, i.e. toilets. The daily estimated generation of wastewater is around 11.04 m^3/day[3].

[3] -23 staff x 1.2 m^3/day x 0.4 = 11.04 m^3

2.2.6. Health and Safety

The Hawa Chicken facility is surrounded with a fence including the construction site in order to control access and prevent any health and safety issues related to people walking into or passing next to an open construction site.

The health and safety measures that are currently used for the existing WWTP will also be implemented for the planned WWTP once operational, including trainings and provision of safety equipment and tools.

During the operation of the planned WWTP, the following PPEs shall be used:

- Industrial safety helmets
- Safety goggles or glasses
- Earplugs or Earmuffs
- Face Masks
- Nitrile or Latex Gloves
- Safety Boots
- Antiskid Sole Boots
- Disposable Barrier Gowns
- Hair Nets.

2.3. SUMMARY OF ENVIRONMENTAL AND SOCIAL LEGISLATIONS

The main Lebanese environmental and social legislations related to the sub-project are presented in Table 2-7:

Table 2-7 List of national environmental and social legislations relevant to the sub-project

Reference	Date	Description
Decision 29/1	2018	Work regulations for foreigners Restricts a substantive number of jobs to Lebanese citizens in order to protect the workforce and reduce unemployment. These consist of all jobs practiced by Lebanese citizens include tiling, plastering, gypsum board, iron, wood and aluminum profile installation and other decorative tasks. Engineering is also restricted to Lebanese citizens. On March 21, 2018, a clarification letter was issued by the Ministry of Labor (MoL) regarding Decision 29/1, which states that Syrians are allowed to occupy jobs in the construction sector that are not restricted to the Lebanese as per Decision 29/1 of 2018.
Law 340 – Penal Code (Abolishment of Article 522)	2016	Abolishment of Article 522 of the Penal Code that exempts a rapist from punishment if he marries his victim.
Decree 3791 (amending Decree 7426 of 2012)	2016	Set and apply the official minimum wage for employees and workers subject to the labor law and the cost of living ratio

Reference	Date	Description
		Raises the minimum daily wage to USD 20
Law 293	2014	Law on Protection of Women and Family Members from Domestic Violence – Advances women's rights and safety. Establishes important protection measures and related policing and court reforms.
Decree 8987	2012	Forbids the employment of adolescents and children under 18 years of age in jobs that pose a risk to their health, safety and behaviour
Decree No. 8471/2012	12/07/2012	Environmental Compliance for Establishments Decree According to this decree, industrial enterprises are required to carry out an EA including an Environmental Management Plan (EMP) at the facility level and to execute the required mitigation measures in order to be eligible to apply for the Environmental Compliance Certificate (ECC). The ECC is a three-year renewable certificate proving the adherence of the industry to environmental standards and application of an environmental management system.
Decision 3/1	2005	• Sets the conditions for the construction and or operation of small size Wastewater Treatment plants • Provides the environmental guidelines for the construction and operation of Wastewater treatment plants, and for monitoring of treated effluents.
Decree 11802	2004	• Organizing occupational safety, safety and health in all institutions subject to labor law • Provides the general regulations for the prevention of occupational hazards and accidents, and the promotion of health and safety in all industrial establishments subject to the Labor Law. These cover prevention and safety, occupational health, the safe use of chemicals at work, as well as occupational noise standards.
Law 444	2002	• Sets the framework for environmental protection. • Provides the principles and rules for protecting different environmental matrices (air, water, soil…) from pollution with wastewater, hazardous wastes, chemicals, and noise, etc.; and specifies the penalties for violating environmental laws.
Decision No. 8/1	01/03/2001	• Air emission standards and wastewater discharge • The decision provides ELVs for wastewater discharge into different receiving media (sewerage system, surface water and sea). It should be noted that Decision 8/1 presents an update of some of the standards included in the previous decision 52/1 (1996). • Table 2: Environmental Limit Values for wastewater discharge into the sea, surface water, and the sewerage system).

Reference	Date	Description
Law 207	26/05/2000	Prohibits all forms of discrimination between men and women in the workplace concerning employment type, remuneration, employment, promotions and raises, vocational training and attire
Decision No. 52/1	29/07/1996	Environmental Quality standards for air, water and soil The Decision sets the National Standards for Environmental Quality and the Environmental Limit Values (ELVs) for Air and Water, as well as Maximum Permissible ambient and occupational noise levels (Annex 10 of MOE Decision 1/52). The following sections and tables relate most closely to the sub- project at hand: • Annex 4 : Bathing Water Quality (including sea water) • Annex 9: Permissible Occupational Air Pollution Levels • Annex 10: Maximum Permissible Noise Levels (ambient and occupational) and Time of Occupational Exposure • Annex 14: Permissible Ambient Air Pollution Levels.
Labor Law and its updates	23/09/1946 Amendment Law 207 passed in 26/05/2000	Sets the framework and rules governing the relationship between employers and employees, including: • Minimum age of employment: 14 years (if the candidate is in good health); subject to yearly medical examinations until the age of 18. • Minimum age for employment in industrial workplaces and tedious tasks and works requiring substantial physical effort, or those posing health risks: 15 years. • Minimum age for employment on tasks and works that pose risks or hazards to health and safety: 16 years. • Employment record issued by the MoL specific to every employee, comprising name, nationality, employer name, photograph, specialty, health consultations, and dates of joining and leaving each establishment. • Working hours for employees under the age of 18 years: ≤ 6 hours, including a one-hour break following 4 continuous working hours. Working hours must exclude the period between 7:00 pm and 7:00 am. • Adolescent employees must be given a resting period of at least 13 consecutive hours between two working shifts. Overtime work and work during breaks, on weekends and holidays are forbidden for adolescents. • Minimum vacation days for adolescents: 21 days following employment for a complete year; 2/3 of which must be taken continuously. • No gender discrimination is allowed in the workplace regarding work type, remuneration, employment, promotion, training and clothing. Employment of women in industrial settings and

Reference	Date	Description
		other tedious and risky works is forbidden. • The right of women for a paid maternity leave (10 weeks according to the latest legislation). • It is forbidden to fire women during their maternity leave. • Maximum weekly working hours: 48 hours with a 1-hour break (mid-day). • Working hours can be reduced based on the level of physical effort required by the job. • Right of employees to a continuous 9-hour resting period during a working day. • The right of employees for a continuous 36-hour break every week. • The right of employees hired since at least 1 year to 15 days of vacation per year, without the right of employers to fire employees during their leave. • The right of employees to a paid occupational sick leave in case of occupational accident, the duration of which varies based on the case.

2.4. SCREENING OF THE PROJECT AND APPLICABLE WORLD BANK (WB) SAFEGUARD POLICIES

The Environmental and Social Assessment (ESA) Report of the LEPAP includes specific procedures for environmental assessment to be applied to activities and sub-projects planned, according to the importance of their environmental impacts and in accordance with the safeguard policies of the World Bank, mainly OP 4.01 on "Environmental Assessment", taking also into consideration the national EIA Decree No. 8633 of 2012.

According to the LEPAP ESA, an industrial WWTP within an existing establishment containing non-hazardous materials is considered as a category II sub-project, and thus requires the preparation of an ESMP.

OP 4.01 is solely triggered among the WB's environmental and social safeguards. The implementation of the WWTP at Hawa Chicken is not expected to cause any physical or economical displacement or lack of access to designated parks since the WWTP will be constructed on the plot owned by Hawa Chicken, next to the production buildings and warehouses; therefore, the Involuntary Resettlement Policy OP 4.12 would not be triggered in this sub-project.

It is to be noted that the WB issued the World Bank Group Environmental, Health, and Safety Guidelines (known as the "EHS Guidelines"). General EHS Guidelines contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors.

General EHS guidelines related to wastewater and ambient water quality, as well as specific EHS guidelines for Water and Sanitation projects, are presented in Annex L along with the specific EHS guidelines for Poultry processing. The relevant guidelines are summarized here below.

In the context of their overall EHS standards management system, facilities should be implemented with a vision to:

- Understand the quality, quantity, frequency and sources of liquid effluents in their installations;
- Plan and implement the segregation of liquid effluents principally along industrial, utility, sanitary, and storm water categories, in order to limit the volume of water requiring specialized treatment;
- Identify opportunities to prevent or reduce wastewater pollution through such measures as input substitution, or process modification (e.g. change of technology or operating conditions/modes);
- Assess compliance of their wastewater discharges with the applicable discharge standards.

Poultry processing activities require large amounts of high quality water for process, cleaning and cooling. Process wastewater generated during these activities typically has high biochemical and chemical oxygen demand (BOD and COD) due to the

presence of organic material such as blood, fat, flesh, and excreta. In addition, process wastewater may contain high levels of nitrogen, phosphorus, residues of chemicals such as chlorine used for washing and disinfection, as well as various pathogens including salmonella and campylobacter.

Based on World Bank safeguard policies for poultry processing industries, ttechniques for treating industrial process wastewater in this sector include grease traps, skimmers or oil water separators for separation of fats and floatable solids; flow and load equalization; sedimentation for suspended solids reduction using clarifiers; biological treatment, typically anaerobic (if high in organic content) followed by aerobic treatment, for reduction of soluble organic matter (BOD); biological nutrient removal for reduction in nitrogen and phosphorus; chlorination of effluent when disinfection is required; dewatering and disposal of residuals; in some instances composting or land application of wastewater treatment residuals of acceptable quality may be possible. Additional engineering controls may be required to (i) remove parasitic eggs or spores from influent that may pass through the treatment system untreated, and (ii) contain and neutralize nuisance odors.

Specific water consumption recommendations for poultry processing operations include:

- Optimizing water consumption for rinsing and cooling without jeopardizing food safety; where hygiene regulations permit, replacing transport of products and by-products that use water as a media (e.g. feathers after the plucking operation has taken place) with mechanical transport;
- Dry cleaning process areas with a scraper, broom, or specially designed vacuum cleaner before cleaning with water;
- Considering the use of an ice-water mixture in the counter flow water chiller to reduce the required volume of cooling water (Note that this will likely increase energy consumption);
- If feasible, replacing counter flow water chiller with air cooling to reduce water consumption (Note that this will likely increase energy consumption).

As for the Industry-specific measures for poultry processing to minimize occupational health and safety hazards, they include the following:

- Physical hazards:
    - Implementation of proper design and management of floor and equipment;
    - Reducing repetitive work operation by job rotation (e.g. live bird handling activities);
    - Installation of gas stunning machines to facilitate bird shackling;
    - Mechanizing manual processes (e.g. slaughtering and boning) if possible, including the use of electric cutting equipment.

- Biological hazards
    - Installation of exhaust ventilation at the source of dust and gases (e.g. the live bird handling area);
    - Work rotation strategies to reduce occupational exposure to biological hazards;
    - Avoiding dust and aerosol generating activities (e.g., use of compressed air or high pressure water for cleaning) and, where this is not possible, providing proper ventilation of enclosed or semi-enclosed areas to reduce or eliminate exposure to dust and aerosols;
    - Providing workers with PPE appropriate for the activity (e.g. gloves, ventilated helmets, and other equipment in high-risk operations, such as live bird handling);
    - Ensuring physical segregation of work and welfare facilities to maintain worker personal hygiene;
    - Prohibition of smoking or eating in the workplace;
    - Provision of washing facilities for workers.

As for the occupational health and safety hazards during the operational phase of the WWTP, they comprise:

- Exposure to chemical hazards due to the handling and storage of strong chemicals that are used in the wastewater treatment process. Recommended mitigation measures for this issue usually include implementing an adequate training program for the employees, provision of proper PPE and other safety equipment such as safety showers and fire extinguishers, developing site-specific emergency response plans, monitoring air quality, and proper ventilation in enclosed areas.
- Exposure to noise from operating machinery; therefore, proper noise reduction and mitigation measures should be implemented. These include the provision of proper PPE for the employees, installing equipment with low sound power, equipping noisy machines and equipment with mufflers, and continuous monitoring of noise levels in the vicinity.
- Physical injuries to the employees which may involve slips, working at height, manual handling, electrocution, and confined space entry. Recommended measures to be considered include installing hand rails and barricades, provision of fall protection equipment for employees working at height, keeping walkways clear and dry, use of properly maintained/inspected tools and equipment, and implementing an adequate confined space entry program to reduce associated risks.

3. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
Construction Phase					
Combustion and exhaust emissions from equipment and vehicles operation during construction activities	Air Pollution	• Equipment and vehicles shall meet the relevant national regulations and World Bank directives for emissions standards; • Ensure that an effective Maintenance Plan and Schedule is in place for employed site machinery, vehicles, and power generators; • Ensure that generators' emissions are in line with national standards (MoE Decision 8/1, dated 2001) during their operation through regular monitoring of CO, NO_x, SO_2, O_2, flue gas temperature, combustion efficiency, and total dust; • Avoid idling and turn off vehicles and equipment engines that are left running unnecessarily; • Inspect the presence of black smoke from vehicles and engine and undertake remedial maintenance when it is observed to improve engine efficiency; and • Schedule deliveries of raw material and products efficiently and enforce appropriate speed limits.	Minor / included in construction activities costs	Weekly	Implementation: Contractor Supervision: Hawa Chicken
Dust emissions from equipment and vehicles operation during demolition and construction	Air pollution	• Provide wet suppression of areas during excavation and of roads where trucks will circulate; • Cover stockpiles and maintain them at minimum heights and form them into the	Minor / included in construction activities costs	Ongoing	Implementation: Contractor Supervision: Hawa Chicken

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
activities		optimum shape to reduce wind erosion; • Cover all incoming and outgoing trucks from the site; • Surround the construction areas with scaffolding nets to control debris & dust from spreading beyond the construction site; and • Limit vehicular speed onsite to 15 km/h.			
Spills caused by construction vehicles and equipment	Soil and Groundwater Pollution	• Periodic check of vehicles and equipment; • Manage fixed routes for equipment movement and avoid multiple routes; • Oil spill response kits should be available wherever oils are being used/stored; • Promote awareness among safety team on how to handle oil/ lubricants; • Train emergency or safety team how to clean up small-scale spills; • Ensure drip trays are present when re-fuelling; • Prepare a Spill Emergency Plan specific for the Project; • In case of spill: - Immediately report incidents to the concerned authorities; - Contain the source of spill (close valve, seal pipe, seal hole, or as appropriate); - Check for hazardous flammable materials on site; - Prompt clean-up of the spill by removing affected top soil layer (if applicable) by trained employees who should be equipped with appropriate tools and	• Minor/ included in construction activities costs • Oil spill response kits: 80 USD/ kit • Drip trays: 65 USD/ tray	Ongoing	Implementation: Contractor Supervision: Hawa Chicken

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
		Personal Protective Equipment (PPE); - Treat and contain the removed soil as hazardous waste; - Adopt, to the extent possible, dry cleaning techniques to decrease resulting wastewater, and to avoid flushing of spills to deeper soil layers.			
Construction works and equipment	Noise pollution and vibration	• Ensure fencing of the construction site before initiation of works to reduce noise levels propagation beyond the construction site; • Fit all machinery and vehicles with effective exhaust silencers as applicable; • Maintain all machinery and vehicles in good condition and avoid leaving equipment idling unnecessarily; • Schedule noisy activities, between 7:00 am and 6:00 pm, avoid noisy activities on Sundays and holidays, and avoid night-time work; • Conduct regular noise monitoring at the nearest receptors to ensure that noise emissions are compliant with national standards (Decision 52/1); and • Provide workers with noise protection equipment and enforce their use.	• Minor/ included in construction activities costs • Noise PPEs: Washable and reusable ear plugs: ~1.5 USD/piece or Ear Muffs: ~28 USD/piece • Noise monitoring: 400 USD/Event	Ongoing	Implementation: Contractor Supervision: Hawa Chicken, Municipality
Waste Generation related to construction activities	Soil and Groundwater pollution	• Segregate at source recyclable domestic waste, construction waste that can be reused/recycled, construction waste to be disposed of, etc.; • Hazardous Waste (waste oil, solvents, etc.) - Hazardous waste such as solvents,	Minor/ Included in construction activities costs	Ongoing	Implementation: Contractor Supervision: Hawa Chicken

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
		used batteries and empty paints' containers should be stored in safe labeled containers and sold to one of the facilities listed in MoE Circular 7/1 of 2017 when applicable, or stored on site and disposed of together with the facility's hazardous waste (e.g., export as per Basel Convention); - Compile log sheets of hazardous wastes, including type, amount and disposal method, to track final destinations and identify opportunities for improvement; • Construction Waste: - Reuse the excavated soil in backfilling and leveling activities to the extent possible; - Additional unneeded waste must be disposed of in an approved Construction and Demolition Waste (CDW) dumpsite or landfill in coordination with MoE; - Cover and contain construction waste stockpiles to avoid them being transported by wind and rain. - Excavation waste should be transported in trucks on days with low wind activity, and covered with green mesh in order to avoid their release into the environment. • Ensure that standards of "good housekeeping" are maintained (i.e., avoiding littering, continuous clearing of the			

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
		site from all kinds of waste).			
Accidents from construction activities	Occupational health and Safety risk	• Contractor to implement health and safety procedures including fencing of the construction site; • Prohibit smoking onsite • Ensure proper storage and handling of all types of chemical, oil, fuels and lubricants within containment facilities (e.g. bonded areas, leak proof trays) to prevent the release of spills/leaks to the soil and groundwater environment or explosion/ fire incidents; • Implement preventive maintenance schedules as part of the inspection procedures of all equipment /generators /machinery/ fuel tanks for risk minimization; • Provide oil spill response kits wherever oils are being used/stored; • Promote awareness among workers on the handling of oils and lubricants; • Train the emergency/ safety team on how to clean up small scale spills; • Promote good housekeeping practices during construction; • Ensure drip trays are present when re-fuelling and beneath generators; • Prepare a Spill Emergency Plan specific for the project; o Stop the source of spill (close valve, seal pipe, seal hole or as appropriate); o Immediately notify the EHS manager and construction manager who will	Minor/ included in construction activities costs Cost of PPE per worker: 120 USD	Daily	Implementation: Contractor Supervision: Hawa Chicken

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
		in turn notify the project proponent and MoE in accordance with the Spill Emergency Plan; o Check for hazards, flammable matters on site; o Clean the spill by removing affected top soil layer by trained employees (they should be wearing appropriate PPE); o Treat the removed layer as hazardous waste and store them on impermeable and solvent resistant plastic sheets such as heavy gauge polyethylene plastic sheets before coordinating with MoE on the recommended disposal/treatment option; • Adopt as much as possible dry cleaning techniques to decrease resulting wastewater; • Provide warning signs where needed; • Provide first aid kits and portable firefighting equipment throughout the working areas; • Provide proper PPE and other safety equipment such as helmets, boots, goggles, hearing protection, fall protection equipment for employees working at height; keep walkways clear and dry, use properly maintained/inspected tools and equipment, and implement an adequate confined space entry program to reduce associated risks.			

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
Traffic	Social Impacts, air and noise pollution	• Limit speed on the construction sites to 15 km/h unless otherwise advised; • Position any necessary traffic diversion signs and devices correctly. Signs and devices should be clearly displayed in Arabic and English languages. Temporary traffic signals and signs should be employed to warn of hazards and provide directions, especially on narrow one-lane roads; • Coordinate with the concerned municipalities with respect to the planned road blockages, detours or diversion (if any); • Follow a specific schedule for transport to avoid interference with peak traffic hours and minimize disturbance/delay to commuters at rush hours on the roads leading to the Project construction sites; and • Fill up all holes and trenches, and level all mounds and heaps of earth, and exposed surface reinstatement, which have been excavated or made in connection with the works immediately upon completion of any part of the works.	Minor/ included in construction activities costs	ongoing	Implementation: Contractor Supervision: Hawa Chicken, Municipality
Employment Opportunities	Social Impacts (social tensions, wage payments, child labor and abuse, sexual harassment, exploitation and abuse,	• Keep an employment record by registering all labors and workers involved in the construction works on a daily basis by the contractor. The following minimum information shall be registered: Name, address, age, copy of ID, etc.; • Keep a record of all the wage payments and hours worked for each worker;	Minor	Ongoing	Hawa Chicken and contractor

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
	work injuries and accidents…)	• Train workers on the code of conduct against gender-based violence; • Keep a record of all the injuries and accidents on-site; • Train workers on the code of conduct against health, safety, and environmental risks; • Enforce the health and safety measures; • Apply the stipulations of the Lebanese Labor Law for contractors' workers; • Inform the workers – upon recruitment – about the availability of an internal GRM Policy in case of any complaints; and • Give preference to local community members while recruiting for construction.			
Nuisance to nearby receptors from construction activities	Social Impact	• Implement the Grievance Redress Mechanisms recommended in Section 1.5, mainly includes the following: o Two separate GRMs for internal and external complaints o Specific timeline for each step o Dedicated team to follow-up on GRMs • Keep record of all complaints using a GRM log, and close all complaints within 15 days as specified in the external GRM policy.	Included in construction activities' costs	Continuous	Implementation: Contractor Supervision: Hawa Chicken, Municipality
Operation Phase					
Treatment Efficiency and Effluent Quality					

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
Wastewater collection system (WCS)	Soil and groundwater pollution	• Continuous monitoring of any signs of overflows; and • Continuous monitoring and maintenance of the WWTP network to prevent any leakage of untreated effluent	Low/ Part of operations activities cost	Weekly	Hawa Chicken maintenance team, NLWE
Potential inefficient WWTP operation	Water pollution and inadequate effluent quality	• Regular monitoring of the effluent in line with Decision 8/1 (2001); • Development of an operation and maintenance manual, which should include: o Operator and staff responsibilities o Staff guidance for emergency situations o Identification of MoE requirements and the obligation to meet these requirements o Operating procedures including a detailed description of each major treatment unit/process with relationship to related units, safe operating procedure for normal operation, including common operating problems, safe operating procedures for operating during emergency conditions, and any fail-safe features o A program of regularly scheduled inspection and maintenance o An emergency plan for incidental discharge of wastewater into surrounding area • Leakage detection system for wastewater; • Regular monitoring and adjustment of the DAF units; and	200 USD / Sample Cost of trainings and documentation part of operation activities cost	Effluent sampling frequency: • Regularly as required by the supplier • Biannually by third party for MoE reporting and monitoring • Training frequency: Regularly/ as required	Operation: Hawa Chicken maintenance team Monitoring: third party Trainings: Hawa Chicken management and supplier

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
		• Commit to improve personnel training for efficient operation of the WWTP in order to comply with regulatory limits.			
Power outage	Operation Malfunctioning	• Regular maintenance of the onsite generators	Part of operations activities cost	Ongoing	Hawa Chicken maintenance team
Incident discharge of wastewater to surrounding area	Public health hazard, contamination of water and soil resources	• The upgraded section of the WWTP will be serving as an emergency plan in case of any malfunctioning; • Proper operation and maintenance procedures for the WWTP network, including replacing network portions with an expired design life; • Continuous monitoring of any signs of overflows; • Regular maintenance of the pumps installed at the WWTP to ensure proper operation when required; and • In case of incidental discharge of wastewater, locate the cause and repair it as soon as possible.	Part of operations activities cost	Ongoing	Hawa Chicken Management and Maintenance team
Pump failure	Operation Malfunctioning, water pollution	• Regular inspection and maintenance of the pumps; and • Include standby pumps in the design of the WWTP to prevent interruption of operation in case of pump failure.	Spare parts costs are included in the supplier's offer	Continuous	Hawa Chicken Management and Maintenance team
Sludge Generation					
Usage of additives	Health and Safety risk	All additives and hazardous chemicals shall be used in appropriate optimal dosage commensurate with sludge quality as per	Included in operation and maintenance	Continuous	Hawa Chicken Management

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
		supplier's recommendations, and shall be appropriately stored and handled as per the requirements of their MSDS	activities costs		
Disposal of generated sludge	Soil and water pollution	• Proper inspection and maintenance of sludge dewatering unit to ensure its proper operation. • Specific safety procedures for transportation and disposal of sludge shall be developed: it needs to be properly collected in bowser tankers and disposed of in designated facilities in agreement with NLWE and MoE. • Generated sludge to be taken to a composting facility or to the nearest authorized sanitary landfill for disposal. • If the generated sludge will be reused, its quality has to be tested at certified laboratories to ensure its compliance with FAO's guidelines. The results of the tests have to be shared with MoE to acquire an approval before usage.	Included in operation and maintenance activities costs	Continuous	Hawa Chicken Management
Odor generation					
Normal Operation	Air pollution Odor generation	• Ensure proper construction of the sewage network; • Ensure that a regular inspection and maintenance schedule is in place for the sewage network to avoid blocked, broken or cracked pipes; • Ensure that a regular inspection and maintenance schedule is in place for the WWTP; • Install an odor control unit for the inlet pump, influent pumping station, screens and the sludge dewatering unit.	Low/ Included in the operation and maintenance activities cost Odor control unit cost will depend on the WWTP specifications which shall be determined later on	Continuous	, Hawa Chicken management and maintenance teams

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
Sludge transport	Air pollution, odor generation and public health risk	• Development of a proper sludge transport plan that considers meteorological conditions that are most favorable to air dispersion; • Minimizing fugitive smells and spills through closed systems.	Low/ Included in operation Activities costs	As needed	Hawa Chicken Management
Waste disposal from treatment (chemical containers, parts from maintenance activities, etc.)	Air pollution, odor generation, and public health risk	• Implementation of a proper waste management plan for hazardous and non-hazardous waste; • Disposal of non-hazardous waste through recycling when possible or at the local sanitary landfill; and • Proper storage of hazardous waste until it is handed over to authorized (licensed) companies or exported in line with the Basel Convention.	Low/ Included in operation Activities costs Cost of disposal of hazardous waste: TBD	Continuous	Hawa Chicken Management
Nuisance to nearby receptors from foul odors or other nuisance from WWTP operation and sludge handling	Social Impact (nuisance)	• Implement the Grievance Redress Mechanism recommended in Section 1.5, mainly includes the following: o Two separate GRMs for internal and external complaints o Specific timeline for each step o Dedicated team to follow-up on GRMs • Keep record of all complaints	Included in operation Activities costs	Continuous	, Hawa Chicken Management
Health and Safety					
Handling and storage of chemicals used within the treatment plant including:	Occupational health and safety risk	• Wear adequate respirators or gas masks, when exposed to harmful aerosols, dusts, vapors or gases • Onsite assessment of storage and handling techniques, through visual observations • Maintaining a record of all activities related	Low/ Included in operation Activities costs Cost of PPE: around 120 USD/	Continuous	Hawa Chicken management, maintenance team, and supplier

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
• Caustic soda • Poly Acryl Amide • CaO		to the handling and storage of these chemicals, and the workers handling them • Provide workers with the appropriate PPE (goggles, dust masks, helmets, hearing protection equipment, proper clothing, safety boots, etc.) and enforce their use; • Post adequate signs at visible locations throughout the maintenance area indicating type of operation, potential risks, and appropriate medical/emergency action response; • Periodical medical checks for workers who are involved in the handling and storage of chemicals; • Keep a file with MSDS of all chemicals used and handled in the WWT process; and • Conduct regular training for workers about health and safety requirements and GRM.	worker		
Entry into confined spaces; Splashes of hot liquids or contact with hot surfaces	Suffocation due to oxygen Deficiency/ Burns	• Testing the air quality of confined spaces before entry. • Mixing substances should only happen under the supervision of a qualified personnel or safety professional and under a hood in case of fumes emission; • All safety-instructions regarding the storage, transport, handling or pouring of substances should be obeyed; and • Periodic H&S training and education programs shall be organized for employees.	Included in O&M costs	Continuous	Hawa Chicken Management
Wastewater treatment process	Exposure to hazardous by-products from the treatment	• Use respirator, or gas mask, when exposed to harmful aerosols, dusts, vapors or gases; • Wear appropriate gloves and other PPEs	Included in O&M costs	Continuous	Hawa Chicken Management

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
	process (chemical containers…)	suitable to the type of hazardous waste handled; • Periodical medical checks for workers to ensure no negative impacts arise from their work at the WWTP; and • Regular training and education programs shall be organized for employees on hazardous material and their waste.			
Proper wastewater management	Improved public health conditions	No mitigation measures required	-	-	-
Accidents due to floors made slippery by water, or aqueous solutions	Occupational health and safety risk	• Usage of special safety shoes or boots with non-slip feature; and • Periodic training and education should be provided to the workers primarily aimed at preventing spillage.	60 USD / Personnel Safety shoes Training cost part of O&M cost	Continuous	Hawa Chicken management and maintenance team
Fire or explosions due to flammable gases	Occupational health and safety risk	• Make sure the of fire extinguishers of the "dry" type are distributed in all buildings containing electro-mechanical equipment and electrical installations, which are in-line with applicable standards; and • Prepare an emergency plan for firefighting prevention and control, and train workers on Fire evacuation.	Part of O&M costs	At start of operation and monthly checkups and trainings	Hawa Chicken management and maintenance team
Accidental ingestion of wastewater, or smoking in the presence of corrosive agents	Occupational health and safety risk	• Periodical training and education of workers; • Periodical medical checks; and • Handling corrosive agents should only take place under the supervision of qualified supervisors as per the MSDS.	Part of O&M costs	Continuous	Hawa Chicken Management
Post-Operation Phase					

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
Decommissioning of the WWTP	Technical impact, Health and safety risk	• Submission of closure plans for approval before the beginning of the decommissioning works; • Training for workers about decommissioning safety; • Development and implementation of a safety management plan during decommissioning; • Distribution of clear warning signs in the decommissioning site.	Included in Decommissioning activities costs	Prior to and throughout decommissioning	Decommissioning Contractor, Hawa Chicken Management
Residual wastewater and sludge contained in the removed WWTP Equipment abandonment	Environmental health and safety risk, Social Impacts	• Use sanitary sewer for the discharge of residual wastewater ; • Proper disposal of sludge, such as in wastewater/ solid waste management facilities licensed for such purposes ; • Removal of tanks from the site or filling them with approved fill material.	Included in Decommissioning activities costs	Upon decommissioning	Decommissioning Contractor, Hawa Chicken Management
Left chemicals	Chemical pollution	• Chemicals should be removed from the site; • They can be returned to the manufacturer whenever possible, to be used for their intended purpose; • In case they need to be disposed of, it has to be in accordance with the MSDS.	Minor/ Included in Decommissioning activities costs	Upon decommissioning	Decommissioning Contractor, Hawa Chicken Management
Emissions from decommissioning equipment and vehicles	Air pollution	• Use equipment that are regularly maintained and monitored • All the used equipment shall comply with the relevant standards • Avoid idling of equipment and vehicles when not in use	Included in Decommissioning activities costs	Upon decommissioning	Decommissioning Contractor, Hawa Chicken Management
Nuisance from demolition works	Noise pollution and vibration	• Work should be limited to daytime working hours;	Included in Decommissioning	Upon decommissioning	Decommissioning Contractor, Hawa Chicken

Activity	Expected environmental and social impacts	Proposed Mitigation Measures	Cost associated with implementing mitigation measures	Period of implementing mitigation measures	Responsibility for implementing mitigation measures
		• Use mufflers, silencers, enclosures, and other noise reduction techniques ; • Noise emissions shall be monitored against set control targets to meet required standards; • Use equipment and vehicles in good order, which are regularly maintained.	activities costs		Management
Decommissioning impact on existing plant operations	Interruption of plant operation	Secure an alternative wastewater treatment solution.	Minor/ Included in Decommissioning activities costs	Upon decommissioning	Decommissioning Contractor, Hawa Chicken Management
Waste generation	Soil and water pollution	• Proper waste collection and disposal at a solid waste management facility or site that is licensed to deal with such kind of waste • Left Hazardous waste shall be stored in closed tanks until handed to a hazardous waste management facility that is licensed to deal with such kind of waste.	Included in Decommissioning activities costs	Upon decommissioning	Decommissioning Contractor, Hawa Chicken Management

4. ENVIRONMENTAL AND SOCIAL MONITORING PLAN

Monitoring Parameters	Sampling Location	Type of Monitoring Equipment	Monitoring Frequency	Estimated Cost	Responsibility
Construction Phase					
Air quality	• Color of fumes from equipment and generators: stacks • Generators' and equipment's emissions: stacks	• Observation of color of fumes from equipment and construction generators • Emissions monitoring of Generators' and construction equipment from stacks	• Color of fumes from equipment and generators: weekly (visual) • Generators' and equipment's emissions: before starting construction works and monthly afterward (visual)	300 USD/ Measurement event	Contractor/ Hawa Chicken management
Noise	Construction Site and Nearest receptors	Noise meter (for L_{eq}, L_{max}, L_{min}, L_{90} dB(A))	Regularly as needed or upon complaints from citizens	300 USD/ Measurement event	Contractor/ Hawa Chicken management
Wastewater Generation	Networks and septic tanks (labor sanitary facilities)	Leakages/ overflow	Weekly	-	Contractor/ Hawa Chicken management
Solid Waste Generation	• Construction site (waste storage)	Visual observation and recording of: • Waste types • Waste generation rates • Waste reused • Waste transported for offsite reuse/recycling • Waste disposed	Daily	Included in construction costs	Contractor/ Hawa Chicken management

Monitoring Parameters	Sampling Location	Type of Monitoring Equipment	Monitoring Frequency	Estimated Cost	Responsibility
		of • Method and location of disposal			
Health and Safety Hazards	Construction site	Visual observation and recording of: • Proper PPE usage • Good housekeeping practices • Number, type and cause of accidents, incidents and injuries • Complaints received through the GRM	Continuous	Included in construction costs	Contractor/ Hawa Chicken management
Operation Phase					
Wastewater	WWTP outlet	Laboratory testing of: • Temperature; • pH; • conductivity; • total suspended solids (TSS) (mg/l); • BOD_5 (mg O2/L); • COD (mg O2/L); • Total phosphorus concentration (mg P/L); • Total nitrogen concentration; • Total oil and	Monthly for Hawa Chicken (except at commissioning and testing of WWTP: weekly) Twice per year by third party for MoE reporting	200 USD/sample	Hawa Chicken Management

Monitoring Parameters	Sampling Location	Type of Monitoring Equipment	Monitoring Frequency	Estimated Cost	Responsibility
		grease concentration (mg/L). Records of trainings done for workers on efficient WWTP operation			
Sludge quality in case of reuse	Sludge tanks	Lab testing: • pH; • Dry matter; • Organic matters; • Total N; • NH_4-N; • P_2O_5; • K_2O; • MgO; • Content on heavy metals: cadmium, copper, nickel, lead, zinc, mercury, and chromium; • Faecal coliform; • Salmonella; and • Ascaris ova.	Upon emptying/ transport of sludge (twice per year)	900$	Hawa Chicken Management
Noise levels	WWTP boundaries and nearest receptors: •	Noise meter	Once per month for the first 6 months; Bi-annually afterwards	300 USD / Measurement event	Hawa Chicken Management
Public health and safety	Throughout the WWTP	• Visual observation and	Continuous	Covered in Operation activities cost	Hawa Chicken Management

Monitoring Parameters	Sampling Location	Type of Monitoring Equipment	Monitoring Frequency	Estimated Cost	Responsibility
		recording of the number and cause of accidents during operation and maintenance works; • Record of GRM complaints.			
Post-Operation phase					
Air quality	WWTP site	• Observation of the color of fumes from equipment and generators; and • Emissions analyzer of Generators' and equipment.	• Color of fumes from equipment and generators: weekly; and • Generators' and equipment's emissions: before starting construction works and monthly afterward.	300 USD/ Measurement event	Decommissioning contractor, Hawa Chicken Management
Waste management	WWTP site	Disposal method and record	Regular during decommissioning	Included in Decommissioning costs	Decommissioning contractor, Hawa Chicken Management
Occupational health and safety	WWTP site	Records of the number, type and cause of accidents and injuries	Regular during decommissioning	Included in Decommissioning costs	Decommissioning contractor, Hawa Chicken Management

Monitoring Parameters	Sampling Location	Type of Monitoring Equipment	Monitoring Frequency	Estimated Cost	Responsibility
Noise level	Decommissioning Site and Nearest Receptors	Noise meter	Regular during decommissioning	300 USD / Measurement event	Decommissioning contractor, Hawa Chicken Management

5. EMERGENCY PREPAREDNESS AND RESPONSE PLAN

Hawa chicken has developed several procedures for emergency preparedness and response and developed a methodology for evaluating and developing these procedures when needed as elaborated in Appendix F. These procedure are:

- Preparedness and response procedure for water source cuts
- Preparedness and response procedure for sewage network blockage
- Preparedness and response procedure for lightning
- Preparedness and response procedure for breakdown of product delivery cars
- Preparedness and response procedure for power outage
- Preparedness and response procedure for breakdown of the facility's cooling system
- Preparedness and response procedure for Ammonia leakage
- Preparedness and response procedure for accidents with employees involving knives
- Preparedness and response procedure for fire
- Preparedness and response procedure for hot water cuts
- Subversion and Bioterrorism
- Preparedness and response procedure for breakdown of cleaning and sterilizing system
- Preparedness and response procedure for accidents with the product delivery cars.

The main emergencies that could emerge at the WWTP and their corresponding prevention and response measures are:

- Overflow or leakage
    - Regular monitoring;
    - Preventive and Corrective maintenance;
    - Provision of electrical generators in case of power outage;
    - Provision of spare parts and equipment, e.g. spare pump;
    - Development of Emergency plans;
    - Training of workers to limit the occurrence of overflow and training for emergency actions when overflow happens;
    - Provision of emergency spill kits; and
    - Installation of leakage detection systems.
- Fire
    - Installing a firefighting and detection system;
    - Regular inspection and maintenance of firefighting system;
    - Training of workers;
    - Conduction regular fire drills;
    - Development of Emergency plans; and
    - Regular maintenance and inspection of equipment and machinery.

- Chemicals Spills
    - Keep a file with MSDS of all chemicals used and handled in the WWT process;

- Conduct regular training for workers at the WWTP on containment, clean-up, and safe use and disposal of chemicals;
- Onsite assessment of chemicals storage;
- Provision of spill kits; and
- Containment of stored chemicals using drip trays or bunding.

- Occupational accidents
  - Provision of Health and safety signs;
  - Training of workers;
  - Provision of adequate PPE;
  - Development of Emergency plans;
  - Conducting regular inspections and applying the corresponding corrective measures; and
  - Record keeping of accidents including date, cause and action taken.

It is the responsibility of Hawa Chicken operation and management team to ensure that an organized record keeping practice is implemented. The records' database includes process indicators, performed computations, maintenance schedules and logbook, and process control; performance monitoring outcomes. This database can improve the monitoring process and have beneficial impacts on the project as well as the surrounding communities.

In addition to the above-listed emergency and preparedness plans for the Hawa Chicken Facility, emergency procedures/plans for the WWTP specifically need to be developed and put in place, tested and regularly updated to ensure that, if an event occurs, the normal situation can be promptly restored with a minimum effect on the environment. The emergency plan shall be designed to ensure effective operation of the treatment works under emergency conditions, and shall consist, at a minimum, of the following elements:

- A vulnerability analysis which shall estimate the degree to which the treatment works would be adversely affected by each type of emergency situation which could reasonably be expected to occur, including but not limited to those emergencies caused by natural disasters, civil disorder, strike, sabotage, faulty maintenance, negligent operation or accidents;
- The vulnerability analysis shall include, but is not limited to, an estimate of the effects of such an emergency upon the following: (1) Power supply; (2) Communication; (3) Equipment; (4) Supplies; (5) Personnel; (6) Security; and (7) Emergency procedures to be followed.
- An evaluation of the possible adverse effects on public health and the environment due to such an emergency; and
- An emergency operation plan for ensuring, to the maximum extent possible, uninterrupted operation of the treatment works and a manual of procedures for the implementation of such plan, including procedures for the notification of the MoE, NLWE and municipal authority. The plan and manual shall address each of the emergency situations described in the vulnerability analysis.

Throughout the construction and operation of the project, the workforce is to be continuously informed of any hazardous issue that may materialize. Moreover, residents in the project area and the municipality and authorities should in turn be informed accordingly should a hazard persist during the operational period. The contractor will be in charge of performing any maintenance checks/ works that cannot be done by Hawa Chicken; this requirement should be set in the contract signed between Hawa Chicken and the contractor. The contractor will assist with the selection and provision of spare parts for preventive and corrective maintenance. Additionally, the contractor will select spare parts needed for scheduled maintenance interventions.

The contractor is also required to conduct at least a monthly preventive maintenance including checking the treatment efficiency during the first year of operation.

The above preventive measures and design considerations will ensure a continuous and uninterrupted operation of the facility while catering for any potential environmental or social adverse impacts.

6. STAKEHOLDERS MEETING

On Wednesday March 4, 2020 a consultation meeting for the Environmental and Social Management Plan of the WWTP for Hawa Chicken took place at Hawa Chicken facility in Anfeh, North Lebanon, and lasted for 1.5 hours. Twenty (20) participants from the following affiliations attended the meeting:

- Neighboring industrial establishments;
- Neighboring community;
- Anfeh Municipality;
- MoE;
- UNDP-LEPAP; and
- ELARD

The list of participants can be found in Appendix M.

Figure 6-1 Stakeholders Meeting

Mr. Karim Shaar (from the consulting firm ELARD) gave the ESMP presentation of the planned WWTP to be implemented at Hawa Chicken. The presentation emphasized the predicted potential positive and negative impacts of the WWTP, and the planned mitigation measures during both the construction and operation phases. The presentation was followed by a Q&A session summarized in Table 6-1.

Table 6-1 Stakeholders meeting comments and responses

Affiliation	Comment	Response
Neighboring community	Mr Joseph Khoury: Currently we are hardly smelling any disturbing odors knowing that it used to be a frequent source of nuisance. Will the neighboring community be affected with odors generated from Hawa Chicken again?	Mr. Ali Eid: the existing and new wastewater treatment plants should not generate any disturbing odors. The sludge generated from the wastewater treatment process usually generates disturbing odors. However, the generated sludge at Hawa Chicken is stored in closed containers. Moreover, the public wastewater treatment plant adjacent to Hawa Chicken might be generating odors as the administration is facing obstacles in managing the generated sludge. Previous odor generation at Hawa Chicken premises about which inhabitants complained in the past were related to the rendering facility that has a bio-filter. Odors were generated when the facility doors used to

Affiliation	Comment	Response
		open. A double door has been installed since then in order to prevent odor dispersion outside the facility, and the issue has been resolved. In all cases, it is hard to attribute odor generation to a single industry or source, since there are many industrial facilities and the public WWTP in the area, many of which could be a source of odor emissions.
	Mr Joseph Khoury: Can Hawa Chicken consider modifying or closing the adjacent water stream to reduce the risk of odors generated from stagnating water?	Mr. Miled Jabbour: The issue of odors in the area is due to the fact that many industries discharge their untreated wastewater into the water stream. Not any odor can be attributed to Hawa Chicken. Engineer George Issa: effluent from Hawa Chicken's WWTP is being tested and has BOD and COD levels that are compliant with MoE standards. Thus, odor generation cannot be attributed to this WWTP. Hawa Chicken can control odors generated within its premises but not those generated by its neighbors. The water stream should be "closed" with a platform to control odor emissions. In order to mitigate the odor problem in the area, a master plan should be devised to reduce untreated wastewater discharge from industries along the entire water stream. Ms. Cynthia Kayem: any activities that involve any modifications or cleaning of the water stream are the responsibility of the MoEW and not Hawa Chicken, not even MoE. The municipality should coordinate with MoEW in this respect.
MoE	Mr. Najib Abi Chedid: What is the emergency plan for the WWTP? What are the measures to be taken?	Ms. Cynthia Kayem: The construction of a new wastewater treatment plant of equal capacity to the first one is for itself the emergency plan; it will increase the wastewater treatment capacity of Hawa Chicken from 1,100 m^3 to 2,200 m^3. Therefore having two treatment plants will: - Be considered as a back-up system. In case one of the plants faced any technical issues, all the flow will be diverted to the second treatment plant until maintenance activities are complete. - Increase the treatment capacity of Hawa Chicken in case the production capacity increases with time.
	Mr. Najib Abi Chedid: Will the wastewater treatment plant be equipped with biofilters for odor control?	Ms. Cynthia Kayem: If the WWTP works efficiently, there will be no need for biofilters, and the generated sludge will be dewatered on site, lime will be added, and the mix will be stored in closed containers; so the risk of odor generation from the treatment plant is low.
	Mr. Najib Abi Chedid: Can Hawa Chicken consider connecting the treated wastewater discharge to the public WWTP, or discharging the wastewater directly into the sea – far from the shore –	Ms. Cynthia Kayem: Hawa Chicken might inquire if it has the right to discharge its treated effluent directly into the sea. Moreover, the property of land between the facility and the discharge point has to be investigated and might be an obstacle. The procedure involves a legal (expropriation) procedure

Affiliation	Comment	Response
	if it is compliant with MoE environmental standards?	and is practically hard to implement. Alternatively, Hawa Chicken can check with the NLWE if it can connect the effluent discharge pipe of its treatment plants to the adjacent public wastewater treatment plant. However the large wastewater flow from Hawa Chicken might not allow this suggestion to be implemented.
	Mr. Najib Abi Chedid: Are there any agricultural lands around the facility? How about using the treated wastewater for irrigation of ornamental plants?	Mr. Ali Eid: There are few agricultural lands in the region; the treated wastewater can be used for irrigation activities on site. Mrs. Rana Zbeidy: However, the treated wastewater must comply with MoEW/FAO guidelines in case there are plans for reusing it in irrigation.
	Mr. Najib Abi Chedid: what is the technology of the new WWTP? Are the only chemicals used at the wastewater treatment plant the regular/usual coagulants and flocculants?	Mr. Ali Eid: the WWT technology is the same as the existing one. There are no changes in the pre-treatment section that will be common to both WWTPs. The new plant will be of the same as the old one (parallel system). No special chemicals will be used; regular coagulants and flocculants.
	Ms. Cynthia Kayem: the project is implemented in the context of the LEPAP project that is funded by WB and follows WB requirements. The ESMP report will be disclosed on Hawa Chicken's website and the LEPAP website.	-

7. APPENDICES

APPENDIX A- MAP OF THE FACILITY


SLAUGHTER HOUSE
PUBLIC ROAD
170
164
189
190
3715
UnL

APPENDIX B – LEGAL DOCUMENT

Appendix B1 - MoI Permit

الجمهورية اللبنانية
وزارة الصناعة

الوزير

قرار رقم: ٤٩٢٨/ت

ترخيص إستثمار مسلخ طيور داجنة ومصنع لتوضيب وتبريد وتجليد وتخزين جميع مُنتجات الطيور واللحوم ، كاملة أو مُقطّعة

إن وزير الصناعة،

بناءً على المرسوم رقم ١١٢١٧ تاريخ ٢٠١٤/٠٢/١٥(تشكيل الحكومة)،
بناءً على القانون رقم ٦٤٢ تاريخ ١٩٩٧/٠٦/٠٢ (إحداث وزارة الصناعة)،
بناءً على المرسوم رقم١٣١٧٣ تاريخ ١٩٩٨/١٠/٠٨(تنظيم وزارة الصناعة وتحديد ملاكها)،
بناءً على المرسوم رقم ٥٢٤٣ تاريخ ٢٠٠١/٠٤/٠٥(تصنيف المؤسسات الصناعية)،
بناءً على المرسوم رقم ٨٠١٨ تاريخ ٢٠٠٢/٦/١٢ (تحديد أصول وإجراءات وشروط الترخيص بإنشاء المؤسسات الصناعية وإستثمارها)،
بناءً على المرسوم رقم ٧٩٤٥ تاريخ ٢٠٠٢/٥/٢٩ (الأصول والإجراءات الواجب اتباعها في اجتماعات لجنة الترخيص وفي ممارسة مهامها)،
بناءً على قرار الترخيص بالإنشاء رقم ٢٨٦٠/ ت تاريخ ٢٠١٠/٠٥/١٨ الصادر عن وزير الصناعة،
بناءً على قرار تجديد وتعديل الترخيص بالإنشاء رقم ٣٨٥٠/ ت تاريخ ٢٠١٣/٠٤/١٦ الصادر عن وزير الصناعة،
بناءً على الطلب المقدم من شركة هواتشيكن – شركة إنتاج وتوزيع الفروج ش.م.ل.، والمسجل في دائرة الترخيص والمراقبة في مصلحة الصناعة الإقليمية في الشمال برقم ٦٣٧/ ش/٢٠١٥ تاريخ ٢٠١٥/٠٢/١٧،
بناءً على إقتراح مدير عام وزارة الصناعة، المبني على رأي لجنة الترخيص في مُحافظة لبنان الشمالي، والمُثبت في محضر إجتماعها بتاريخ ٢٠١٥/٠٤/٠٢،

يُقـرّر مـا يـأتـي:

المادة الأولى: رخّص **لشركة هواتشيكن – شركة إنتاج وتوزيع الفروج – ش.م.ل.** بإستثمار مسلخ طيور داجنة وتوضيب وتبريد وتجليد وتخزين جميع هذه اللحوم كاملة أو مقطّعة، ومصنع لمنتجات اللحوم بجميع أنواعها وأصنافها، وتوضيب وتبريد وتجليد وتخزين جميع هذه المنتجات، مؤسسة مصنفة فئة ثانية، على العقار رقم ١٩٦/ من منطقة أنفه العقارية - قضاء الكورة، ملك المستدعية.

المادة الثانية: على صاحبة هذا الترخيص التقيّد:

١- **بمضمون المادة ٣٥ من المرسوم رقم ٨٠١٨ تاريخ ٢٠٠٢/٦/١٢ .**
٢- **بالخرائط المقدمة والمرفقة بالملف.**
٣- **بالشروط التي تفرضها مختلف القوانين والأنظمة النافذة.**
٤- **بالشروط البيئية والصحية الواردة في المادّة الثانية من قرار الترخيص بالإنشاء رقم ٢٨٦٠/ت تاريخ ٢٠١٠/٠٥/١٨ وقرار تجديد وتعديل**

رئيس مصلحة الصناعة الإقليمية في الشمال
بالانابة

عن وزيـر الصناعـة.

٥- بالشروط الخاصّة التالية:

- حصـر العمـل داخـل المصـنع وتنظيـم الـممرات بيـن الآلات حفاظـاً على سـلامة العمـال والمُحافظـة على النظافة العامة بداخله وفي محيطه وعدم إزعاج الجوار.
- عدم إستعمال أية مواد قابلة للإشتعال في هيكل البناء، وخصوصاً في أقسام الإنتاج، كالقماش أو الخشب ..
- فرز النفايات الصلبة الناتجة عن نشاط المؤسسة في مستوعبات خاصّة للتخلّص منها بطريقة مقبولة بيئياً، أو تسليم ما يمكن إعادة إستعماله إلى الجهات المختصّة لإعادة تصنيعه أو تدويره (Recycling).
- تصريف المياه المبتذلة إلى المجرور العام في حال وجوده أو إلى حفرة صحّية نظامية وفقاً للأصول الفنية ومنع تصريفها مباشرة في الآبار الإرتوازية أو في مجاري المياه الطبيعية.
- وصل النفايات السائلة بالمجرور العام أو الحفرة الصحية بعد معالجتها في محطة تكرير خاصة بالمعمل أو بالمنطقة وذلك وفق الشروط الصحية والبيئية.
- عدم تخزين المواد الخطرة في الهواء الطلق بل وضعها في مكان مسقوف ومقفل ومشبع بالهواء ومعزول عن الأرض يضمن عدم تسرب المواد السامة إلى المياه الجوفية.
- فصل المواد الأولية عن المواد المنتجة.
- التقيّد في الإنتاج بالمواصفات الإلزامية اللبنانية ذات الصلة في حال وجودها.
- وضع المولد الكهربائي في غرفة خاصة وتجهيز عادمه بمصافي تضمن توافق خصائص الانبعاثات الناتجة عنهما مع المعايير البيئية الوطنية الموضوعة لها بموجب القرار رقم ١/٨ تاريخ ٢٠٠١/٠١/٣٠ (المواصفات والمعايير المتعلقة بملوثات الهواء والنفايات السائلة المتولدة عن المؤسسات المصنفة ومحطات معالجة المياه المبتذلة) وتمديد الداخون إلى أعلى من مستوى سطح البناء بمترين على الأقل.
- تجهيز المولد بكاتم للصوت والآلات التي تعتبر مصدراً للتلوث الضوضائي بوسائل لضبط الضجيج كتركيزها على قواعد مطاطية لامتصاص الإرتجاج بشكل يضمن توافق خصائص مستوى الضجيج الناتج مع المعايير البيئية الموضوعة له بموجب الملحق رقم ٤ (المتعلق بالحدود المسموحة لشدة الصوت ومدة التعرض الآمن له) من القرار رقم ١/٥٢ تاريخ ١٩٩٦/٠٧/٢٩ المتعلق بتحديد المواصفات والنسب الخاصة للحد من تلوث الهواء والمياه والتربة.
- صيانة المولدات والآلات بشكل دوري وإبعاد خزان المازوت بوضعه في مكان معزول ومحمي.
- وضع الأسلاك الكهربائية بصورة غير ظاهرة ومتوافقة مع نوع ومتطلبات العمل وتأمين حمايتها بواسطة التأريض (earth).
- تأمين تهوئة كافية في كافة أرجاء المصنع طوال دوام العمل.
- تزويد المصنع بأجهزة إنذار وبمطافئ أوتوماتيكية غير مضرّة بالبيئة كافية لمكافحة الحريق ومطافئ يدويّة توضع في أمكنة يسهل الوصول إليها وتدريب العمال على إستعمالها.

الكحول أو أية مواد مخدّرة ووضع إشارات تحذيرية بهذا الخصوص.
- ترشيد إستعمال المياه في جميع المراحل بطريقة التنظيف الجاف قبل التنظيف المائي (ينصح باستعمال الحنفيات الأوتوماتيكية الإقفال أو الضغط العالي للمياه في بعض الصناعات).
- تطبيق دليل حسن الإدارة البيئية على كافة العمليات الإنتاجية.
- تأمين كافة مستلزمات الإسعاف الأولي بما في ذلك خزانة أدوية وضمادات وأدوات طبية أساسية كافية إضافة إلى طباعة التوجيهات اللازمة عليها لا سيما أرقام هواتف المستشفيات وشركة التأمين المتعاقدة مع المؤسسة والدفاع المدني والصليب الأحمر وغيرها من المعلومات الضرورية الملحّة.
- إلزامية استعمال العمال لوسائل الحماية الشخصية اللازمة (كمامات، ألبسة خاصة، قفّازات، أحذية مناسبة، واقيات للآذان، نظارات،...) إذا كانت طبيعة العمل تتطلب ذلك.
- تأمين مياه شفة ومطبخ للعمّال وغرفة إستراحة لهم ضمنها خزائن للملابس ومنتفعات صحّية وسليمة والتقيّد بالشروط الصحية الخاصة (مغسلة وكرسي لكل عشرة أشخاص،...).
- وضع شافطات في كافة أرجاء المصنع موصولة على آلات منقّية للهواء مناسبة تضمن توافق خصائص الإنبعاثات الناتجة عنها مع المعايير البيئية الوطنية الموضوعة لها.
- التقيّد بالمرسوم رقم ١٩٥١/٦٣٤١ المتعلق بالوقاية الصحّية والسلامة العامّة.
- التقيّد بالشروط البيئية الواردة في قرار وزير البيئة رقم ١/٤ تاريخ ٢٠٠١/٠١/١٢ المتعلق بالشروط البيئية لرخص إنشاء و/أو استثمار المسالخ والشروط البيئية الخاصة بمعامل تصنيع منتجات اللحوم بجميع أصنافها الواردة في التقرير الفني.
- تزويد وزارة البيئة كل ستة أشهر بتقرير دوري يبين كافة التحاليل المتعلقة بأداء محطة معالجة النفايات السائلة (قبل وبعد المعالجة) على أن تتضمن هذه التحاليل المؤشرات الآتية:
  - ❖ المواد الصلبة العالقة
  - ❖ الأس الهيدروجيني
  - ❖ الطلب الحيوي على الأوكسجين
  - ❖ الطلب الكيميائي على الأوكسجين
  - ❖ بكتريا كوليفورم
  - ❖ سالمونيلا
- عدم رمي الزيوت أو الشحوم المستعملة في صيانة الآلات داخل العقار أو في الطبيعة العامة بل تجميعها في براميل ريثما يتمّ تسليمها إلى الجهات المختصة والمرخّصة بإعادة تصنيعها.
- التقيّد بالنشاط المتبع حالياً في المصنع، وعدم إضافة اي نشاط آخر قبل الرجوع إلى الجهات المختصّة وموافقتها على الإضافة.
- وضع إشارات تحذيرية: أمان، خطر حريق، أماكن أو ممرّات أو آلات خطرة، مخارج طوارئ،...
- تأمين إنارة كافية أثناء العمل وضرورة تأمين سبل توفير الطاقة.
- التعاقد بشكل دوري مع إحدى شركات التأمين ضد الحريق وحوادث العمل وضد الغير (للعمال والمصنع والآليات التابعة له).

وذلك لتسهيل عملية الوصول إلى المصنع.

المادة الثالثة: لوزير الصناعة أن يصدر قرارات تكميلية لهذا الترخيص بهدف فرض تدابير إضافية من شأنها الحماية من المخاطر والأضرار أو تخفيف الشروط الواردة في المادة الثانية أعلاه.

المادة الرابعة: يُبلّغ هذا القرار حيث تدعو الحاجة ويصبح نافذاً إعتباراً من تاريخ إبلاغه صاحبة العلاقة.

بيروت في ٢٦ نيسان ٢٠١٥

وزير الصناعة

حسين الحاج حسن

يُبلّغ:

- صاحبة العلاقة
- وزارة الداخلية والبلديات - محافظة لبنان الشمالي
  مع رجاء إبلاغ بلدية أنفه
- وزارة الصحة العامة - مصلحة الصحة في الشمال
- وزارة البيئة
- وزارة الأشغال العامة والنقل - دائرة التنظيم المدني
  في الكورة
- وزارة الزراعة – مصلحة الزراعة في الشمال
- وزارة الصناعة:
  - المحفوظات
  - المعلوماتية
  - الملف

الجمهورية اللبنانية
وزارة الصناعة
الوزير

قرار رقم: ٥٠١٣/ت
ترخيص إستثمار مصنع لإنتاج علف
مُصنّع للحيوانات الداجنة

إن وزير الصناعة،

بناءً على المرسوم رقم ١١٢١٧ تاريخ ٢٠١٤/٠٢/١٥ (تشكيل الحكومة)،

بناءً على القانون رقم٦٤٢ تاريخ ١٩٩٧/٦/٢ (إحداث وزارة الصناعة)،

بناءً على المرسوم رقم ١٣١٧٣ تاريخ ١٩٩٨/١٠/٨ (تنظيم وزارة الصناعة وتحديد ملاكها)،

بناءً على المرسوم رقم ٥٢٤٣ تاريخ ٢٠٠١/٤/٥ (تصنيف المؤسسات الصناعية)،

بناءً على المرسوم رقم ٨٠١٨ تاريخ ٢٠٠٢/٦/١٢ (تحديد أصول وإجراءات وشروط الترخيص بإنشاء المؤسسات الصناعية وإستثمارها)،

بناءً على المرسوم رقم ٧٩٤٥ تاريخ ٢٠٠٢/٥/٢٩ (الأصول والإجراءات الواجب إتباعها في إجتماعات لجنة الترخيص وفي ممارسة مهامها)،

بناءً على قرار الترخيص بالإنشاء رقم ٢٤٣٦/ت تاريخ ٢٠٠٩/٦/١٦ الصادر عن وزير الصناعة،

بناءً على قرار الترخيص بتجديد الإنشاء رقم ٣٥٢٨/ت تاريخ ٢٠١٢/٠٥/٢٣ الصادر عن وزير الصناعة،

بناءً على الطلب المقدم من شركة هواتشيكن - شركة إنتاج وتوزيع الفروج ش.م.ل، والمسجل في دائرة الترخيص والمراقبة في مصلحة الصناعة الإقليمية في الشمال برقم ٦٣٩/ ش/٢٠١٥ تاريخ ٢٠١٥/٠٢/١٩،

بناءً على إقتراح مدير عام وزارة الصناعة المبني على رأي لجنة الترخيص في محافظة لبنان الشمالي، والمُثبت في محضر إجتماعها بتاريخ ٢٠١٥/٠٥/٠٤،

يقرر ما يأتي:

المادة الأولى: رُخّص لشركة **"هواتشيكن – شركة إنتاج وتوزيع الفروج ش.م.ل."** بإستثمار مصنع لإنتاج علف مُصنّع للحيوانات الداجنة عن طريق تحويل فضلات مسالخ الدواجن إلى بروتيين، مؤسسة مصنفة فئة أولى، على العقار رقم /٣٨٥٦ / من منطقة أنفه العقارية - قضاء الكورة، ملك الشركة.

المادة الثانية : على صاحبة هذا الترخيص التقيّد :

١. **بمضمون المادة ٣٥ من المرسوم رقم ٨٠١٨ تاريخ ٢٠٠٢/٦/١٢.**
٢. **بالشروط الخاصّة الواردة في قرار الإنشاء رقم ٢٤٣٦/ ت تاريخ ٢٠٠٩/٦/١٦، وقرار تجديد الإنشاء رقم ٣٥٢٨/ ت تاريخ ٢٠١٢/٠٥/٢٢ الصادرين عن وزير الصناعة، وبالخرائط المقدمة والمرفقة بالملف .**
٣. **بالشروط التي تفرضها مختلف القوانين والأنظمة النافذة .**
٤. **بالشروط الخاصّة التالية:**
   - التقيد بمضمون قرارات وزارة الزراعة الصادرة بالأرقام والتواريخ التالية: ١/٥٢تاريخ٢٠٠١/٢/٢١؛ ١/١٤٨تاريخ٢٠٠١/٢/٢٦؛ ١/١٦٦تاريخ ٢٠٠١/٧/٥؛ ١/٣١٥تاريخ٢٠٠٨/٧/٢١؛ ١/٢٢٩تاريخ٢٠٠٩/٥/١٢.

- التقيد بمضمون قراري وزارة البيئة الصادرين بالرقمين والتاريخين كما يلي: ١/٣تاريخ ٢٠٠١/١/١٢؛ ١/٤تاريخ٢٠٠١/١/١٢.
- تنظيف مناطق الإنتاج والآلات بطريقة التنظيف الجاف قبل التنظيف المائي لتوفير إستهلاك المياه ولتقليص إنتاج النفايات السائلة الصناعية التي تحتوي على نسبة مرتفعة من المواد العضوية.
- تخزين المواد الأولية في غرف مبردة.
- العمل على بسترة المواد الأولية قبل التصنيع للحؤول دون إنتشار الروائح.
- وضع وحدات معالجة النفايات الصناعية السائلة في غرف مستقلة، على أن يتم تزويدها بشافط هوائي فعال موصول إلى فلتر للمعالجة (فلتر بيولوجي أو برج غسيل).
- وضع فلاتر مناسبة (فلتر كم القميص أو فلتر حلزوني) لتجميع الجزيئات الناتجة عن عمليات التشطيب (الطحن، الغربلة والتنعيم).
- إجراء الفحوصات المخبرية الدورية للنفايات الصناعية السائلة بعد المعالجة للتثبت من توافق خصائصها مع المعايير البيئية الوطنية الموضوعة لها.
- حصر العمل داخل المصنع وتنظيم الممرات بين الآلات حفاظاً على سلامة العمال والمحافظة على النظافة العامة بداخله وفي محيطه وعدم إزعاج الجوار.
- أن لا يكون من ضمن أساس البناء وفي أقسام الإنتاج أجزاء قابلة للاحتراق كتلبيس الخشب أو القماش أو خلافه...
- فرز النفايات الصلبة الناتجة عن نشاط المؤسسة في مستوعبات خاصة للتخلص منها بطريقة مناسبة بيئياً، أو تسليم ما يمكن إعادة إستعماله إلى الجهات المختصة لإعادة تصنيعه أو تدويره (Recycling).
- تصريف المياه المبتذلة إلى المجرور العام في حال وجوده أو إلى حفرة صحية نظامية وفقاً للأصول الفنية ومنع تصريفها مباشرة في الآبار الإرتوازية أو في مجاري المياه الطبيعية.
- تصريف النفايات السائلة الى المجرور العام أو الحفرة الصحية بعد معالجتها في محطة تكرير خاصة بالمعمل أو بالمنطقة وذلك وفق الشروط الصحية والبيئية.
- عدم تخزين المواد الخطرة في الهواء الطلق بل وضعها في مكان مسقوف ومقفل ومشبع بالهواء ومعزول عن الأرض يضمن عدم تسرب المواد السامة إلى المياه الجوفية، و فصل المواد الأولية عن المواد المنتجة.
- وضع المولد الكهربائي في غرفة خاصة وتجهيز عادمه بمصافي تضمن توافق خصائص الإنبعاثات الناتجة عنهما مع المعايير البيئية الوطنية الموضوعة لها بموجب القرار رقم ١/٨ تاريخ ٢٠٠١/١/٣٠ (المواصفات والمعايير المتعلقة بملوثات الهواء والنفايات السائلة المتولدة عن المؤسسات المصنفة ومحطات معالجة المياه المبتذلة) وتمديد الداخون إلى أعلى من مستوى سطح البناء بمترين على الأقل.
- تجهيز المولد بكاتم للصوت والآلات التي تعتبر مصدراً للتلوث الضوضائي بوسائل لضبط الضجيج كتركيزها على قواعد مطاطية لإمتصاص الإرتجاج بشكل يضمن توافق خصائص مستوى الضجيج الناتج مع المعايير البيئية الموضوعة له بموجب الملحق رقم ٤ (المتعلق بالحدود المسموحة لشدة الصوت ومدة التعرض الآمن له) من القرار رقم ١/٥٢ تاريخ ١٩٩٦/٧/٢٩ المتعلق بتحديد المواصفات والنسب الخاصة للحد من تلوث الهواء والمياه والتربة.
- صيانة المولدات والالات بشكل دوري وإبعاد خزان المازوت بوضعه في مكان معزول ومحمي.

- وضع الأسلاك الكهربائية بصورة غير ظاهرة ومتوافقة مع نوع ومتطلبات العمل وتأمين حمايتها بواسطة التأريض (earth).
- تأمين تهوئة كافية في كافة أرجاء المصنع طوال دوام العمل.
- تزويد المصنع بأجهزة إنذار وبمطافئ أوتوماتيكية كافية لمكافحة الحريق ومطافئ يدوية توضع في أمكنة يسهل الوصول إليها وتدريب العمال على استعمالها.
- منع التدخين منعاً باتاً داخل المصنع.
- ترشيد إستعمال المياه في جميع المراحل بطريقة التنظيف الجاف قبل التنظيف المائي (ينصح باستعمال الحنفيات الأوتوماتيكية الإقفال أو الضغط العالي للمياه في بعض الصناعات).
- تطبيق دليل حسن الإدارة البيئية على كافة العمليات الإنتاجية.
- تأمين كافة مستلزمات الإسعاف الأولي بما في ذلك خزانة أدوية وضمادات وأدوات طبية أساسية كافية إضافة إلى طباعة التوجيهات اللازمة عليها لا سيما أرقام هواتف المستشفيات وشركة التأمين المتعاقدة مع المؤسسة والدفاع المدني والصليب الأحمر وغيرها من المعلومات الضرورية الملحة.
- إلزامية إستعمال العمال لوسائل الحماية الشخصية اللازمة (كمامات، ألبسة خاصة، قفازات، أحذية مناسبة، واقيات للآذان، نظارات،...) إذا كانت طبيعة العمل تتطلب ذلك.
- تأمين مياه شفة ومطبخ للعمال وغرفة إستراحة لهم ضمنها خزائن للملابس ومنتفعات صحية وسليمة والتقيد بالشروط الصحية الخاصة (مغسلة وكرسي لكل عشرة أشخاص،...).
- وضع مرجل البخار في حال وجوده ضمن غرفة خاصة وتجهيزه بكافة أجهزة الأمان الكهربائية (Pressure switches, Water level indicators, Alarm,...) والميكانيكية (Pressure safety valves) ووصل صمامات الأمان الميكانيكية بقسطل خاص إلى خارج البناء، وتجهيز حراق المرجل بفلاتر مناسبة، وإجراء صيانة دورية للمرجل حفاظاً على البيئة والسلامة العامة (إبراز شهادة الصيانة من معهد البحوث الصناعية أو من مؤسسة مفوضة رسمياً).
- وضع إشارات تحذيرية: ممنوع التدخين، أمان، خطر حريق، أماكن أو ممرات أو آلات خطرة، مخارج طوارئ،...
- تأمين إنارة كافية أثناء العمل وضرورة تأمين سبل توفير الطاقة.
- التعاقد مع إحدى شركات التأمين ضد الحريق وحوادث العمل وضد الغير (للعمال والمصنع والآليات التابعة له).
- تشجير محيط المصنع وتصوينه وفقاً للقوانين.
- وضع إشارات أو لائحات تعريفية بموجب ترخيص قانوني وفقاً للأصول وذلك لتسهيل عملية الوصول الى المصنع.

المادة الثالثة: لوزير الصناعة أن يصدر قرارات تكميلية لهذا الترخيص بهدف فرض تدابير إضافية من شأنها الحماية من المخاطر والأضرار أو تخفيف الشروط الواردة في المادة الثانية أعلاه.

المادة الرابعة: يُبلّغ هذا القرار حيث تدعو الحاجة ويصبح نافذاً إعتباراً من تاريخ إبلاغه صاحبة العلاقة.

بيروت في ٢ أيار ٢٠١٥

وزير الصناعة

د. حسين الحاج حسن

يُبلّغ:

- صاحبة العلاقة
- وزارة الداخلية والبلديات- محافظة لبنان الشمالي مع رجاء إبلاغ بلدية أنفه
- وزارة الصحة العامة- مصلحة الصحة في الشمال
- وزارة البيئة
- وزارة الأشغال العامة والنقل- دائرة التنظيم المدني في الكورة
- وزارة الزراعة
- وزارة الصناعة:
  - المحفوظات
  - المعلوماتية
  - الملف

الجمهورية اللبنانية
وزارة الصناعة
الوزير

قرار رقم: ٥١٩٠/ت

ترخيص إستثمار مصنع أغذية معدّة للحيوانات المنزلية

إن وزير الصناعة،

بناءً على المرسوم رقم ١١٢١٧ تاريخ ٢٠١٤/٠٢/١٥ (تشكيل الحكومة)،

بناءً على القانون رقم ٦٤٢ تاريخ ١٩٩٧/٠٦/٠٢ (إحداث وزارة الصناعة)،

بناءً على المرسوم رقم١٣١٧٣ تاريخ ١٩٩٨/١٠/٠٨(تنظيم وزارة الصناعة وتحديد ملاكها)،

بناءً على المرسوم رقم ٥٢٤٣ تاريخ ٢٠٠١/٠٤/٠٥(تصنيف المؤسسات الصناعية)،

بناءً على المرسوم رقم ٨٠١٨ تاريخ ٢٠٠٢/٠٦/١٢(تحديد أصول وإجراءات وشروط الترخيص بإنشاء المؤسسات الصناعية وإستثمارها)،

بناءً على المرسوم رقم ٧٩٤٥ تاريخ ٢٠٠٢/٠٥/٢٩(الأصول والإجراءات الواجب إتباعها في إجتماعات لجنة الترخيص وفي ممارسة مهامها)،

بناءً على قرار الترخيص بالإنشاء رقم ٣٩٤٢/ت تاريخ ٢٠١٣/٠٦/٢١ الصادر عن وزير الصناعة،

بناءً على الطلب المقدم من شركة "هواتشيكن- شركة إنتاج وتوزيع الفروج ش.م.ل."، والمسجل في دائرة الترخيص والمراقبة في مصلحة الصناعة الإقليمية في الشمال برقم ٦٦٢/ش/٢٠١٥ تاريخ ٢٠١٥/٠٦/٢٠،

بناءً على إقتراح مدير عام وزارة الصناعة المبني على رأي لجنة الترخيص في محافظة لبنان الشمالي، المُثبت في محضر إجتماعها بتاريخ ٢٠١٥/٠٧/١٦،

يقرّر ما يلي:

المادة الأولى: رخّص لشركة **"هواتشيكن- شركة إنتاج وتوزيع الفروج ش.م.ل."** بإستثمار مصنع أغذية معدّة للحيوانات المنزلية، مصنّف في الفئة الثالثة، على العقار رقم /٣٧١٦/ من منطقة أنفه العقارية – قضاء الكورة، ملك المُستدعية.

المادة الثانية: على صاحبة هذا الترخيص التقيّد:

١. **بمضمون المادة ٣٥ من المرسوم رقم ٨٠١٨ تاريخ ٢٠٠٢/٠٦/١٢ .**
٢. **بالخرائط المقدمة والمرفقة بالملف .**
٣. **بأحكام قانون البناء والمراسيم والقرارات المُتمّمة لها.**
٤. **بالشروط البيئية والصحّية الواردة في المادّة الثانية من قرار الترخيص بالإنشاء رقم ٣٩٤٢/ت تاريخ ٢٠١٣/٠٦/٢١ الصادر عن وزير الصناعة**
٥. **بالشروط الخاصّة التالية:**
- الإستمرار بتطبيق خطّة الإدارة البيئية الواردة في تقرير الفحص البيئي المبدئي.

- حصر العمل داخل المصنع وتنظيم الممرات بين الالات حفاظاً على سلامة العمال والمحافظة على النظافة العامة بداخله وفي محيطه وعدم إزعاج الجوار.
- عدم إستعمال أية مواد قابلة للإشتعال في هيكل البناء، وخصوصاً في أقسام الإنتاج، كالقماش أوالخشب ...
- فرز النفايات الصلبة الناتجة عن نشاط المؤسسة في مستوعبات خاصّة للتخلّص منها بطريقة مقبولة بيئياً، أو تسليم ما يمكن إعادة إستعماله إلى الجهات المختصّة لإعادة تصنيعه أو تدويره (Recycling).
- تصريف المياه المبتذلة إلى المجرور العام في حال وجوده أو إلى حفرة صحّية نظامية وفقاً للأصول الفنية ومنع تصريفها مباشرةً في الآبار الإرتوازية أو في مجاري المياه الطبيعية.
- وصل النفايات السائلة بالمجرور العام أو الحفرة الصحّية بعد معالجتها في محطة تكرير خاصة بالمصنع أو بالمنطقة وذلك وفق الشروط الصحية والبيئية.
- عدم تخزين المواد الخطرة في الهواء الطلق بل وضعها في مكان مسقوف ومقفل ومشبع بالهواء ومعزول عن الأرض يضمن عدم تسرب المواد السامة إلى المياه الجوفية.
- فصل المواد الأولية عن المواد المنتجة.
- التقيد في الإنتاج بالمواصفات الإلزامية اللبنانية ذات الصلة في حال وجودها.
- وضع المولد الكهربائي في غرفة خاصة وتجهيز عادمه بمصافي تضمن توافق خصائص الانبعاثات الناتجة عنهما مع المعايير البيئية الوطنية الموضوعة لها بموجب القرار رقم ١/٨ تاريخ ٢٠٠١/٠١/٣٠ (المواصفات والمعايير المتعلقة بملوثات الهواء والنفايات السائلة المتولدة عن المؤسسات المصنفة ومحطات معالجة المياه المبتذلة) وتمديد الداخون إلى أعلى من مستوى سطح البناء بمترين على الأقل.
- تجهيز المولد بكاتم للصوت والآلات التي تعتبر مصدراً للتلوث الضوضائي بوسائل لضبط الضجيج كتركيزها على قواعد مطاطية لامتصاص الإرتجاج بشكل يضمن توافق خصائص مستوى الضجيج الناتج مع المعايير البيئية الموضوعة له بموجب الملحق رقم ٤ (المتعلق بالحدود المسموحة لشدة الصوت ومدة التعرض الآمن له) من القرار رقم ١/٥٢ تاريخ ١٩٩٦/٠٧/٢٩ المتعلق بتحديد المواصفات والنسب الخاصة للحد من تلوث الهواء والمياه والتربة.
- صيانة المولّدات والآلات بشكل دوري وإبعاد خزان المازوت بوضعه في مكان معزول ومحمي.
- وضع الأسلاك الكهربائية بصورة غير ظاهرة ومتوافقة مع نوع ومتطلبات العمل وتأمين حمايتها بواسطة التأريض (earth).
تأمين تهوئة كافية في كافة أرجاء المصنع طوال دوام العمل.
- تزويد المصنع بأجهزة إنذار وبمطافئ يدوية غير مضرة بالبيئة كافية لمكافحة الحريق توضع في أمكنة يسهل الوصول إليها وتدريب العمال على إستعمالها.
- منع التدخين منعاً باتاً داخل المصنع وأن لا يكون العمال تحت تأثير الكحول أو أية مواد مخدّرة ووضع إشارات تحذيرية بهذا الخصوص.

- ترشيد إستعمال المياه في جميع المراحل بطريقة التنظيف الجاف قبل التنظيف المائي (ينصح باستعمال الحنفيات الأوتوماتيكية الإقفال أو الضغط العالي للمياه في بعض الصناعات).
- تطبيق دليل حسن الإدارة البيئية على كافة العمليات الإنتاجية.
- تأمين كافة مستلزمات الإسعاف الأولي بما في ذلك خزانة أدوية وضمادات وأدوات طبية أساسية كافية إضافة إلى طباعة التوجيهات اللازمة عليها لا سيما أرقام هواتف المستشفيات وشركة التأمين المتعاقدة مع المؤسسة والدفاع المدني والصليب الأحمر وغيرها من المعلومات الضرورية الملحة.
- إلزامية إستعمال العمال لوسائل الحماية الشخصية اللازمة (كمامات، ألبسة خاصة، قفازات، أحذية مناسبة، واقيات للآذان، نظارات،...) حيث تتطلّب طبيعة العمل ذلك.
- تأمين مياه شفة ومطبخ للعمال وغرفة إستراحة لهم ضمنها خزائن للملابس ومنتفعات صحية وسليمة والتقيد بالشروط الصحية الخاصة (مغسلة وكرسي لكل عشرة أشخاص،...).
- وضع مرجل البخار في حال وجوده ضمن غرفة خاصة وتجهيزه بكافة أجهزة الأمان الكهربائية (Pressure switches, Water level indicators, Alarm,...) والميكانيكية (Pressure safety valves) ووصل صمامات الأمان الميكانيكية بقسطل خاص إلى خارج البناء، وتجهيز حراق المرجل بفلاتر مناسبة، وإجراء صيانة دورية للمرجل حفاظاً على البيئة والسلامة العامة (إبراز شهادة الصيانة من معهد البحوث الصناعية أو من مؤسسة مفوضة رسمياً).
- وضع شافطات في كافة أرجاء المصنع موصولة على آلات منقّية للهواء مناسبة تضمن توافق خصائص الإنبعاثات الناتجة عنها مع المعايير البيئية الوطنية الموضوعة لها.
- التقيّد بالمرسوم رقم ٦٣٤١ /١٩٥١ المتعلّق بالوقاية الصحّية والسلامة العامّة.
- تأمين شهادة معهد البحوث الصناعية للمراجل البخارية والخزانات المعدنية وفقاً للقانون رقم ٤٢٣ تاريخ ٢٠٠٢/٠٦/١٣.

التقيّد بالقرار رقم ١/١٥٩ تاريخ ٢٠٠١/٠٢/٢١ الصادر عن وزير الزراعة، والمتعلق بتنظيم قطاع صناعة وبيع الأعلاف المركزة في لبنان بكافة مندرجاته.

التقيّد بالقرار رقم ١/٥٢ تاريخ ٢٠٠١/٠٢/٢١ المتعلّق بالسماح بطهي مخلفات وبقايا الدواجن الناتجة عن مسالخ الدواجن.

- التقيّد بالقرار رقم ١/١٤٨ تاريخ ٢٠٠١/٠٢/٢٦ المتعلّق بالسماح بتصدير كسر العظم المجفف.
- التقيّد بالقرار رقم ١/٦٦ تاريخ ٢٠٠١/٠٧/٠٥ المتعلّق بالسماح بإستعمال وتصدير مسحوق مخلفات الدواجن المصنّعة والمعالجة حرارياً.

التقيّد بالقرار رقم ١/٣١٥ تاريخ ٢٠٠٨/٠٧/٢١ المتعلق بتنظيم تصدير وإستيراد الأعلاف وإستعمالها ضمن الأراضي اللبنانية (المادّة الرابعة منه).

التقيّد بالقرار رقم ١/٢٢٩ تاريخ ٢٠٠٩/٠٥/١٢ المتعلق بمنع إستخدام بقايا المسالخ في تغذية الأسماك.

- أن يكون المصنع لمعالجة بقايا ومخلفات مسالخ الدواجن حصرياً.
- أن لا يستخدم ناتج المصنع بشكل يخالف القرارات المنوّه عنها أعلاه، خاصةً القرار رقم ١/٣١٥ تاريخ ٢٠٠٨/٠٧/٢١.
- عدم رمي الزيوت أو الشحوم المستعملة في صيانة الآلات داخل العقار أو في الطبيعة العامّة بل تجميعها في براميل ريثما يتمّ تسليمها إلى الجهات المختصّة والمرخّصة بإعادة تصنيعها.

- تجميع النفايات الصلبة الناتجة عن نشاط المصنع داخل [illegible] وتسليمها [illegible] إلى الجهات المختصّة لإعادة إستعمالها.
- التقيد بالنشاط المتبع حالياً في المصنع، وعدم إضافة أي نشاط آخر قبل الرجوع إلى الجهات المختصّة وموافقتها على الإضافة.
- وضع إشارات تحذيرية: أمان، خطر حريق، أماكن أو ممرّات أو آلات خطرة، مخارج طوارئ،...
- تأمين إنارة كافية أثناء العمل وضرورة تأمين سُبل توفير الطاقة.
- التعاقد مع إحدى شركات التأمين ضد الحريق وحوادث العمل وضد الغير (للعمال والمصنع والآليات التابعة له).
- تشجير محيط المصنع وتصوينه وفقاً للقوانين.
- وضع إشارات أو لائحات تعريفية بموجب ترخيص قانوني وفقاً للأصول وذلك لتسهيل عملية الوصول إلى المصنع.

المادة الثالثة: لوزير الصناعة أن يصدر قرارات تكميلية لهذا الترخيص بهدف فرض تدابير إضافية من شأنها الحماية من المخاطر والأضرار أو تخفيف الشروط الواردة في المادة الثانية أعلاه.

المادة الرابعة: يُبلّغ هذا القرار حيث تدعو الحاجة ويصبح نافذاً إعتباراً من تاريخ إبلاغه صاحبة العلاقة.

[illegible] ٢٠١٥

بيروت في

وزير الصناعة

د. حسين الحاج حسن

يُبلّغ:
- صاحبة العلاقة
- وزارة الداخلية والبلديات - محافظة لبنان الشمالي
  مع رجاء إبلاغ بلدية أنفه
- وزارة الصحة العامة - مصلحة الصحة في الشمال
- وزارة البيئة
- وزارة الأشغال العامة والنقل - دائرة التنظيم المدني في الكورة
- وزارة الزراعة- مصلحة الزراعة في الشمال
- وزارة الصناعة:
  - المحفوظات
  - المعلوماتية
  - الملف

Appendix B2 – MoE Letter 3180/B and 3486/B

الجمهورية اللبنانية
وزارة البيئة

الوزير

الوزير

رقم التسجيل: ٣١٨٠/ب/٢٠١٩
٣٤٨٦/ب/٢٠١٩

بيروت، في ٣ تموز ٢٠١٩

سعادة محافظ لبنان الشمالي
القاضي رمزي نهرا المحترم

الموضوع: اعتراض على سوء إدارة النفايات الناتجة عن تلويث مجرى المياه الشتوية ومياه البحر، في منطقة **أنفة** العقارية، قضاء **الكورة**.

المرجع:
- الكشفان الميدانيان اللذان أجراهما فريق عمل وزارة البيئة على موقع الشكوى وعدد من المؤسسات الصناعية ومجرى المياه الشتوي الفاصل بين منطقتي أنفة وشكا العقاريتين بتاريخ ٢٠١٩/٧/٣ وتاريخ ٢٠١٩/٧/١٦.
- تعهد شركة هواتشيكن ش.م.ل. تاريخ ٢٠١٩/٧/٩ المسجل في وزارة البيئة برقم ٣٤٨٦/ب/٢٠١٩ تاريخ ٢٠١٩/٧/٩.
- كتاب شركة ولكو بي أم ش.م.م. تاريخ ٢٠١٩/٦/٢١ المسجل في وزارة البيئة برقم ٣١٨٠/ب/٢٠١٩ تاريخ ٢٠١٩/٦/٢١.

تحية طيبة،

بالإشارة إلى الموضوع والمرجع المبينين أعلاه،

وعطفاً على متابعة مشكلة تلويث مياه البحر من جراء تصريف نفايات المسالخ في منطقة انفة العقارية،

وبعد مراجعة بلدية أنفة للاطلاع منها على واقع الحال وموقع مجرى المياه الشتوية المؤدي إلى البحر،

وبنتيجة الكشفين الميدانيين اللذين أجراهما فريق عمل وزارة البيئة على كامل مجرى المياه الشتوية الفاصل بين منطقتي شكا وأنفة والممتد من مسلخ ولكو، مروراً بعدد من المؤسسات الصناعية ومنها مسلخي Run Chicken والهواتشيكن، وصولاً إلى شاطئ البحر في منطقة أنفة العقارية،

بناء على ما تقدم،

نرفق لكم ربطاً التقريرين الصادرين عن وزارة البيئة بهذا الخصوص بتاريخ ٢٠١٩/٧/٥ و٢٠١٩/٧/٢٢، متمنين عليكم إلزام المؤسسات الصناعية الواردة ادناه، كل فيما خصها، بتنفيذ ما يلي:

وزارة البيئة، مركز اللعازارية، الطابق الثامن، بلوك A-4 New
ص. ب.: ١١/٢٧٢٧، بيروت، لبنان - هاتف: ٩٧٦٥٥٥-١-(٩٦١)+ أو هاتف الرقم الرباعي: ١٧٨٩ - فاكس: ٩٧٦٥٣٥-١-(٩٦١)+
صفحة الإنترنت: www.moe.gov.lb

على صعيد مسلخ ولكو للدواجن:

١. الامتناع فوراً عن تخزين نفايات صناعية صلبة ووحول ناتجة عن محطة تكرير النفايات السائلة بطريقة عشوائية في المعمل والتخلص منها في إحدى المواقع المستخدمة لتصريف النفايات الصلبة، مع التشديد على ضرورة تتبّع مسار التخلص من هذه النفايات بشكل يحول دون رميها بطريقة عشوائية في الطبيعة؛
٢. الامتناع فوراً وبشكل نهائي عن تصريف أية نفايات صناعية سائلة **غير معالجة ناتجة عن شركة ولكو إلى مجرى المياه الشتوية، إلا في حال توافقها مع المعايير البيئية الوطنية الواردة في قرار وزارة البيئة رقم ١/٨ الصادر في العام ٢٠٠١**،
٣. إلزام إدارة المسلخ بتشغيل معمل معالجة النفايات الصلبة المنزلية خلال مهلة أقصاها الشهرين من تاريخه، تحت طائلة اتخاذ الإجراءات المناسبة؛

على صعيد شركة الهواتشيكن:

١. على المدى القصير (خلال مهلة اقصاها الشهر الواحد من تاريخ هذا الكتاب):

- الامتناع فوراً وبشكل نهائي عن تصريف أية نفايات صناعية سائلة **غير معالجة ناتجة عن شركة هواتشيكن إلى مجرى المياه الشتوية، إلا في حال توافقها مع المعايير البيئية الوطنية الواردة في قرار وزارة البيئة رقم ١/٨ الصادر في العام ٢٠٠١**، على أن يتم العمل على تخزين أي فائض من النفايات الصناعية السائلة ضمن الخزانات التابعة للشركة لهذا الخصوص وليصار إلى معالجتها في مرحلة لاحقة أو تخفيض كمية الإنتاج؛
- تكليف إحدى المختبرات المعتمدة لأخذ عينة من المياه قبل وبعد المعالجة، خلال مهلة اقصاها الأسبوع من تاريخ تبلغها هذا الكتاب وتحت إشراف وزارة البيئة، وذلك لتحليلها في إحدى المختبرات المعتمدة وفقاً للمؤشرات الآتية:
  - ✓ BOD5, COD, SS, pH, TN, TP, Hemoglobin, Total Coliforms, Salmonella
- تزويد وزارة البيئة بنتائج هذا التحليل فور صدورها؛
- الامتناع فوراً عن تصريف الوحول الناتجة عن محطة تكرير النفايات السائلة والريش المعالج بطريقة عشوائية والتخلص منها في إحدى المواقع المستخدمة لتصريف النفايات الصلبة، مع التشديد على ضرورة تتبّع مسار التخلص من هذه النفايات بشكل يحول دون رميها بطريقة عشوائية في الطبيعة؛
- تجهيز قسم معالجة الدم والنفايات الصلبة (rendering plant)، خلال مهلة أقصاها الشهر الواحد من تاريخ تبلغه هذا الكتاب، بنظام يسمح بالحد من انتشار الروائح خارج بيئة العمل (على سبيل المثال: باب مزدوج، عازل هوائي air curtain،...)؛
- صيانة الفلتر البيولوجي بشكل دائم ومستمر لتأمين حسن فعاليته في ضبط الروائح؛

٢. على المدى المتوسط (خلال مهلة أقصاها السنة الواحدة من تاريخ الحصول على التراخيص القانونية المناسبة):
- تجهيز الشركة بمحطة إضافية لمعالجة النفايات الصناعية السائلة الناتجة عنها، على أن يتم تقديم تقارير شهرية الى وزارة البيئة عن مدى تقدم العمل بهذا الخصوص؛

فيما خص Run Chicken:

١. الامتناع فوراً عن تصريف أية نفايات سائلة غير معالجة إلى شبكة الصرف الصحي، **إلا في حال توافقها مع المعايير البيئية الوطنية الواردة في قرار وزارة البيئة رقم ١/٨ الصادر في العام ٢٠٠١**؛
٢. إعطاء الشركة مهلة أقصاها الأسبوعين:
- لاستكمال تقرير التدقيق البيئي، على أن يتضمن بالإضافة إلى المعلومات المطلوبة بموجب كتاب وزارة البيئة رقم ١٣٤٧/ب/٢٠١٩، المتطلبات الآتية:
  - تحاليل للنفايات السائلة قبل وبعد المعالجة، وتحليلها في إحدى المختبرات المعتمدة وذلك للمؤشرات الآتية: BOD5, COD, SS, pH, TN, TP, Hemoglobin, Total Coliforms, Salmonella
٣. الامتناع فوراً عن تصريف أية نفايات صلبة بطريقة عشوائية والتخلص منها في إحدى المواقع المستخدمة لتصريف النفايات الصلبة، مع التشديد على ضرورة تتبّع مسار التخلص من هذه النفايات بشكل يحول دون رميها بطريقة عشوائية في الطبيعة؛
٤. إلزام الشركة بوجوب التقيد بخطة الإدارة البيئية الواردة في تقرير التدقيق البيئي، سيما فيما خص تجميع النفايات الصلبة ونقلها ومعالجة النفايات السائلة وشروط حسن الإدارة البيئية، خلال مهلة اقصاها الشهرين من تاريخ هذا الكتاب؛

متمنين عليكم الإفادة عن الإجراءات المتخذة من قبل سعادتكم لمعالجة الوضع القائم والنتائج التي أسفرت عنها، محتفظين بحق وزارة البيئة باتخاذ الإجراءات المناسبة وطلب وقف العمل بالمؤسسات غير الملتزمة بما ورد أعلاه، كل فيما خصها.

شاكرين لكم حسن تعاونكم وتفضلوا بقبول فائق الاحترام.

وزير البيئة
فادي جريصاتي

نسخة تبلغ إلى:
- وزارة الصناعة
- بلدية انفة
- بلدية شكا
- وزارة البيئة/مصلحة البيئة السكنية/دائرة حماية البيئة السكنية
- وزارة البيئة/مصلحة الدوائر الإقليمية والضابطة البيئية
- وزارة البيئة/مصلحة البيئة السكنية/مشروع LEPAP

APPENDIX C - GRIEVANCE REDRESS MECHANISMS

Appendix C1 - Complaint Report Submitted Through the GRM

Grievance Redress Mechanism

Closed

I - Complaint Source

Reference : 2019-1

Complaint Date : 23/09/2019 10:00AM

Received Person : Hoda Ehmijani

Complaint Person : Municipality of Anfeh

Phone Number : 06540027

Complaint By :

Complaint Source : External

☐ Phone ☐ Hotline ☐ Website ☒ Direct Internal

General Issue : Environement

Related Area : Rendering

Complaint Details

Due Date : 01/10/2019

وجود رائحة كريهة في محيط شركة هواتشيكن في انفه

II - Complaint Root Cause

Root Cause : عند معالجة فضلات في المعمل المخصص لها يتم فتح ابواب المعمل فترة طويلة مما يتسبسب بإنتشار الرائحةالخفيفة

Action Accomplished : تم تركيب ابواب عازلة لحل المشكلة

Responsible Person : Miled Jabbour

Due Date : 01/10/2019

Root Cause User : Amanda.Awwad

III - Complaint Final Result

Final Result : تم حل المشكلة وبعد الكشف والتدقيق تبين ان الرائحة الكريهة لم تعد منتشرة

Responsible Person : Miled Jabbour

Closed Date : 01/10/2019

Satisfaction : Yes

Appendix C2 – Existing Internal and External GRM Process

	HAWA Chicken s.a.l. WWTS	Title **Grievance redress mechanism**	

REVISION HISTORY			
Rev	**Description of Change**	**Author**	**Effective Date**
1	Creation of procedure	Joe Naoum	October 2019
2			

1. Purpose

This procedure defines the steps that are followed for internal and external grievance redress mechanisms (relating to employees: internal/ and for surrounding community: external).

2. Scope

This procedure shall be followed whenever we have any internal or external complaint associated to any environmental issue related to all Hawa Chicken premises in Anfeh-North Lebanon.

3. Definition / Abbreviation

WWTS	Waste water treatment system.
Grievance redress mechanisms	Institutions, instruments, methods, and processes by which a resolution to a complaint is sought and provided.

4. Procedure

External complaints related to environmental issues could be received by hotline “1520”, on our website (reported to Mrs Hoda Ehmejani), or by direct phone call to our company (linked to Mrs Hoda Ehmejani).
Internal complaints related to environmental issues shall be submitted to Mrs. Hoda Ehmejani as well.

Whenever we are receiving any environmental complaint (internal or external), the following information shall be collected and filled:

1) in the first section of our grievance redress mechanism system:

- Name of person reporting the complaint.
- Name of person receiving the complaint.
- Date and time of complaint reception.
- Phone number of the person reporting the complaint.
- Source of complaint: Internal or external.
- Complaint received via (phone, hotline, website, or direct internal reporting).
- Complaint related to/concerned area: In this section, the person receiving the complaint shall fill the general issue and the concerned area related to the complaint.
- Complaint details: In this section, the person receiving the complaint shall fill all the additional information (what, when, where, how...) and necessary data, needed to follow up and resolve the complaint.

2) in the second section of our grievance redress mechanism system:

- Root cause of the problem
- Description of the actions accomplished to resolve the problem / Responsible key person for each action
- Due date to accomplish all actions

3) in the third section of our grievance redress mechanism system:

- Final result
- Date
- Responsible person

After completing all those sections, the manager responsible for the follow up of the environmental complaints “Mr. Miled Jabbour” shall call the person submitting the complaint and inform him about the situation and closure.

Appendix C3 – Recommended Internal GRM

Internal Grievance

1. DEFINITIONS

Grievance: An issue, concern, problem, or claim (perceived or actual) that an employee wants to be addressed by the company in a formal manner.

Grievance Mechanism: Formal procedure to accept, assess, and resolve any internal complaint that concerns the work environment of a company, its contractors, or employees. This can include adverse economic, safety or social impacts.

Officer: The assigned person who receives the complaint, assesses it and resolves it according to a specific mechanism; this person can differ according to the stages of the project.

2. Objective

The purpose of the grievance policy is to ensure that affected employees are afforded both the rights and the means whereby grievances can be formally raised, lodged and resolved.

The procedure allows affected employees to formally discuss and resolve any complaint that they may have and to provide a channel for the equitable settlement of complaints and grievances.

3. Procedure

Complaints shall be submitted by phone, by email, by letter or by hand delivery to the relevant party. The Grievance Form Template presented in Appendix C3 shall be used.

In case of a complainant who is more comfortable submitting the grievance orally, or is incapable of submitting a written complaint, they can address the officer orally, and the officer will then fill out the template on behalf of the complainant. The complainant will review it and sign or use his fingerprints to confirm his approval of the content.

The complaint shall be recorded at the quality department, even if not approved. And the record shall be updated throughout the different stages of the Grievance mechanism.

4. Criteria

- Grievance complaint may include complaints about economic, social, health and safety impacts
- Grievance complaint should relate to the conditions within the facility where the employee works.

5. Grievance reporting channels

- Contact the Direct Manager at the facility.
- If the complaint is not resolved, contact the immediate manager
- If the complaint is not resolved, contact the manager senior to the immediate manager
- If the complaint is not resolved, contact the HR Support, Ms. Manale el Hajj 09/851257, ext 126
- If the complaint is not resolved, contact the concerned governmental institutions depending on the aspects of the complaint, e.g. contact the Ministry of Labor for a grievance relating to a work condition issue or if a worker's benefits are not awarded to him.

6. Grievance Mechanism

6.1 Receiving Grievance

Employees may submit an official grievance complaint in the official template shown in Appendix C5 through an officer as per the above grievance reporting channels.

6.2 Grievance Acceptance and Registration

Upon receiving a complaint, the officer shall review it to see if it meets the eligibility criteria listed above. If it meets the criteria, it should be registered within 2 days of its receipt. If it does not meet the criteria, the complaint is disregarded but it should be recorded at the quality department whether it meets the criteria or not.

6.3 Notification of Grievance

5 days following the receipt of the complaint, the complainant should be informed about the acceptance or refusal of his complaint. In both cases justification shall be provided.

In the case of acceptance, the complainant should be informed of the response within 15 days from the receipt of the complaint.

6.4 Resolution and communication

In order to resolve the complaint, it might be required to make visits to specific departments, consult other employees, contact external stakeholders and complete other activities. The information gathered during these investigations will be recorded and analyzed in a report to help resolve the grievance which should be prepared within 15 days from receiving the complaint.

The complaint report should also include an action plan outlining steps to be taken in order to resolve the grievance. The report outcome and conclusions could be discussed within a committee of relevant experts if needed.

The complaint report is consulted or negotiated with the beneficiary and the complainant and updated as needed.

6.5 Action initiation

Once the complainant and beneficiaries both accept and agree to the action plan, the complaint is considered resolved. And the implementation of the proposed action plan will be monitored by the FSTL, and a log for GRM follow-up is needed and shall be updated whenever the issues have been resolved.

Below Figure shows the flow chart of the grievance mechanism.

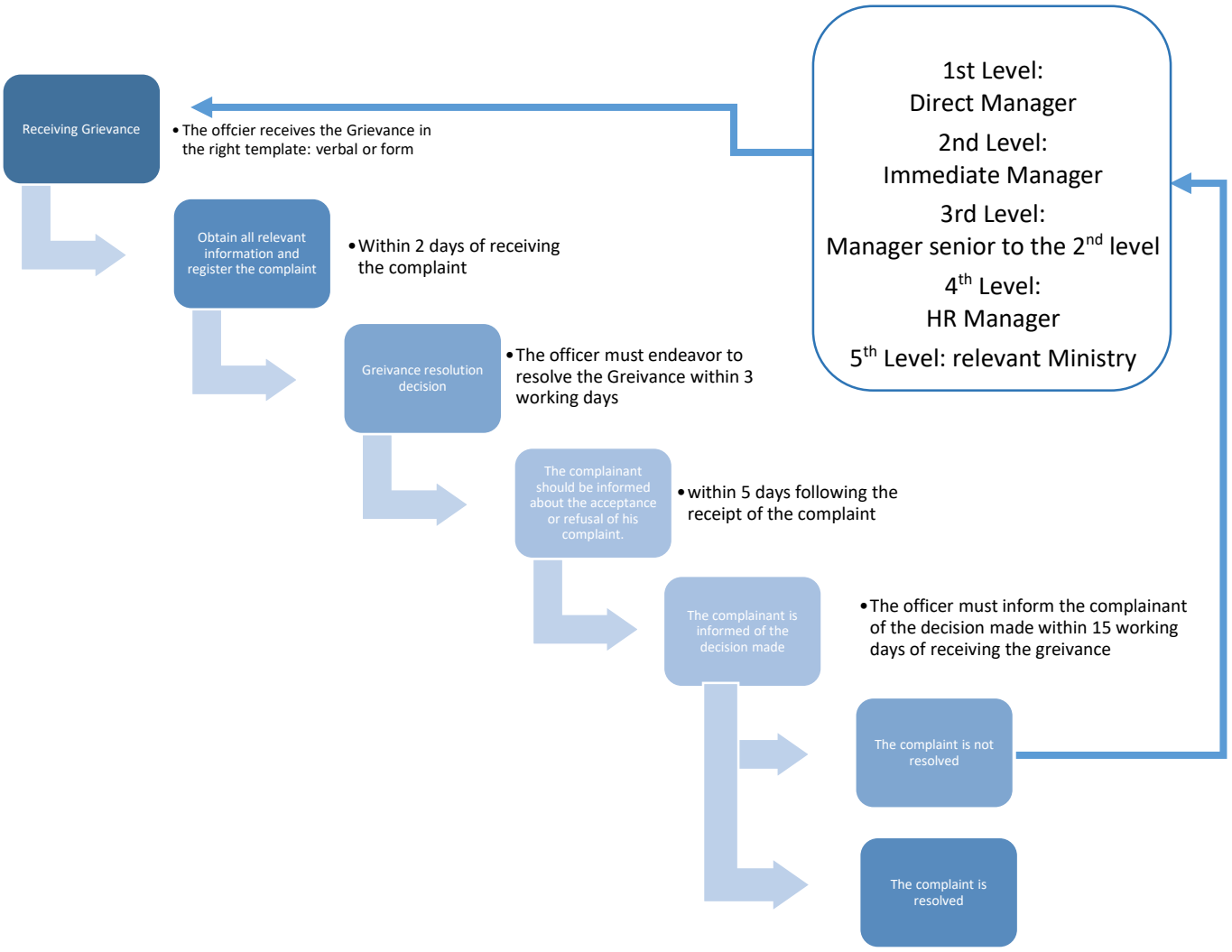


Figure 1 Flow Chart of the Internal Grievance Mechanism

Appendix C4 – Recommended External GRM

1. DEFINITIONS

Grievance: An issue, concern, problem, or claim (perceived or actual) that an individual or community group wants to be addressed by the company in a formal manner.

Grievance Mechanism: Formal procedure to accept, assess and resolve any community complaints that concern the performance or behavior of a company, its contractors, or employees. This can include adverse economic, environmental or social impacts.

Officer: The assigned person who receives the complaint, assesses it and resolves it according to a specific mechanism; this person can differ according to the stages of the project.

2. Objective

The purpose of the grievance policy is to ensure that affected communities are afforded both the rights and the means whereby grievances can be formally raised, lodged and resolved.

The procedure allows affected communities to formally discuss and resolve any complaint that they may have and to provide a channel for the equitable settlement of complaints and grievances.

3. Procedure

Complaints shall be submitted by phone, by email, by letter or by hand delivery to the relevant party. The Grievance Form Template presented in Appendix C6 shall be used.

In case of a complainant who is more comfortable submitting the grievance orally, or is incapable of submitting a written complaint, they can address the officer orally, and the officer will then fill out the template on behalf of the complainant. The complainant will review it and sign or use his fingerprints to confirm his approval of the content.

The complaint shall be recorded at the quality department, even if not approved. And the record shall be updated throughout the different stages of the Grievance mechanism.

4. Criteria

- Grievance complaint may include complaints about economic, social, health and environmental impacts of the facility on its surrounding
- Grievance complaint should relate to an on-going/operational project under the facility.

5. Grievance reporting channels

Depending on the department concerned with the complaint raised, contact the following:

- Amanda Awwad – Quality Assurance on 06/542642, ext. 425
- Ralph el Hawa – Plant Manager on 06/542642, ext. 444
- Jano el Hawa – Pet Food Plant Manager on 06/542642, ext. 647

If the complaint is not resolved, contact the upper Management, Mr. Miled Jabbour, Plant Manager, on 06/542642, ext. 600.

If the complaint is not resolved, contact the concerned governmental institutions depending on the aspects of the complaint e.g. contact the Ministry of Environment for a grievance relating to an environmental issue.

6. Grievance Mechanism

6.1 Receiving Grievance

Members of the public may submit an official grievance complaint in the official template shown in Appendix C3 through an officer as per the above grievance reporting channels.

6.2 Grievance Acceptance and Registration

Upon receiving a complaint, the officer shall review it to see if it meets the eligibility criteria. If it meets the criteria, it should be registered within 2 days of its receipt, if it does not meet the criteria, the complaint is disregarded. And it should be recorded at the quality department whether it meets the criteria or not.

6.3 Notification of Grievance

5 days following the receipt of the complaint, the complainant should be informed about the acceptance or refusal of his complaint. In both cases justification shall be provided.

In the case of acceptance, the complainant should be informed of the response within 15 days from the receipt of the complaint.

6.4 Resolution and communication

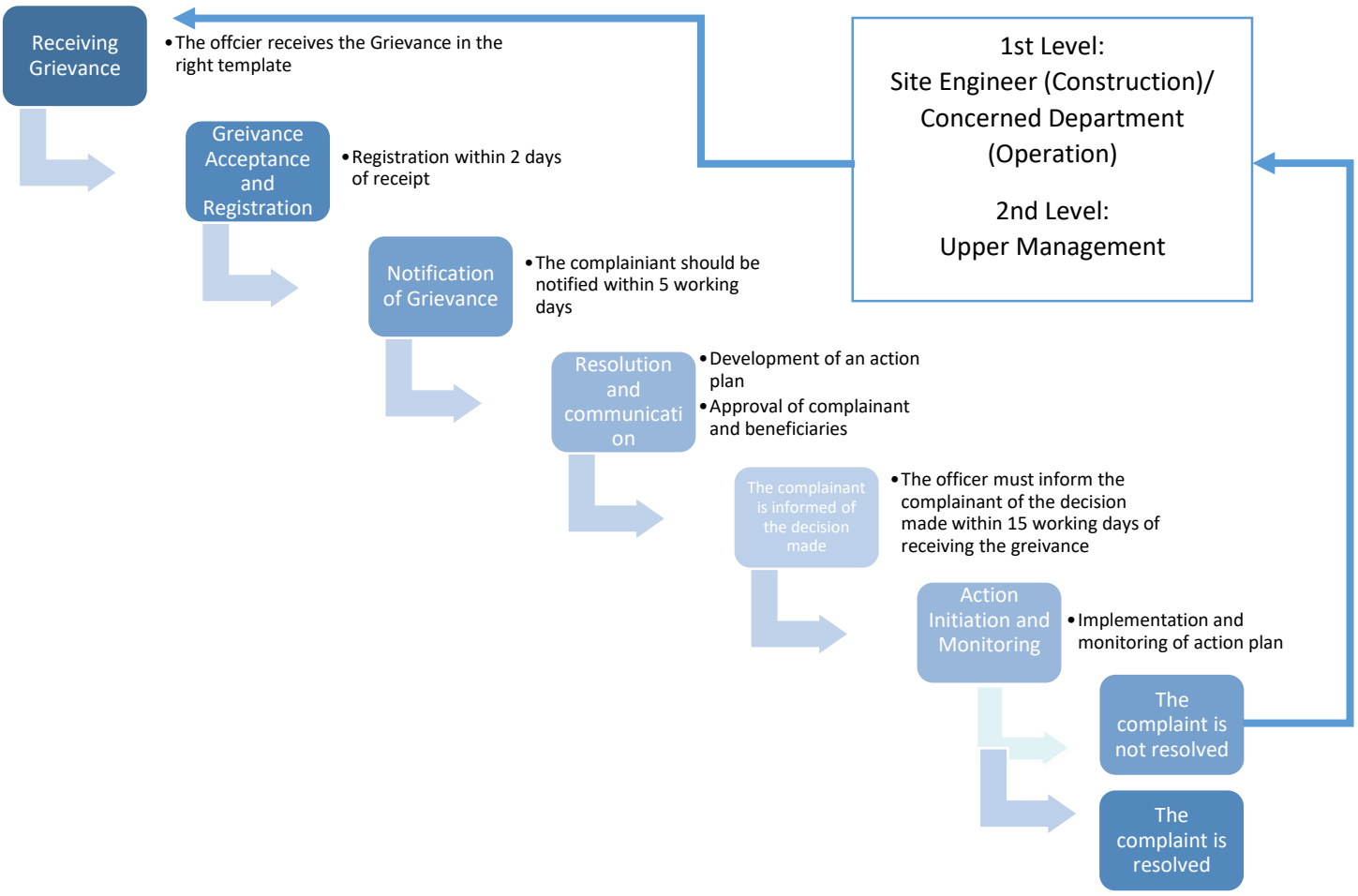
In order to resolve the complaint, it might be required to make site visits, consult employees, contact external stakeholders and complete other activities. The information gathered during these investigations will be recorded and analyzed in a report to help resolve the grievance which should be prepared within 15 days from receiving the complaint.

The complaint report should also include an action plan outlining steps to be taken in order to resolve the grievance, as well as the specific deadlines and persons responsible. The report outcome and conclusions could be discussed within a committee of relevant experts if needed.

The complaint report is consulted or negotiated with the beneficiary and the complainant and updated as needed.

6.5 Action initiation

Once the complainant and beneficiaries both accept and agree to the action plan, the complaint is considered resolved. The implementation of the proposed action plan will be monitored by the Quality Department, and a log for GRM follow-up is needed and shall be updated whenever the issues have been resolved. The below graph shows the flow chart of the grievance mechanism.


Receiving Grievance
•The offcier receives the Grievance in the right template
Greivance Acceptance and Registration
•Registration within 2 days of receipt
Notification of Grievance
•The complainiant should be notified within 5 working days
Resolution and communicati on
•Development of an action plan
•Approval of complainant and beneficiaries
The complainant is informed of the decision made
•The officer must inform the complainant of the decision made within 15 working days of receiving the greivance
Action Initiation and Monitoring
•Implementation and monitoring of action plan
The complaint is not resolved
The complaint is resolved
1st Level:
Site Engineer (Construction)/ Concerned Department (Operation)
2nd Level:
Upper Management

Appendix C5 - Internal GRM Form Template

Name	
Department and title	
Do you prefer to keep your identity anonymous?	
Date	
Time	
Preferred contact Method	Telephone: Email:

Please provide details of your Grievance complaint	
What harm do you believe the problem is causing or is likely to cause you?	

What outcomes are you seeking?	
Any Additional Information?	

Appendix C6 – External GRM Form Template

Name	
Company (If Applicable) or Title	
Do you prefer to keep your identity anonymous?	
Date	
Time	
Preferred contact Method	Telephone: Email:

Please provide details of your Grievance complaint	
What harm do you believe the project/ facility is causing or is likely to cause you?	

What outcomes are you seeking?	
Any Additional Information?	

APPENDIX D – LIST OF PPES

SAFETY / PERSONAL PROTECTIVE EQUIPMENT

Safety equipment is used to guarantee personal/worker safety. Safety equipment is used anywhere where necessary. Those that might be used at "Hawa Chicken" are listed below, along with their explanation and importance where appropriate. Such equipment are used to minimize exposure to hazards causing serious injuries and illnesses at the workplace. Injuries/illnesses may result from contact with chemical, physical, and other workplace hazards.

1. **Safety for the head:**
   - ***Industrial safety helmet***: protection for the head and can prevent head injuries. It can also be of used against the impact from falling objects and the risk of head bumping.
2. **Protection for the eyes:**
   - ***Safety goggles/glasses***: prevent eye injuries
3. **Hearing protection:**
   - ***Earplugs/earmuffs*****:** protect the ears and hearing from high sound levels
4. **Maintaining good respiration:**
   - ***Face mask*****:** prevent contact with hazardous material in addition to dust, smoke, powder, vapors…
   - ***Respirators/faceshield headgear:*** prevent contact with/breathing hazardous gases/chemicals and contaminants
5. **Hands protection:**

   With the right gloves, depending on the work environment:
   - ***Stainless steel gloves*****:** protection against cuts by sharp material
   - ***Thermal gloves*****:** protection against cold/heat
   - ***Nitrile/latex gloves:*** protection against bacteriological risk + protection against splashes from diluted chemicals
6. **Feet protection:**
   - ***Safety boots*****:** protection against heavy weights
   - ***Antiskid sole boots*****:** protection against industrial accidents cause by tripping or sliding + protection against chemical splashes
7. **Protective clothing:**
   - ***Chemical resistant aprons***
   - ***Disposable barrier gowns***
   - ***Hair nets***
   - ***Cover shoes***
   - ***Coveralls***
8. **Fire protection:**
   - ***Fire alarms***
   - ***Fire extinguishers***
9. **Injuries protection:**
   - ***First aid kits***
   - ***Clinic within the work facility***
10. **Protection against Chemicals:**
    - **Safety Shower**

SAFETY / PERSONAL PROTECTIVE EQUIPMENT

DPT.	SAFETY / PERSONAL EQUIPMENT																			
	Industrial Safety Helmet	Safety Goggles or Glasses	Earplugs or Earmuffs	Face Mask	Respirators or Faceshield Headgear	Stainless Steel Gloves	Thermal Gloves	Nitrile or Latex Gloves	Safety Boots	Antiskid Sole Boots	Chemical Resistant Aprons	Disposable Barrier Gowns	Hair Nets	Cover Shoes	Coveralls	Fire Alarms	Fire Extinguishers	First Aid Kits	Clinic	Safety Shower
Further Processing			X	X		X		X		X			X		X		X	X	Access for all departments	
First Scale				X		X		X		X			X		X		X	X		
Delivery				X				X		X			X		X		X	X		
Freezer				X		X	X	X		X			X		X		X	X		
Cuttings			X	X		X		X		X			X		X		X	X		
Slaughtering			X	X				X		X			X		X		X	X		
Cleaning		X		X			X	X		X	X		X		X		X	X		
Maintenance		X	X	X	X	X	X	X	X	X	X		X		X		X	X		
Laundry			X	X				X		X	X		X		X		X	X		
Pets food			X	X				X		X			X		X		X	X		
Rendering Plant			X	X				X		X			X		X		X	X		
Waste Water Plant				X				X		X			X		X		X	X		
New Waste Water Plant under Construction	X	X	X	X				X	X	X		X	X				X	X		
Laboratory		X		X	X			X		X		X for visitors	X	X	X		X	X		X

APPENDIX E – MAP OF FIRE EXTINGUISHERS

EVACUATION PLAN

خريطة الاخلاء

EGGS WAREHOUSE AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

- CO2 EXTINGUISHERS — اطفائية ثاني اوكسيد الكربون
- POWDER EXTINGUISHERS — اطفائية بودرة
- EMERGENCY EXITS — مخارج الطوارىء
- YOU ARE HERE — انت هنا

اسم اللوحة
مخطط الطابق الأرضي

ISSUED BY: ASS. PLANT MANAGER
APPROVED BY: QUALITY MANAGER
ISSUE DATE: FEB 2018
LAST UPDATE: FEB 2018
LAST REVIEW: FEB 2019

منطقة التجمع
الموقف العام للسيارات
ASSEMBLY AREA
GENERAL PARKING

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

EVACUATION PLAN

خريطة الاخلاء

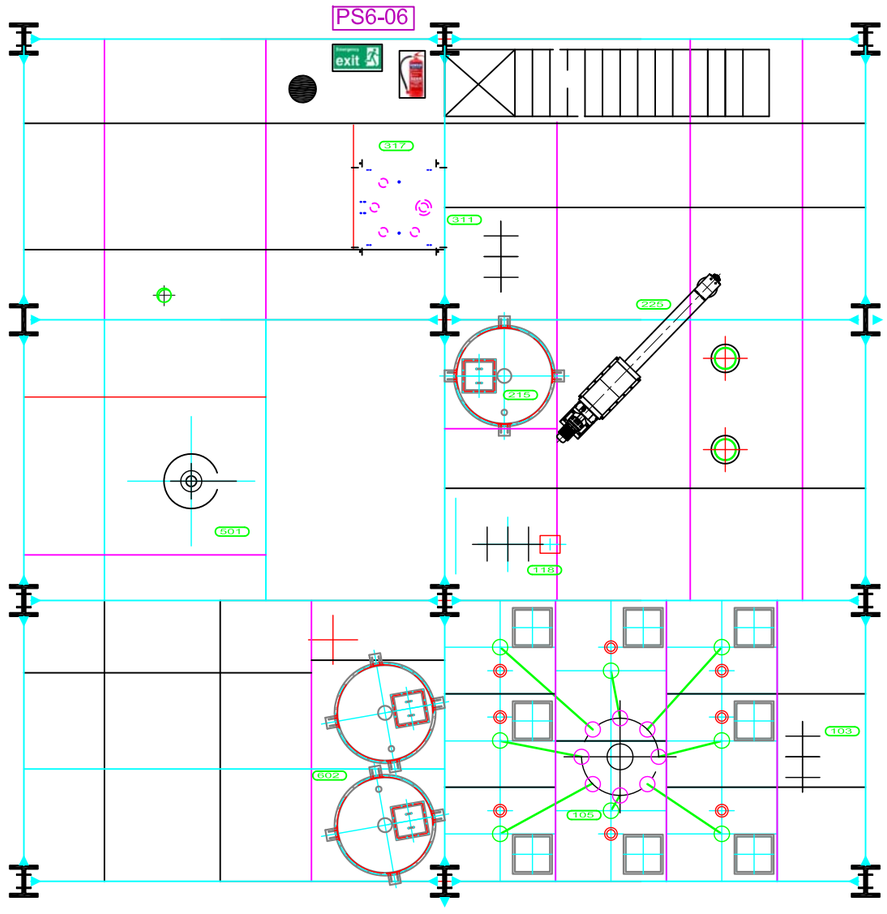
EGGS WAREHOUSE AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

CO2 EXTINGUISHERS — اطفائية ثاني اوكسيد الكربون

POWDER EXTINGUISHERS — اطفائية بودرة

EMERGENCY EXITS — مخارج الطوارئ

YOU ARE HERE — انت هنا



Third Floor Equipment Layout

ISSUED BY: ASS. PLANT MANAGER

APPROVED BY: QUALITY MANAGER

ISSUE DATE: FEB 2018

LAST UPDATE: FEB 2018

LAST REVIEW: FEB 2019

منطقة التجمع
الموقف العام للسيارات

ASSEMBLY AREA

GENERAL PARKING

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

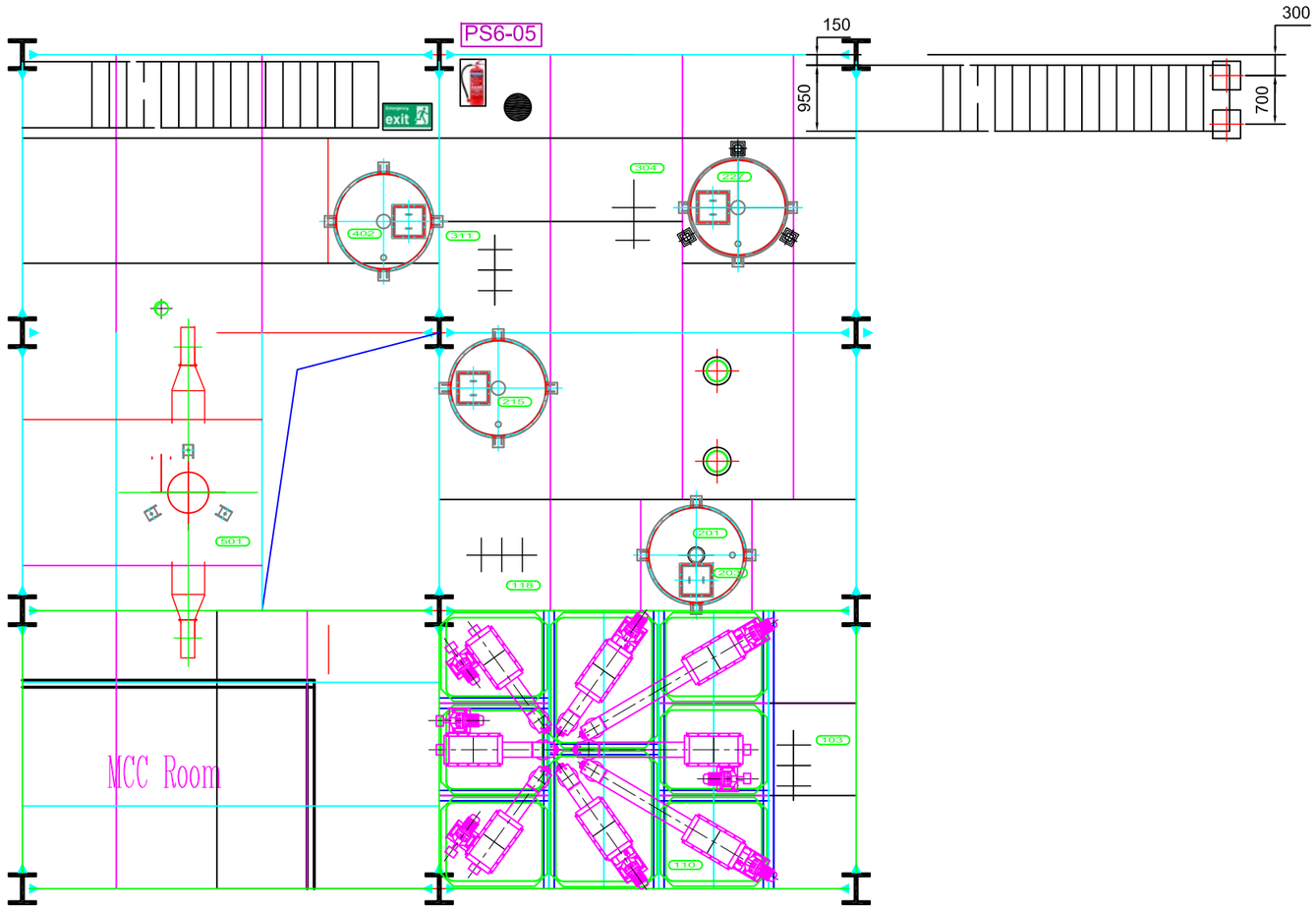
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

EVACUATION PLAN

خريطة الاخلاء

EGGS WAREHOUSE AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

- CO2 EXTINGUISHERS — اطفائية ثاني اوكسيد الكربون
- POWDER EXTINGUISHERS — اطفائية بودرة
- EMERGENCY EXITS — مخارج الطوارىء
- YOU ARE HERE — انت هنا



Second Floor Equipment Layout

منطقة التجمع
الموقف العام للسيارات

ASSEMBLY AREA
GENERAL PARKING

ISSUED BY: ASS. PLANT MANAGER
APPROVED BY: QUALITY MANAGER
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LAST REVIEW: FEB 2019

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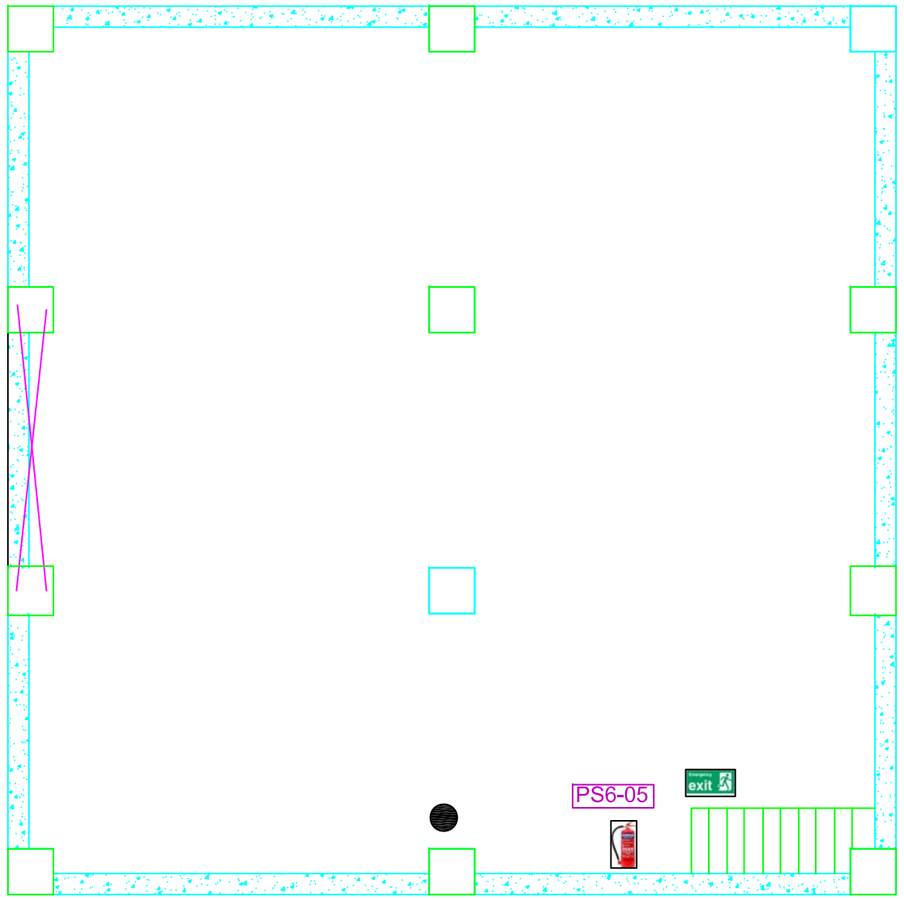
EVACUATION PLAN

خريطة الاخلاء

EGGS WAREHOUSE AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

CO2 EXTINGUISHERS	اطفائية ثانى اوكسيد الكربون
POWDER EXTINGUISHERS	اطفائية بودرة
EMERGENCY EXITS	مخارج الطوارىء
YOU ARE HERE	انت هنا



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ISSUE DATE: FEB 2018
LAST UPDATE: FEB 2018
LAST REVIEW: FEB 2019

منطقة التجمع
الموقف العام للسيارات

ASSEMBLY AREA
GENERAL PARKING

SS1 Floor Equipment Layout

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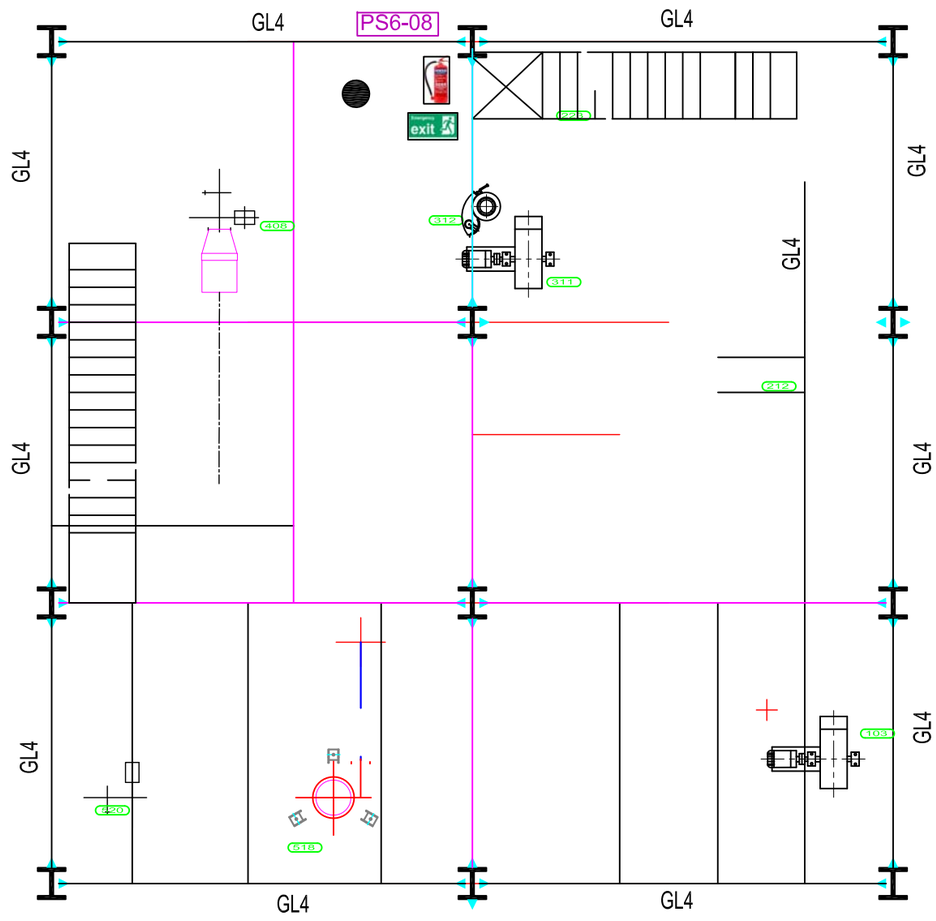
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

EVACUATION PLAN

خريطة الاخلاء

EGGS WAREHOUSE AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

- CO2 EXTINGUISHERS — اطفائية ثاني اوكسيد الكربون
- POWDER EXTINGUISHERS — اطفائية بودرة
- EMERGENCY EXITS — مخارج الطوارئ
- YOU ARE HERE — انت هنا



Fifth Floor Equipment Layout

ISSUED BY: ASS. PLANT MANAGER
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LAST UPDATE: FEB 2018
LAST REVIEW: FEB 2019

منطقة التجمع
الموقف العام للسيارات

ASSEMBLY AREA
GENERAL PARKING

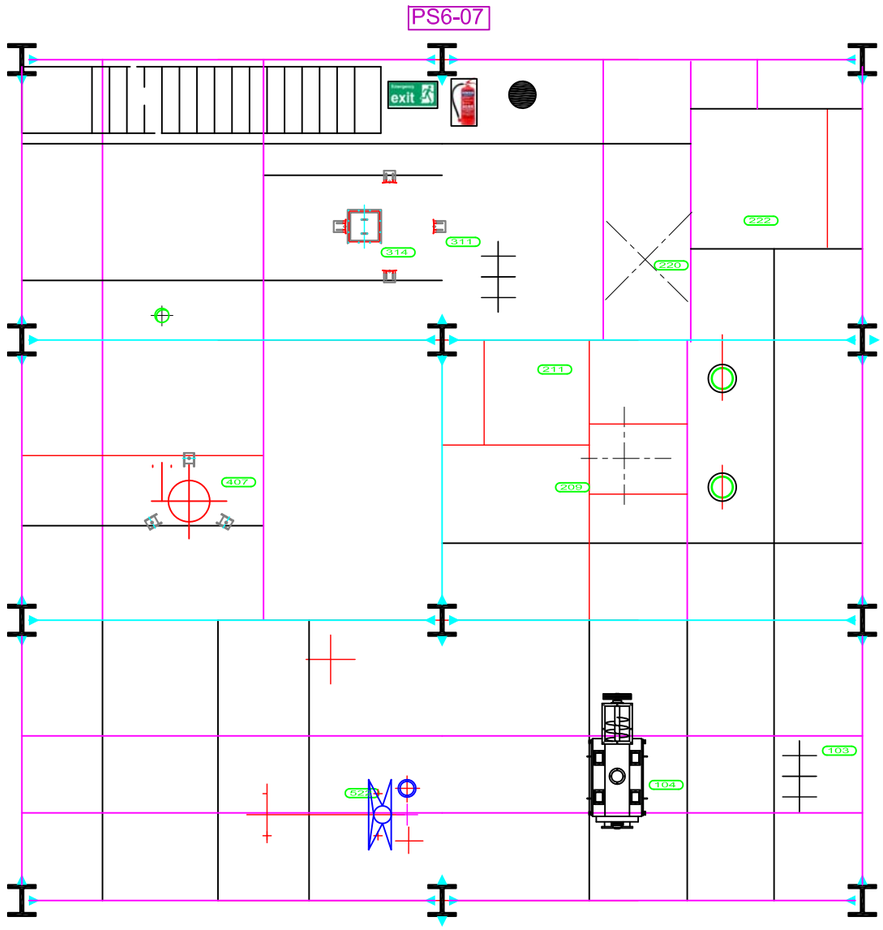
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

EVACUATION PLAN

خريطة الاخلاء

EGGS WAREHOUSE AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

- CO2 EXTINGUISHERS — اطفائية ثاني اوكسيد الكربون
- POWDER EXTINGUISHERS — اطفائية بودرة
- EMERGENCY EXITS — مخارج الطوارىء
- YOU ARE HERE — انت هنا



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APPROVED BY: QUALITY MANAGER
ISSUE DATE: FEB 2018
LAST UPDATE: FEB 2018
LAST REVIEW: FEB 2019

منطقة التجمع
الموقف العام للسيارات

ASSEMBLY AREA
GENERAL PARKING

Forth Floor Equipment Layout

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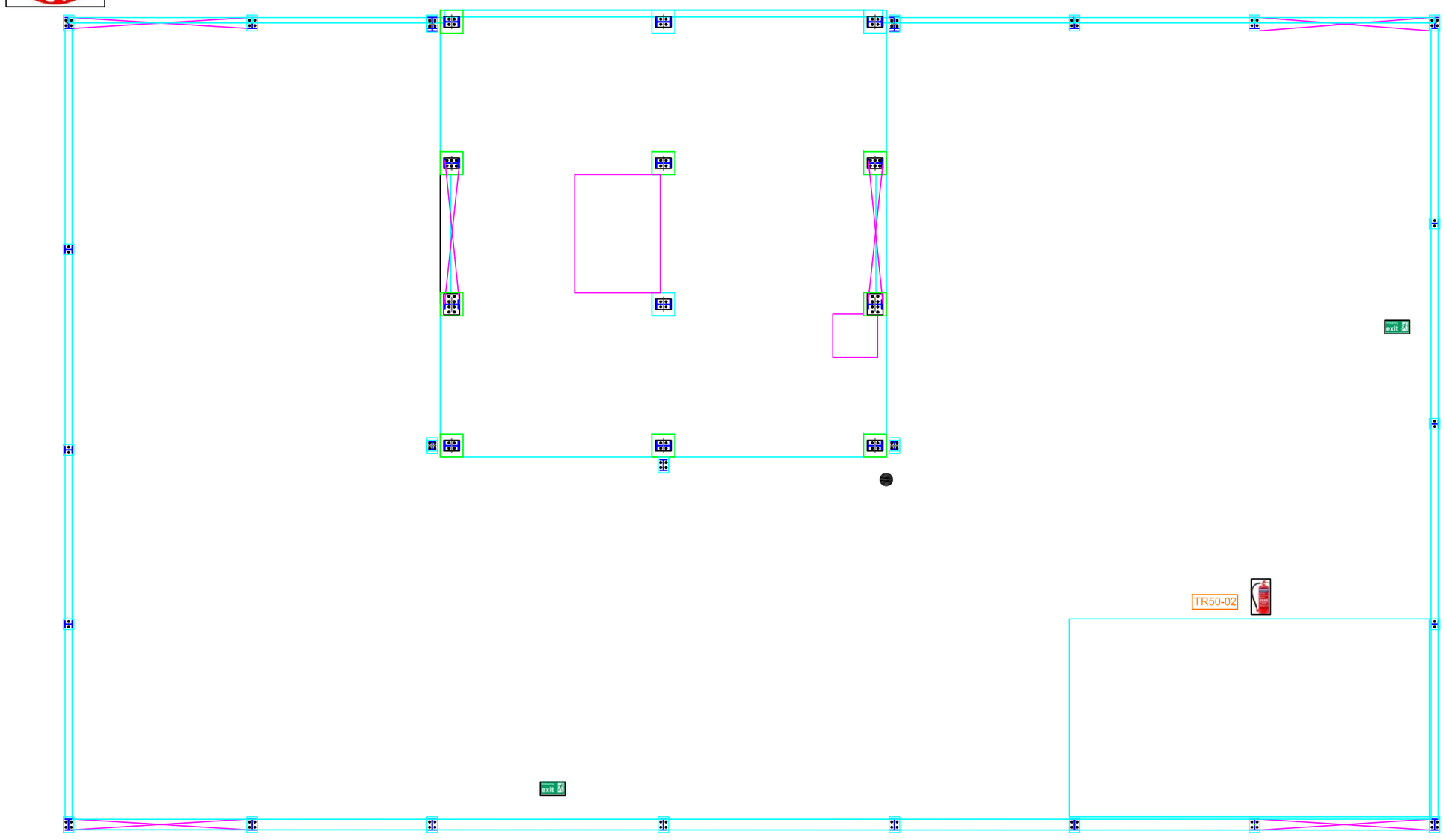
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

EVACUATION PLAN

خريطة الاخلاء



EGGS WAREHOUSE AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

CO2 EXTINGUISHERS — اطفائية ثاني اوكسيد الكربون

POWDER EXTINGUISHERS — اطفائية بودرة

EMERGENCY EXITS — مخارج الطوارىء

YOU ARE HERE — انت هنا

FIRST Floor Equipment Layout

منطقة التجمع
الموقف العام للسيارات

ASSEMBLY AREA
GENERAL PARKING

ISSUED BY: ASS. PLANT MANAGER
APPROVED BY: QUALITY MANAGER
ISSUE DATE: FEB 2018
LAST UPDATE: FEB 2018
LAST REVIEW: FEB 2019

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

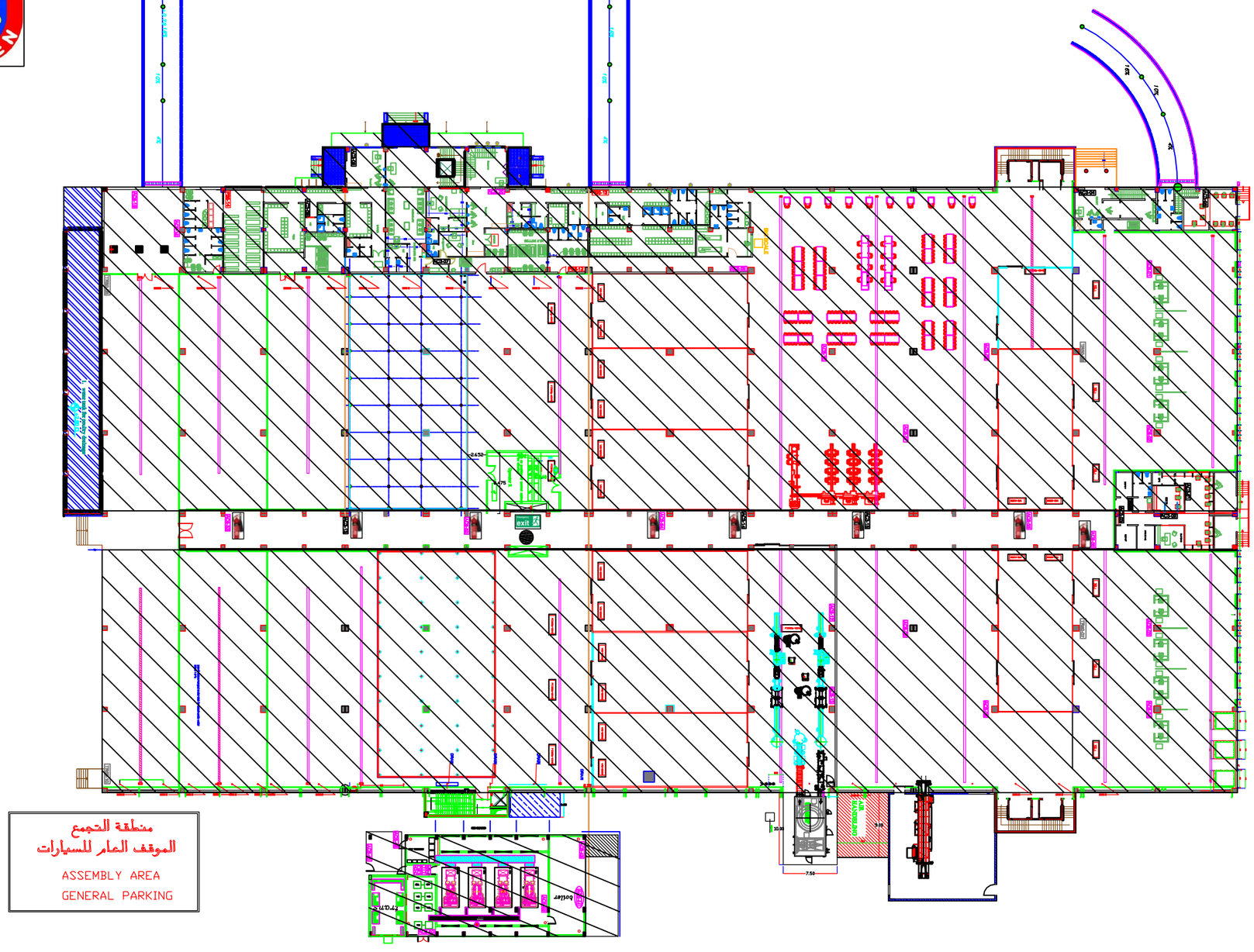
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

EVACUATION PLAN

خريطة الاخلاء

AD-EPR-MAP-020



TECHNICAL GALLERY AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

CO2 EXTINGUISHERS اطفائية ثاني اوكسيد الكربون

POWDER EXTINGUISHERS اطفائية بودرة

EMERGENCY EXITS مخارج الطوارىء

YOU ARE HERE انت هنا

منطقة التجمع
الموقف العام للسيارات

ASSEMBLY AREA
GENERAL PARKING

ISSUED BY: ASS. PLANT MANAGER
APPROVED BY: QUALITY MANAGER
ISSUE DATE: MARCH 2018
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LAST REVIEW: APRIL 2019

AD-EPR-MAP-019

EVACUATION PLAN

خريطة الاخلاء

OFFICES AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

CO2 EXTINGUISHERS	اطفائية ثانى اوكسيد الكربون
POWDER EXTINGUISHERS	اطفائية بودرة
EMERGENCY EXITS	مخارج الطوارىء
YOU ARE HERE	انت هنا

ISSUED BY: ASS. PLANT MANAGER
APPROVED BY: QUALITY MANAGER
ISSUE DATE: MARCH 2018
LAST UPDATE: MARCH 2018
LAST REVIEW: APRIL 2019

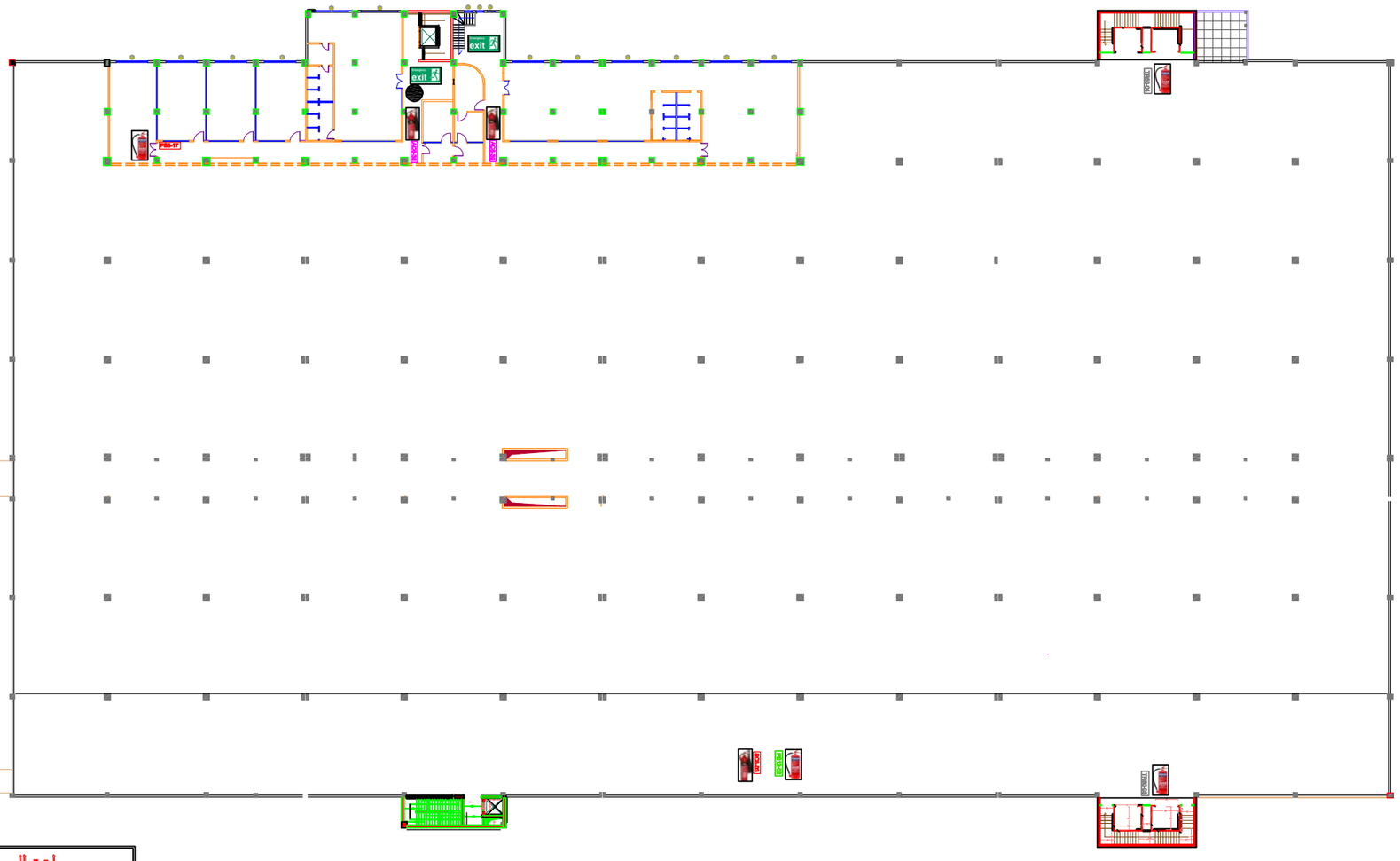
منطقة التجمع
الموقف العام للسيارات

ASSEMBLY AREA
GENERAL PARKING

EVACUATION PLAN

خريطة الاخلاء

AD-EPR-MAP-018



QUANTINE AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

CO2 EXTINGUISHERS	اطفائية ثاني اوكسيد الكربون
POWDER EXTINGUISHERS	اطفائية بودرة
EMERGENCY EXITS	مخارج الطوارئ
YOU ARE HERE	انت هنا

ISSUED BY: ASS. PLANT MANAGER
APPROVED BY: QUALITY MANAGER
ISSUE DATE: MARCH 2018
LAST UPDATE: MARCH 2018
LAST REVIEW: APRIL 2019

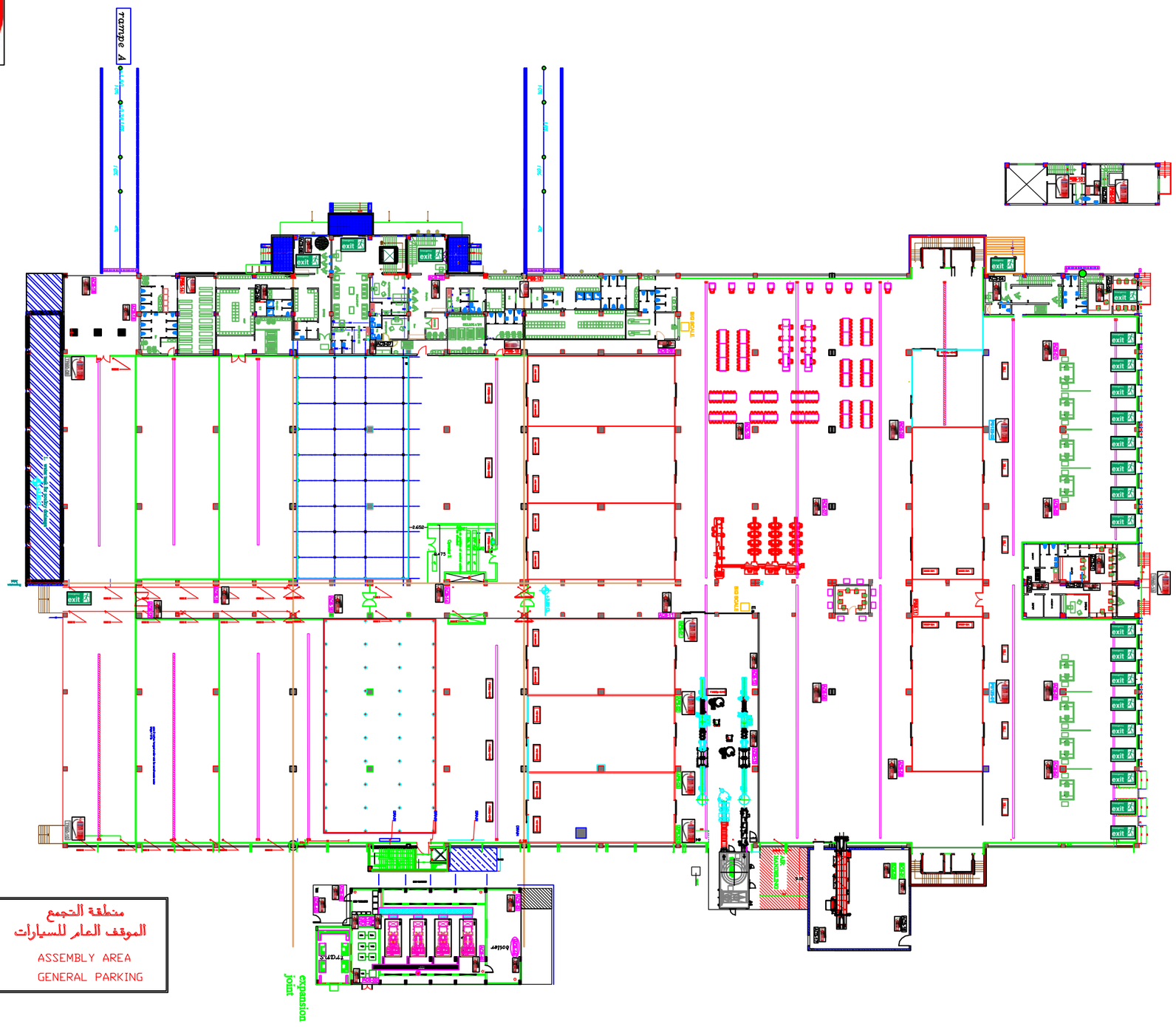
منطقة التجمع
الموقف العام للسيارات

ASSEMBLY AREA
GENERAL PARKING

AD-EPR-MAP-017

EVACUATION PLAN

خريطة الاخلاء



SLAUGHTER HOUSE FLOOR 0 AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

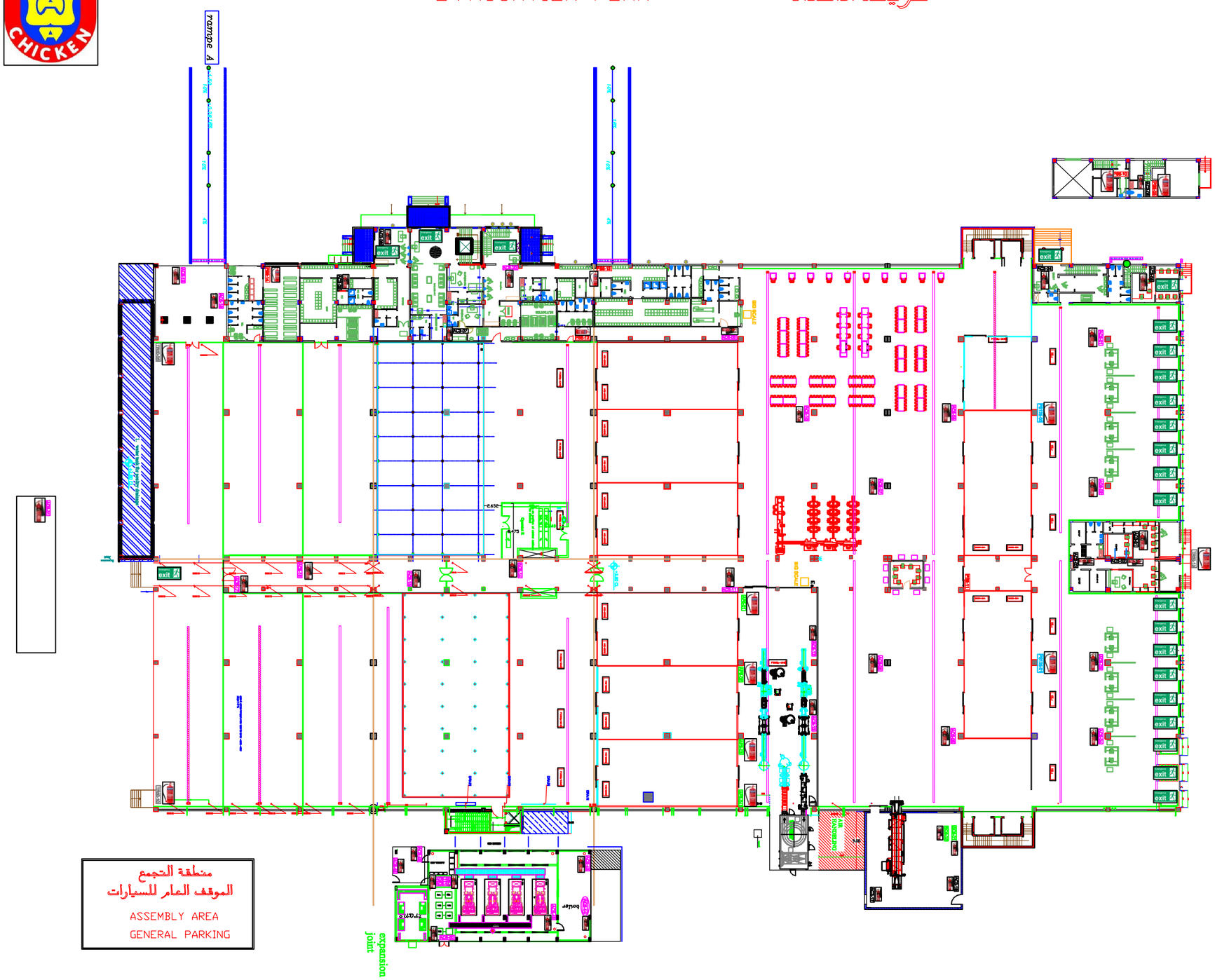
CO2 EXTINGUISHERS	اطفائية ثاني اوكسيد الكربون
POWDER EXTINGUISHERS	اطفائية بودرة
EMERGENCY EXITS	مخارج الطوارىء
YOU ARE HERE	انت هنا

ISSUED BY: ASS. PLANT MANAGER
APPROVED BY: QUALITY MANAGER
ISSUE DATE: MARCH 2018
LAST UPDATE: MARCH 2018
LAST REVIEW: APRIL 2019

منطقة التجمع
الموقف العام للسيارات
ASSEMBLY AREA
GENERAL PARKING

AD-EPR-MAP-014

EVACUATION PLAN خريطة الاخلاء



SLAUGHTER HOUSE FLOOR 0 AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

- CO2 EXTINGUISHERS اطفائية ثاني اوكسيد الكربون
- POWDER EXTINGUISHERS اطفائية بودرة
- EMERGENCY EXITS مخارج الطوارئ
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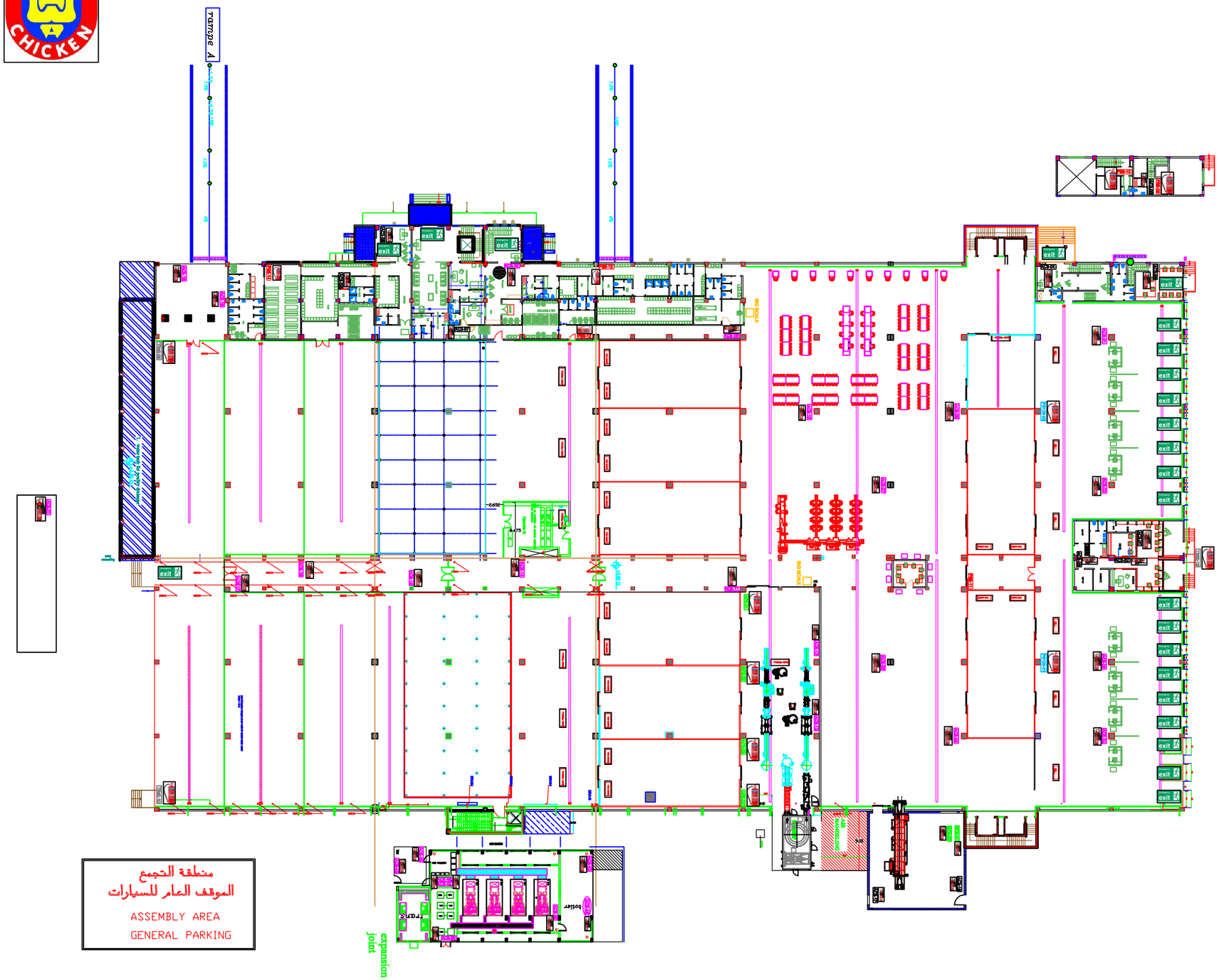
ISSUE DATE: MARCH 2018
LAST UPDATE: MARCH 2018
LAST REVIEW: APRIL 2019

EVACUATION PLAN خريطة الاخلاء

AD-EPR-MAP-013



SLAUGHTER HOUSE FLOOR 0 AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

CO2 EXTINGUISHERS	اطفائية ثاني اوكسيد الكربون
POWDER EXTINGUISHERS	اطفائية بودرة
EMERGENCY EXITS	مخارج الطوارئ
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منطقة التجمع
الموقف العام للسيارات
ASSEMBLY AREA
GENERAL PARKING

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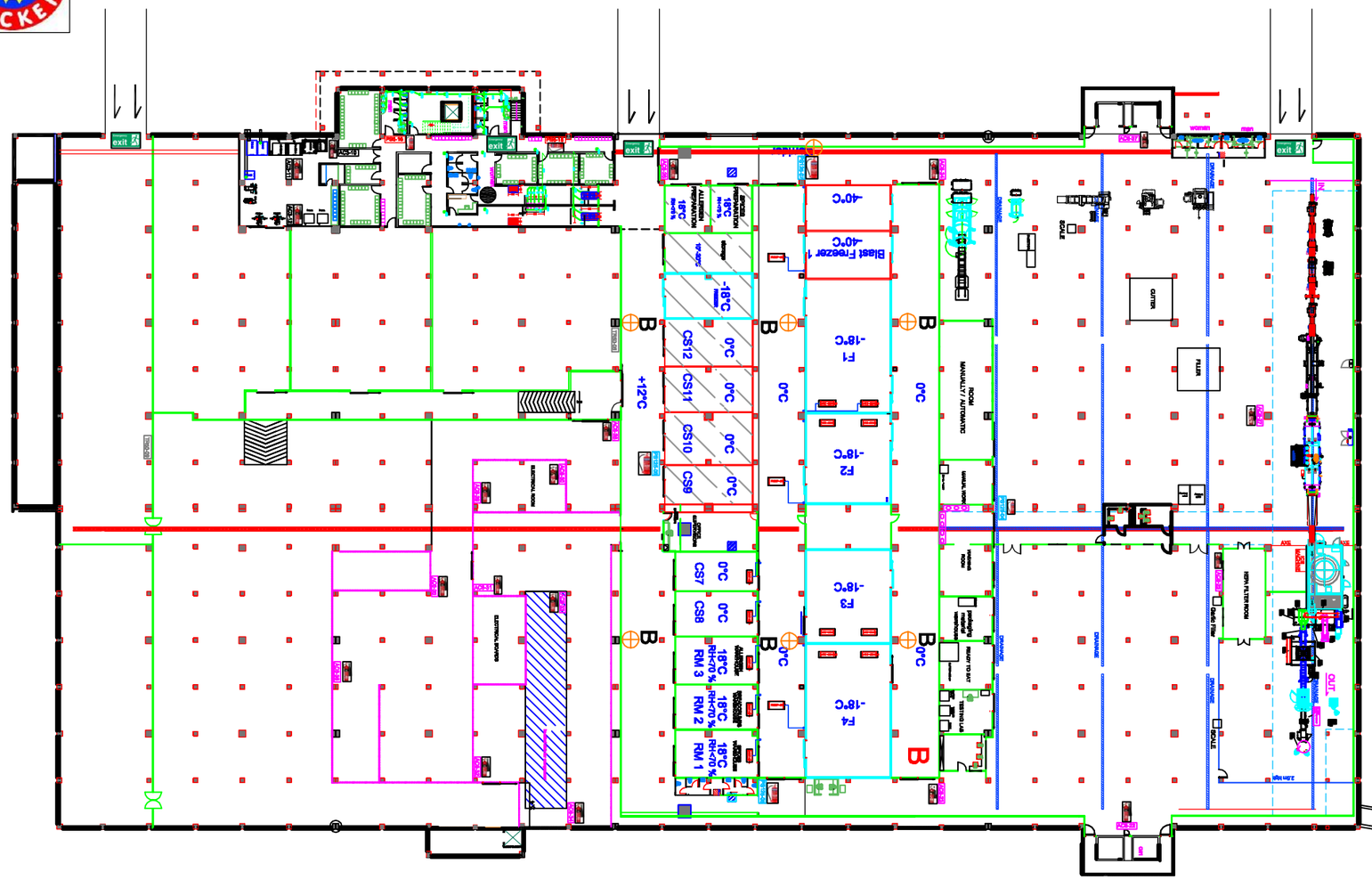
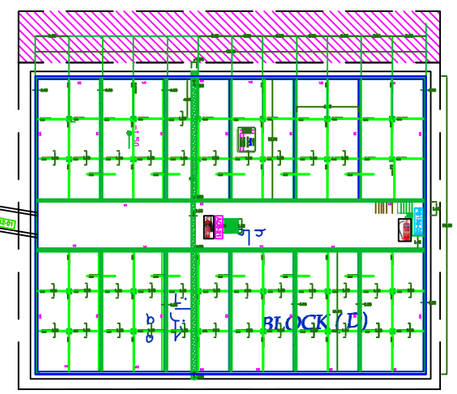
HAWA CHICKEN

EVACUATION PLAN

خريطة الاخلاء

AD-EPR-MAP-011





SLAUGHTER HOUSE FLOOR -1 AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

CO2 EXTINGUISHERS	اطفائية ثاني اوكسيد الكربون
POWDER EXTINGUISHERS	اطفائية مودرة
EMERGENCY EXITS	مخارج الطوارىء
YOU ARE HERE	انت هنا

منطقة التجمع
الموقف العام للسيارات

ASSEMBLY AREA
GENERAL PARKING

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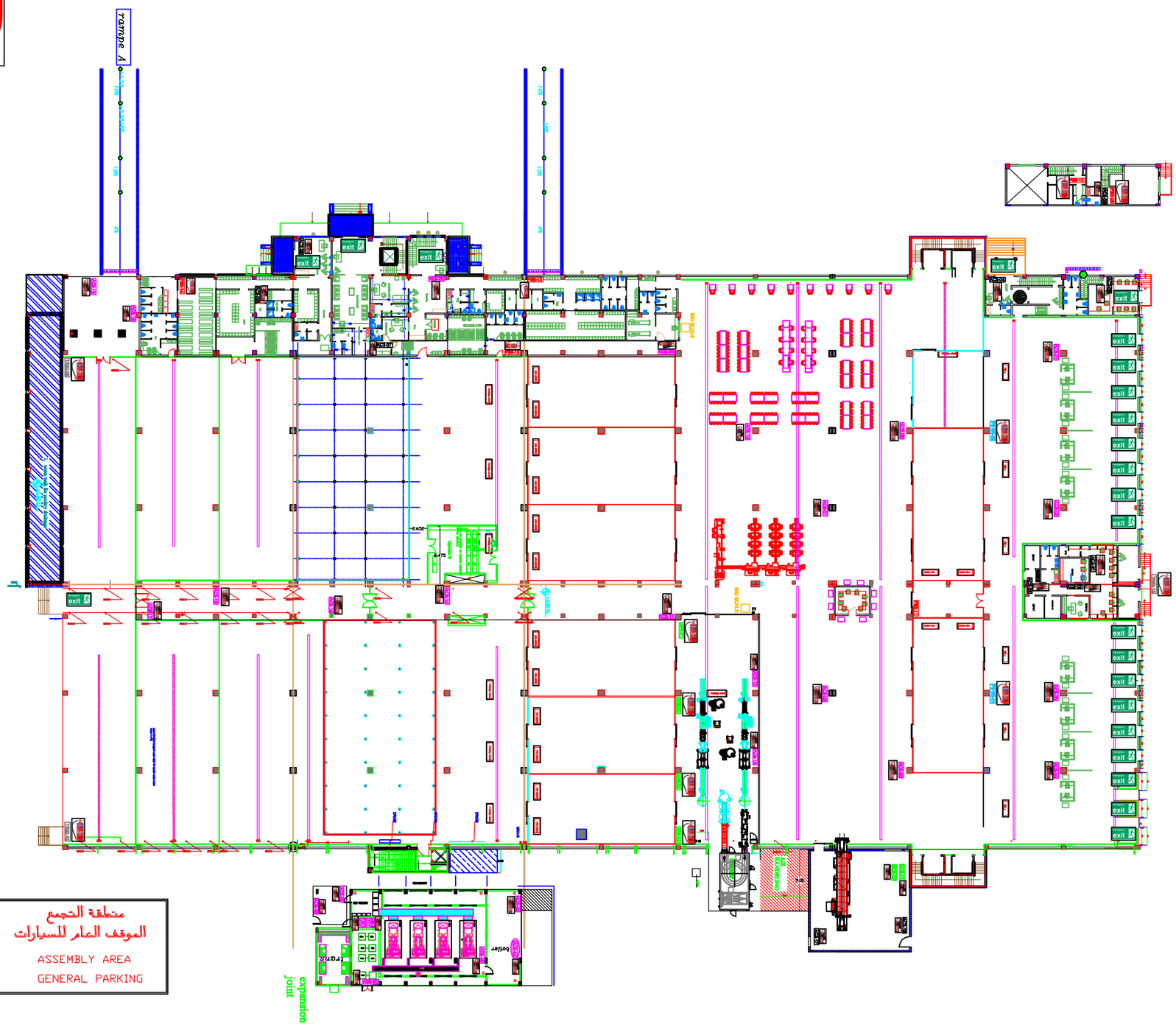
EVACUATION PLAN

خريطة الاخلاء

AD-EPR-MAP-010



SLAUGHTER HOUSE FLOOR 0 AREA
EMERGENCY PREPAREDNESS AND RESPOND PROGRAM

CO2 EXTINGUISHERS	اطفائية ثاني اوكسيد الكربون
POWDER EXTINGUISHERS	اطفائية بودرة
EMERGENCY EXITS	مخارج الطوارىء
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APPENDIX F – EMERGENCY PREPAREDNESS AND RESPONSE PROCEDURES

1. برنامج الوقاية و التعامل مع انقطاع مصدر المياه

يتمّ استعمال المياه بوفرة في صناعة الدواجن وهي مصدر أساسي وتكتسب أهمية عالية في العمل اليومي. قامت شركة هوا تشيكن بالعديد من الخطوات لتأمين المياه الصالحة للاستعمال بشكل دائم و بوفرة. كما أنشأت محطة تكرير و تعقيم للمياه لضمان سلامتها و حسن استعمالها في مختلف الأقسام.

خطة الوقاية من انقطاع مصدر المياه :

1. تمّ إنشاء خزانات مياه بقدرة استيعاب عالية, تكفي لأكثر من 3 أيام متواصلة.
2. المصدر الرئيسي من المياه هو دائم و يؤمن المياه بوفرة طوال السنة.
3. لدى الشركة صهاريج عديدة خاصة بها لنقل المياه.
4. يوجد مشرف على محطة المياه خلال 24 ساعة يوميا" للمراقبة و المتابعة، وبتدقيق من قسم الجودة.
5. تقوم شركة متخصصة بصيانة نظام التكرير لضمان حسن عمله و للتأكد من فعاليته (مراجعة عقد التشغيل).

خطة الاستجابة في حالة انقطاع مصدر المياه :

إن مصدر المياه المعتمد من قبل شركة هوا تشيكن هو مصدر دائم و متواصل، فإذا حدث أن انقطعت المياه فيكون ذلك بسبب أعمال الصيانة الروتينية على طول خط جرّ المياه من المصدر حتى المعمل. تلك الأعمال غير متكررة و غير طويلة الأمد. و في حال انقطع مصدر المياه، لا يتأثر الإنتاج وجودته بذلك و تقوم الشركة بالخطوات التالية:

أولا" : استعمال المخزون الموجود و الذي يغطي حتى 3 إلى 4 أيام متواصلة.

ثانيا" : يتمّ الاستعانة بالصهاريج الخاصة بالشركة لنقل المياه من المصدر الرئيسي و بشكل متواصل ريثما يعود جرّ المياه باشراف مسؤول قسم انشاءات و الاعمال الخارجية.

ثالثا" : يتمّ إفراغ مياه الصهاريج في أول خزان تجميع قبل المرور بنظام التكرير و ذلك لضمان سلامة المياه بشكل تام باشراف مسؤول قسم الإنشاءات و الأعمال الخارجية .

2. برنامج الوقاية و التعامل مع انسداد المجاري

يتمّ استعمال المياه بوفرة في صناعة الدواجن و لاسيما خلال عملية الذبح إضافة إلى التنظيف.

خطة الوقاية من انسداد المجاري :

1. الكشف الدوري على المجاري في كافة الأقسام من قبل قسم الصيانة و كلما دعت الحاجة.
2. وجود متخصصين في أعمال التمديدات الصحية في قسم الصيانة و متواجدين خلال كافة ساعات العمل .
3. تركيب مصافي على جميع مصارف المياه لتجنّب سقوط قطع من النفايات في المجاري مما يؤدي الى انسدادها.
4. تركيب كافة الإمدادات آخذين بعين الاعتبار الانحدار المطلوب لتسهيل عمليّة التصريف و ذلك نحو المخرج الرئيسي دائما" باشراف و متابعة قسم الصيانة.
5. منع رمي أي مواد دهنية في المجاري (كالزيت مثلا") و ذلك لتفادي تكدسها في المجاري.
6. تغيير القساطل القديمة أول بأول و استبدالها بقساطل أكثر استيعابا" و بمواصفات عالية المتانة (قسم الصيانة).
7. إصلاح إي عطل في أسرع وقت ممكن و في أي قسم من الأقسام من قبل متخصصين من قسم الصيانة.
8. تأمين قطع تبديل جاهزة دوما" في قسم الصيانة لإصلاح أي عطل وبأسرع وقت ممكن.

خطة الاستجابة في حالة انسداد أي خط من المجاري:

أولا" : عزل المنطقة حيث يوجد التسرّب و سحب كافة المنتجات المحيطة بها من قبل مسؤول القسم المعني.
ثانيا" : استدعاء فريق الصيانة لتوقيف مصدر المياه المتّصل بالخط المسدود لوقف التسرّب.
ثالثا" : تلف المنتج الذي تعرّض للمياه المتسرّبة بحضور قسم المحاسبة و القسم المعني و بعد كشف مفتّش قسم الجودة.
رابعا" : البدء بإصلاح العطل بأسرع وقت ممكن من قبل فريق الصيانة.
خامسا" : مراقبة نتيجة التصليح من قسم الصيانة وعدم السماح بإعادة استعمال المياه قبل التأكد من سلامة الوضع.
سادسا" : يستدعي مسؤول القسم فريق النظافة لتنظيف كافة المنطقة التي تعرّضت للتسرّب قبل إعادة استعمالها .
سابعا" : يقّيم مدير الصيانة مع فريقه سبب الانسداد و إجراء الخطة التصحيحية المناسبة لتفادي حصول المشكلة في المستقبل .

3.برنامج الوقاية و التعامل مع الصواعق

تعتبر الصواعق من العوامل الطبيعية التي تؤثر على نظام الكهرباء و قد تؤدي إلى تعطّل المعدات و الأنظمة داخل المعمل مما قد يؤثر على الإنتاج و جودته.قامت شركة هوا تشيكن بأخذ إجراءات عديدة احترازية لتفادي خطر الصواعق مستعينة بخبرات الأخصائيين:

خطة الوقاية من الصواعق :

1. وجود نظام الأرضي (Earth) والمتّصل بكامل نظام الكهرباء مصمّم.
2. تركيب مبعد للصواعق (Parafoudre) والذي يغطي على شعاع 200 متر مما يحمي كافة أقسام المعمل.
3. تمّ تركيب حماية لتابلو الكهرباء الرئيسي (Eclateur) الذي يحمي من ارتفاع التيار الكهربائي فجأة".
4. تمّ تركيب حماية لتابلو الكهرباء الرئيسي (Phase Relay) من قبل فريق الصيانة الذي يحمي من تلاعب التيار الكهربائي.
5. التعاقد مع شركة متخصصة في تصميم و صيانة النقاط 1,2,3 .

خطة الاستجابة في حالة خطر الصواعق :

إن كافة المراحل المذكورة أعلاه هي للحماية من وصول الصواعق إلى المعدات و أنظمة التبريد مما يجعل خطر الصواعق متدنيا" جدا" اذ توجد عدة مراحل حماية متتالية.

أما اذا وقع حادث طارئ، فيتمّ معاملة المنتج بالعودة إلى برامج التعامل مع انقطاع الكهرباء و تعطّل نظام التبريد.

4. برنامج الوقاية و التعامل مع تعطّل سيارات توزيع المنتج

يتمّ نقل المنتج النهائي في سيارات خاصة معزولة و مبرّدة للمحافظة على حرارة المنتج طوال فترة التوزيع. كما يتمّ توزيع المنتج إلى مختلف المناطق بأسرع فترة زمنية ممكنة.

خطة الوقاية من تعطّل سيارات توزيع المنتج :

1. يقوم شخص بالكشف اليومي على سيارات نقل المنتج قبل التحميل ويملأ استمارة واحدة يؤكد فيها جهوزية السيارات الخارجة إلى السوق، أما السيارة التي يتبيّن أيّ عطل كان فيها، تتحوّل إلى الصيانة، فتستبدل السيارة بسيارة إحتياط.
2. تخضع كل سيارة نقل لمعاينتين في السنة من قبل الدولة.
3. مراقبة حرارة برادات سيارات نقل المنتج يومياً في ساعات التوزيع بتعبئة سجل خاص موثق.
4. عند طلب السائق، ترسل السيارة إلى الصيانة العامة للكشف والتصليح.

خطة الاستجابة في حالة تعطّل سيارات توزيع المنتج :

تهدف هذه الخطة للمحافظة على جودة وسلامة المنتج وتسليمها إلى الزبائن بأفضل الطرق السليمة وأسرعها و يطبق البرنامج على سيارات توزيع المنتج النهائي (فروج, بيض, مجلدات ومصنعات) كما تتوزع المسؤوليات على العناصر الأساسية كالشكل التالي:

السائق: تقوم مسؤوليته على معاينة العطل ومحاولة تصليحه, وعند التعذر الاتصال بمسؤول التوزيع لشرح الوضع له بكل شفافية.

مسؤول التوزيع: تقوم مسؤوليته على تقييم الوضع ومعالجة المشكلة بأسرع وقت ممكن.

قسم صيانة السيارات: تقوم مسؤوليته على تلبية النداء وتصليح العطل بأسرع وقت ممكن.

أما في الحالات الطارئة عند تعطل سيارات نقل المنتج ,تتوزع المهام على المسؤولين تدريجياً كالتالي:

- السائق: - معاينة العطل.
  - محاولة تصليح العطل إذا أمكن.
  - الاتصال بمسؤول التوزيع عند تعذر تصليح العطل وشرح له الوضع بكل شفافية.
  - محاولة ركن السيارة في مكان غير مشمس والتأكد من إحكام إغلاق باب البراد.
  - انتظار التعليمات من مسؤول التوزيع.
- مسؤول التوزيع: - الاستيضاح جيداً من السائق عن العطل .
  - تقييم الوضع ومعالجة المشكلة بأسرع وسيلة ممكنة وذلك:

A- تصليح العطل بالاستعانة بتقنيين مجاورين للمنطقة المعطلة فيها السيارة إذا لا يستغرق الوقت أكثر من نصف ساعة.

B- إعطاء الأمر لأقرب سيارة توزيع بالتوجه إلى السيارة المعطلة لنقل المنتج ومتابعة التوزيع ريثما يتم تصليح الأخيرة.

C- تحويل سيارة من الفرع الأقرب للمنطقة المعطلة فيها السيارة لنقل المنتج وإبداعه في براد الفرع ريثما تصل السيارة البديل.

D-الاتصال بقسم صيانة السيارات وشرح له الوضع للمعالجة.

أما في الحالات الأخرى، فيتمّ مراجعة قسم الجودة لأخذ القرار المناسب حول التصرّف بالمنتج.

إشارة إلى أنّ المدّة المسموحة للتّدخّل هي ساعة واحدة من حدوث العطل، وإذا تخطّينا هذه المدّة يتمّ نقل المنتج إلى الشركة والتعامل معه على أنّه غير مطابق للشّروط، فيتمّ فتح NCR واتّخاذ القرار المناسب حوله.

- قسم صيانة السيارات: - تقييم العطل فور تلقيه الاتصال من مسؤول التوزيع.
  - إرسال التقني بسيارة توزيع إلى السيارة المعطلة.
  - تسليم الموزع السيارة الصالحة لنقل المنتج إليها ومتابعة التوزيع.
  - تصليح السيارة المعطلة وإعادتها إلى الشركة.

ملاحظة : يتم تلف المنتج مباشرة" عند حصول حادث سير وانزلاق المنتج على الأرض.

5. برنامج الوقاية و التعامل مع انقطاع التيار الكهربائي

إن انقطاع التيار الكهربائي هو من أهم المشاكل التي قد نواجهها لذلك وضعت الشركة برنامج وقائي واستجابة لتلافي حدوث أعطال وحلّها بأسرع وقت ممكن ضمن فترة الإنتاج:

خطة الوقاية من انقطاع التيار الكهربائي :

باشراف قسم الصيانة :

1. وجود مولدات ذات قدرة عالية تغطي الطاقة المطلوبة.
2. وجود إنارة داخل المبنى تعمل على الطاقة المخزنة.
3. الكشف على التبلوهات الأساسية و الرئيسية ضمن الشركة أسبوعيا".
4. تواجد دائم لقسم الصيانة على مدار الساعة
5. تسجيل دائم للكشف بحسب البرنامج اليومي

إن المولدات الموجودة داخل الشركة تعمل أوتوماتكيا" عند انقطاع التيار الكهربائي وقد تمّ وضع برنامج صيانة يومي و دوري لهذه المولدات لضمان سلامتها . والبرنامج اليومي للصيانة هو كالتالي :

1. كشف على مستوى الزيت
2. كشف على مستوى المياه
3. كشف على الطاقة المخزنة
4. الكشف على عدد ساعات العمل

أما البرنامج الدوري عند وصول ساعات العمل عند المولدات الى 500 ساعة يقوم قسم الصيانة التالي :

1. غيار الزيت
2. غيار الفلاتر جميعها
3. يتم فحص شامل على المولدات

6. وجود مولّد متنقّل، خاص بالشركة، وجاهز للاستعمال في حالات الطوارئ حتى اذا تعطلت كافة المولدات الموجودة و هو يغطي مجمل أقسام نظام التبريد.

خطة الاستجابة في حالة انقطاع التيار الكهربائي :

عند انقطاع التيار الكهربائي، تبدأ المولدات أوتوماتيكيا" و بشكل تدريجي مع البدء بأقسام الإنتاج (التبريد أولا") و من ثم المكاتب الإدارية مما لا يؤثر على المنتج خلال الانتاج و ذلك باشراف قسم الصيانة.

و في حالة الانقطاع الطويل للتيار يمكن ان يتم التبديل فيما بين المولدات وللحفاظ على جودتها و تعطى الأولوية إلى قسم الذبح والتبريد.

وما عدا ذلك يتمّ الاستعانة بالمولّد الخارجي المتنقل الذي يتمّ وصله في نظام التبريد كأولوية.

أما في حال استحالة تطبيق خطة الاستجابة، يتم مراجعة قسم الجودة لتحديد الإجراءات المناسبة حول طريق تصريف المنتج (الاستعانة بغرف تبريد خارجية مصدّقة)

ملاحظة: تمّ وصل مستودع البيض بمولّد جديد، وذلك اضافة الى الطاقة الواصلة من مولدات المعمل التي تغذي قسم البيض، وهكذا يكون قد تمّ تأمين حاجة قسم البيض من الطاقة في كل الظروف، علما" أن هذا المولد قادر على تأمين حاجة قسم البيض وحده.

6.برنامج الوقاية و التعامل مع تعطّل نظام التبريد داخل المصنع

ان الصناعة الغذائية تعتمد و بشكل مباشر على التبريد للحفاظ على جودة المنتج و سلامته لذلك وضعت الشركة برنامج للوقاية والإستجابة لتلافي حدوث أعطال وحلّها بأسرع وقت ممكن ضمن فترة الإنتاج:

خطة الوقاية من تعطّل نظام التبريد داخل المصنع :

أولا" : إن معّدات التبريد الموجودة في شركة هوا تشيكن هي ذات تقنية عالية و حديثة, فهنالك نظامين للضغط : عالي و منخفض يعملان بصورة متوازية لذلك وجد لكل قسم عدة كومبرسورات بحسب الحاجة المطلوبة + 20% . في حال تعطّل احد هذه الكومبروسرات يمكن العمل في القسم المتبقي واستعمال الضروري منها.
ثانيا" : ان غرف التبريد الموجودة صممت بشكل أنها يمكن المحافظة على الحرارة المطلوبة في حال حدوث عطل لمدة 6 ساعات لغرف التبريد و 24 ساعة للغرف التي تعمل على درجة - 20 و هو وقت كاف لاصلاح العطل (بحسب الشركة المصممة و المنفّذة لغرف التبريد و التجليد).
ثالثا" : هناك إمكانية فصل أي غرفة في حال حدوث عطل فيها من قبل فريق الصيانة وينقل مسؤول القسم المنتج إلى الغرف المتبقية
رابعا" : وجود غرفتيّ تبريد منفصلتين تماما" عن نظام التبريد المركزي وموجودتين بالقرب من المعمل و جاهزتين بصورة دائمة للطوارئ وبقدرة استيعاب كافية.
خامسا" : وجود قطع الغيار المطلوبة لإمكانية سرعة الإصلاح في حال وجود عطل.
سادسا" : وجود جهاز مراقبة الحرارة عن ُبعد.
سابعا" : التعاقد مع استشاري اخصائي في التبريد بالأمونياك ذو خبرة عالية.
ثامنا" : في قسم المستودعات، ولأنّ دوام العمل نهاري فقط، تمّ تجهيز البرادات والفريزر بنظام إنذار سمعي وبصري إذا توقّف واحد من الكومبريسورات (يوجد كومبريسورات عدد 2 في كل براد أو فريزر)، لكي تتمّ المعالجة فورا"، أمّا في حال توقّف الإثنين، فهناك أيضا" جهاز إنذار سمعي ينطلق داخل القسم وعند الناطور (ينطلق الإنذار بعد ساعة من بلوغ البراد 5 درجات، والفريزر -10 درجات مئويّة.

خطة الاستجابة لتعطّل نظام التبريد داخل المصنع :

أولا" : يقوم مفتش قسم الجودة أو مسؤول القسم المعني بابلاغ المسؤول في قسم الصيانة عن ارتفاع في درجة حرارة الصالة أو البراد بحسب الحالة إضافة إلى أخذ إجراءات خاصة بكل قسم.

ثانيا": يبدأ قسم الصيانة بالكشف لتحديد نوع العطل: عطل محدد في منطقة معيّنة أو عطل شامل في نظام التبريد العام.

ثالثا" : - اذا كان العطل محدّد في براد ما أو غرفة ما، يتمّ الطلب مباشرة" باخلاء المكان من المنتج من قبل القسم المعني و باشراف قسم الجودة الذي يؤكد على نقل المنتج باسرع وقت ممكن الى مكان أخر (براد أو صالة) غير معني بالعطل، ومن ثمّ يبدأ التصليح.

- اذا كان العطل شامل، يتم أولا"ادخال كافة المنتجات الى البرادات أو الفريزرات مع اغلاق الأبواب بشكل محكم لضمان محافظتها على برودتها و الانتقال إلى غرف بديلة تعمل على نظام مختلف في التبريد .

رابعا" : يتمّ عقد اجتماع طارئ للمعنيين برئاسة مدير قسم الصيانة وذلك بغية تقييم العطل الشامل و تحديد امكانية اصلاحه في فترة أقل من المدّة المحدودة المعتمدة (6 ساعات حد أقصى).

خامسا" :- في حال الاتفاق على امكانية الاصلاح خلال أقل من الوقت المحدّد، يباشر قسم الصيانة بالأعمال بالتزامن مع مراقبة القسم المعني و قسم الجودة لحرارة البرادات و الفريزرات بشكل متواصل دون فتح الأبواب من خلال نظام مراقبة الحرارة عن ُبعد مع توقّف الانتاج نهائيا" في مختلف الاقسام المعنية.

- أما في حال استحالة تصليح العطل بأقل من الوقت المحدّد، يتمّ أخذ القرار و بالإجماع بنقل المنتج في السيارات الخاصة بذلك الى الغرف المخصصة للطوارئ و التي تعمل بشكل منفصل عن النظام المركزي ، كذلك قرار توقّف أعمال الانتاج كافة.

سادسا": في الحالة الثانية، يقوم قسم الجودة بمراقبة عملية نقل المنتج و تخزينه في الغرف المخصصة للطوارئ.

سابعا" : بعد اصلاح العطل، يتمّ اعادة تشغيل نظام التبريد من قبل فريق الصيانة و لا يتمّ اعادة العمل بشكل طبيعي الاّ بعد التأكد من سلامة الوضع و عودة الحرارة الى دون الحدود الحرجة.

ثامنا" : يطلق قسم الصيانة اشارة الأمان لمعاودة العمل بشكل طبيعي، فيقوم القسم المعني بمؤازرة أقسام أخرى , بحسب الحاجة, باعادة المنتج الى موضعه و باشراف قسم الجودة الذي يسهر على حسن اعادة نقل المنتج و استعماله دون أي خطر على جودة المنتج و سلامته.

7.برنامج الوقاية و التعامل مع خطر تسرّب أمونياك

خطة الوقاية والاستجابة لخطر تسرّب الأمونياك :

إن الامونياك هو من أهم المواد المستعملة في أقسام التبريد ولذلك يمكن أن ينتج عن ذلك أعطال غير متوقعة.
كخطة وقائية، يتمّ الكشف الدوري على جميع الإمدادات و عند الحاجة يتم الاستعانة بشركة التركيب لإعادة التأهيل.
أما في حالة التسرب يتمّ إتباع الخطوات التالية :

المسؤولية	المهمة	كيفية التصرف
الشخص الذي شمّ رائحة الامونياك	إبلاغ قسم الصيانة عن حالة التسرب	الاتصال برقم الصيانة أو الإبلاغ الشخصي
التقنيون المختصون من فريق الصيانة	تحديد مدى خطورة الوضع	إبلاغ مسؤول القسم عن الوضع القائم
مسؤول القسم	إخلاء المنطقة من المنتج إخلاء العمال الموجودون في موقع التسرب	إلى غرف التبريد او الى منطقة معزولة التوجه الى مخرج الطوارئ
فريق الصيانة	عزل منطقة التسرب	ارتداء الاقنعة الواقية تسكير أنابيب الامونياك في مكان التسرب استعمال المياه في مكان التسرب صيانة التسرب باتباع برنامج الصيانة في التصليحات
	تجربة مكان التسرب و تسليمه	ابلاغ مسؤول القسم عن انتهاء الصيانة
مسؤول القسم	استلام مكان الذي تمت فيه الصيانة	اعادة العمل في القسم

8.برنامج الوقاية و التعامل مع جرح العمّال بالسكاكين

إن فرق العمل إبتداءً من عامل تلقيط الفروج الحي داخل المزرعة و صولاً لعامل توزيع المنتج قد يتعّرض لحادث عمل من الممكن أن يؤثر سلبا" على المنتج . يهدف هذا البرنامج إلى توضيح وتحديد طبيعة المخاطر التي تواجه فرق العمل ولا سيما الإصابة بجرح جراء مادة حادة خلال العمل. يقوم فريق العمل داخل هذه الأقسام باستعمال المناشير - السكاكين كأدوات عمل مما يعرض بعض العمال لإصابات من شفرات المنشار ومن حد السكين.

خطة الوقاية من جرح العمّال بالسكاكين :

1. التأكد من لبس عمال المناشير كفوف الستانلس المخصصة لذلك من قبل مسؤولي الأقسام.
2. تشديد المسؤولين على العمّال لعدم التجوّل داخل صالات الأقسام حاملين السكين وتركها على الطاولات بعد انتهاء كل عملية ليهتم عمال النظافة بتجميعها للتنظيف ووضعها بالأماكن الخاصة لحفظها.
3. وضع عامل لتشطيف الأرض داخل كل قسم أثناء عمل الفريق لتجميع الجلود والدهون المنتثرة بأرض الأقسام بصفة دائمة لتفادي عملية الانزلاق.
4. إضاءة الأقسام بشكل كاف وصيانتها لتجنّب عدم الوضوح في الرؤية خلال العمل.
5. إقامة دورات تدريبية من قبل قسم الجودة لعمّال أقسام الإنتاج عن أفضل الطرق الوقائية المستخدمة والتي يجب أن تتبع.

خطة الاستجابة في حالة جرح العمّال بالسكاكين :

1. انتقال مسؤول القسم إلى موقع الحالة المصابة والكشف عليها لتحديد حجم وموقع الإصابة
2. إجراء المسؤول الإسعافات الأولية داخل القسم من خلال صيدلية موجودة بكل قسم لوقف النزيف بشكل مؤقت.
3. عزل المنتجات حول الإصابة تحت اشراف مسؤول القسم و تلف المنتج الذي تأثر جراء الحادث وسقط عليه الدم بحضور قسم الجودة و المحاسبة.
4. تنظيف وتعقيم المكان بكل ما فيه من آلات ومعدات وإزالة آثار الدم قبل استخدامها مرة ثانية بالاستعانة بفريق النظافة.
5. نقل المصاب إلى مستوصف الشركة ليتمّ معالجته أو إرساله إلى المستشفى تحت اشراف مدير أو مسؤول القسم المعني.

9. برنامج الوقاية و التعامل مع خطر الحرائق

تعتبر الحرائق من الأخطار التي من الممكن أن تحدث داخل مصنع هوا تشيكن. و لكن خطر حدوثها ليس شديد إذ أن إمكانية اندلاع الحريق تتفاوت بين احتمال ضعيف إلى متوسط بحسب الأقسام.

خطة الوقاية من خطر اندلاع حريق :

1. الاستعانة بخبراء حرائق لتحديد أماكن الخطر و كيفية تجنبها و باشراف قسم الصيانة .
2. زرع مطافئ ذو نوعية مناسبة في كافة أرجاء المعمل ليتمّ استعمالها عند اندلاع أي حريق بغية عدم انتشاره (فريق الصيانة).
3. التعاقد مع شركة متخصصة للكشف الدوري على جهوزية المطافئ.
4. استعمال داخل أرجاء المعمل مطافئ من نوع ثاني أوكسيد الكربون بدلا" من البودرة مما لا يؤثر سلبا" على المعدات و المنتجات.
5. تدريب كافة مسؤولي الأقسام، من قبل خبراء من الدفاع المدني، حول مفهوم الحرائق، كيفية تجنبها و التعامل معها.
6. وضع ملصقات تثقيفية دائمة تشير إلى موضوع كيفية تجنّب الحرائق و التعامل معها مع أماكن تواجد المطافئ بالتعاون بين قسم الصيانة والجودة.

خطة الاستجابة في حالة اندلاع حريق :

1. يتمّ اعتماد خطة واضحة لإخلاء المكان بشكل منظّم من خلال مخارج طوارئ واضحة المعالم و التوجّه إلى أمكنة التجمّع المخصصة لكل قسم.
2. يقوم مسؤولو الأقسام بالعمل على تنسيق إدخال المنتجات الموجودة في صالات العمل إلى البرادات و إغلاق الأبواب بإحكام و ذلك قبل مغادرة المكان. تتمّ هذه العملية بحسب الظروف بشكل لا يتمّ تعريض حياة أي شخص للخطر لتنفيذ هذه المهمّة.
3. بعد انتهاء الحريق، يتمّ تلف كافة المنتجات التي تعرّضت للنار، أو للدخان أو حتى للمياه و المواد المستعملة لإطفاء الحريق من قبل مسؤول القسم و بحضور قسم المحاسبة و اشراف قسم الجودة.

10. برنامج الوقاية و التعامل مع انقطاع المياه الساخنة

يتمّ استعمال المياه الساخنة في العديد من مراحل صناعة الدواجن وهي مصدر أساسي وتكتسب أهمية عالية في العمل اليومي، خاصة" لناحية عملية التنظيف. قامت شركة هوا تشيكن بالعديد من الخطوات لتأمين المياه الساخنة بشكل لامركزي للمعدات و مركزي لعمليّة التنظيف اليومي.

خطة الوقاية من انقطاع مصدر المياه :

1. تمّ تركيب سخان للمياه بقدرة عالية تصل الى 1500 ك.و. بخار و بضغط 6 إلى 8 بار.
2. تمّ رفع قدرة التسخين بزيادة حجم قساطل البخار داخل السخان.
3. تمّ تركيب سخان احتياطي بقدرة 750 ك.و.
4. وصل شبكة المياه الساخنة بسخان لا مركزي خاص بالطابق الأول.
5. اجراء صيانة و كشف دوري على السخانات و ادائها، و على نوعية المحروقات المستعملة.

خطة الاستجابة في حالة انقطاع المياه الساخنة :

يتمّ الاستعانة بالسخان الاحتياطي و وصل خط المياه الساخنة على السخان اللامركزي للطابق الأول. يتمّ أخذ اجراءات متعددة أخرى بحسب الوضع العام و ظروف حالة الطوارئ. و يمكن اختصار الخطوات الاضافية بالتالية :
أولا": اعتماد مبدأ التنظيف المستمر كي لا تتراكم الدهون على المكنات خلال دوام العمل وذلك بوضع فريق النظافة بجهوزية تامة لازالة الأوساخ عن المعدات أول بأول (CLEAN AS YOU GO) و عدم الانتظار حتى الترويقة أو نهاية الدوام. ثانيا": رفع نسبة كافة المواد المنظّفة و المعقّمة 50 % زيادة كمرحلة أولى ومراقبة النتائج نظريا" و اجراء التعديلات لاحقا" اذا دعت الحاجة. كذلك زيادة الكمية المستعملة و التأكد من أن وقت النقع لا ينقص عن ال20 دقيقة. ثالثا" : التشديد على المناطق غير المسطحة في المكان و المعدات و ذلك باعتماد اسلوب الحفّ اليدوي لازالة الرواسب ميكانيكيا" بدلا" من حراريا". رابعا" : خلط مواد التنظيف بالمياه الساخنة المتوفّرة وذلك ضروري لتفاعل المواد الكيميائية مع بعضها البعض. (ضروري جدا") خامسا" : اجراء عملية التنظيف بمواد الأسيد مرتين خلال الأسبوع للتأكد من ازالة التراكمات. سادسا" : الطلب من كافة مسؤولي الأقسام زيادة التشديد على مراقبة نظافة معداتهم قبل البدء بالعمل.

11. التخريب والارهاب البيولوجي:

ينطوي الارهاب البيولوجي على الاستخدام المتعمد لعوامل بيولوجية لنشر الامراض (مثل الجمرة الخبيثة والكوليرا وغيرها) أو التوكسينات (البوتولينوم، الخ) في الغذاء والماء أو الجو. يمكن لهذه العوامل أن تكون على شكل مساحيق او سوائل أو في أشكال أخرى. يعتبر تخريبا السلوك الهادف إلى خلق اضطرابات في العمل أو البيئة الاجتماعية . غالبا ما يكون مصدره شركة منافسة أو موظف او مجموعة ساخطة أو أحد مصادر المواد الاولية.
يشمل التخريب عموما تدمير الممتلكات أو إعاقة العمليات الانتاجية العادية .

لذلك، وبهدف الوقاية والحد من التخريب والارهاب البيولوجي يتمّ التشييك على كل الطلبيات الواصلة الى المستودع، فيتم رفض كل شحنة مشكوك بوضعها، ولا يتم استقبالها.
يلعب العمال دورا رئيسيا في الحد من هذه التهديدات المحتملة، فيتمّ تحفيذهم واعلامهم في التدريب الاولي عن ضرورة الابلاغ عن اي نشاط مشبوه يقوم به اي من زملائهم.
لا يسمح لأي شخص غريب بالدخول الى مناطق الانتاج الا ان كان مرافقا" من أحد المسؤولين في الشركة، او تمّ السماح والتصريح له بالدخول من مدير المعمل.
عند كل المداخل، نجد حراسا" يدققون بالعمال والزوار، فيتم تفتيشهم، على ان يدخلوا مناطق الانتاج بعد ارتداء الملابس الواقية لتغطية ملابسهم. كذلك، يوجد حراس عند كل المرافق الهامة للشركة.
كل مناطق الانتاج مجهزة بكاميرات مراقبة واضحة، تسجّل كل الاحداث التي تحصل.
تمّ تركيب ماكنات دخول اوتوماتيكية في المعمل الجديد تعمل على تقنية التعرّف على الوجه، فان لم تتعرّف الماكنة على الداخل، لن يستطيع تجاوز الحاجز المقفل، الذي يسمح له بالدخول الى المعمل. كذلك، تم تركيب ماكنات اوتوماتيكية مجهّزة بحواجز لتنظيف اليدين والجزامى، فلا يستطيع الداخل الولوج الى المعمل دون المرور عبرها.

أما في حال حصول حادثة تخريب أو ارهابا" بيولوجيا"، يجتمع فريق سلامة الغذاء لتقييم الوضع والحالة، فيتم اتخاذ الاجراءات اللازمة بحق المعنيين، التعديلات الوقائية اللازمة على البرنامج، ودراسة الأثر الناتج والمعالجة للسيطرة على الوضع. بحسب خطورة الموقف، يمكن اعلام السلطات المعنيّة (مثلا"، قوى الأمن: 112، وزارة الصحة: 01/615773/4/5/6 ...)

12. برنامج الوقاية و التعامل مع تعطل نظام التنظيف و التعقيم المركزي

يتم التنظيف و التعقيم في كافة أرجاء المصنع بواسطة استخدام نظام التنظيف و التعقيم المركزي الذي تم تجهيزه في المعمل الجديد في أنفه و ذلك من أجل تأمين نسبة دواء ثابتة على مدار الساعة. تكمن أهمية هذا النظام في أنه سهل الاستعمال اذ أنه يعمل بمفتاح تحكم و يمكن للعامل التنقل بين دواء التنظيف و التعقيم بسهولة بكبسة زر دون اللجوء الى خلط الدواء يدويا أذ إن النظام المركزي يقوم بضخ نسب الدواء مع المياه و خلطها بطريقة أوتوماتيكية و ذلك بهدف تأمين النسب المطلوبة لعملية التنظيف و التعقيم بشكل دقيق. تعطل هذا النظام قد يشكل مشكلة اذ أنه يكوّن العنصر الاساسي و الاهم في عملية التنظيف.

خطة الوقاية من تعطل نظام التنظيف المركزي :

1. تقوم الشركة الموردة لدواء التنظيفات بعملية معايرة شهرية لنظام التنظيف المركزي و ذلك للتأكيد على دقة نسب الدواء و التعقيم المستخرجة منه
2. يقوم مفتش قسم الجودة أسبوعيا بفحص نسب الدواء و التعقيم من كافة وحدات النظام و ذلك للتأكيد على حسن سير العمل فيه
3. يقوم قسم الصيانة بكشف دوري لتأكيد عمل مضخات الادوية و ضمان سحبها للدواء بالنسبة المطلوبة

4. خطة الاستجابة في حالة تعطل نظام التنظيف المركزي :

عند حدوث عطل في نظام التنظيف المركزي تتبع الخطوات التالية:

1. يقوم قسم النظافة بتبليغ قسمي الصيانة و الجودة عن العطل.
2. يقوم قسم النظافة بالرجوع الى برنامج التنظيف المعتمد و الاطلاع على نسب الدواء و التعقيم المعتمدة و يتم خلط الدواء يدويا في الجرّأت الاحتياط الموجودة في القسم و ذلك تحت إشراف مسؤول قسم النظافة
3. يتم رش الدواء و التعقيم بواسطة جرة ال Foam مع اتباع مراحل التنظيف المذكورة في برنامج النظافة الى حين اصلاح العطل في النظام المركزي
4. يقوم مفتشو الجودة بالاشراف أيضا على عملية خلط الادوية و على كامل مراحل التنظيف للتأكد من اتباعها بحسب البرنامج المذكور.

13. برنامج الوقاية و التعامل مع حوادث نقل سيارات المنتج (منتجات الدجاج و البيض)

يتم نقل المنتج (منتجات الدجاج و البيض) ضمن سيارات مخصصة مراعية شروط حفظ المنتج من جهة شروط التبريد و نظافة و طريقة نقل المنتج الى المستهلك و ذلك بهدف ضمان جودة و نوعية عالية للمنتج أثناء توزيعه.
يمكن لحوادث السير ان تشكل خطر على المنتجات الغذائية المنقولة و تسبب في ضرر كبير للمنتجات و من الضروري متابعة معالجة المنتجات المتضررة في حال حدوث ضرر للمنتج أثناء النفل نتيجة لحادث سير.

خطة الوقاية من حوادث السير :

1. تقوم الشركة بتوظيف سائقين ذو خبرة في سوق سيارات التبريد خاصة ان حجمها كبير و لا يسهل على اي احد قيادة السيارات المبردة.
2. لا يتم توظيف السائق الا بعد التأكد من حصوله على رخصة سوق خاصة بالمركبات المحدد سعتها 10 طون و ما فوق و هي رخصة القيادة المخصصة لسوق سيارات التبريد المخصصة لنقل المنتج.
3. يخضع كل سائق جديد للتدريب من قبل قسم الجودة قبل استلامه مهامه و ذلك بهدف تعريفه على المنتجات و طريقة التعامل مع اي طارئ قد يحصل معه اثناء التوزيع.
4. يتم تدريب السائقين سنويا حول كيفية التعامل مع المنتج جراء أي طارئ قد يحدث اثناء التوزيع.

خطة الاستجابة في حالة حصول حادث سير:

في حال حصول حادث سير اثناء توزيع المنتج يتم الالتزام بالتالي:

1. التوقف لمعاينة الاضرار الناتجة عن الحادث
2. معاينة المنتجات و تحديد الضرر اللاحق بها
2. ابلاغ المعنيين في الشركة عن الحادث و خطورته من اجل ارسال سيارة بديلة لنقل المنتجات الى الشركة و الكشف عليها من قبل قسم الجودة
3. في حال كان المنتج بيض ،عزل البيض المكسر و تلفه
4. في حال كان المنتج دجاج و مشتقاته عزل المنتجات المتضررة لتلفها
5. يتمّ مراجعة قسم الجودة لأخذ القرار المناسب حول التصرّف بالمنتج

كيفية تقييم فعالية هذه البرامج :

يتمّ تقييم كل برنامج من خلال الكشف على فعاليّته في المحافظة على سلامة المنتج و ضبط الوضع الطارئ بأسرع وقت ممكن و بأقل الخسائر الممكنة. كما سيتمّ اختيار برنامج محدّد ، سنويا"، لتنفيذ حالة طوارئ وهمية لتقييم مدى دقّة الاستجابة والفعالية. و على ضوء كافة النتائج يتمّ تطوير البرنامج المحدد و تحسينه اذا دعت الحاجة.

كيفية تطوير البرامج :

نتيجة تقييم البرامج، يتمّ تحديد نقاط الضعف لكلّ برنامج وسبل تطويره و ذلك خلال اجتماعات فريق سلامة الغذاء. كما يتمّ رفع كافة النتائج الى الاجتماع الاداري الموسّع لابداء الرأي و أخذ القرارات المناسبة.

السجلات المعتمدة

في كافة حالات الطوارئ, يتمّ تسجيل تفاصيل الاستجابة في تقرير حول الاستجابة لحالة طوارئ التي تؤثر على سلامة المنتج.

(AD-EPR-FOR-001)

البرنامج	العنوان
1. انقطاع مصدر المياه	تقرير حول الكشف الدوري على مياه القناة
	تقرير التفتيش على المياه
	عقد تشغيل صيانة نظام المياه
2. انسداد المجاري	تقرير أعمال الصيانة اليومية
3. خطر الصواعق	عقد صيانة أنظمة الحماية من الصواعق
4. تعطّل سيارات توزيع المنتج	تقرير تلف المنتج
	سجل الكشف اليومي على سيارات نقل المنتج
	سجل مراقبة حرارة سيارات نقل المنتج
	تفاصيل تعطل سيارات

البرنامج	العنوان
5. انقطاع التيار الكهربائي	الكشف على التبلوهات الأساسية و الرئيسية ضمن الشركة
	الكشف اليومي على المولّدات
	الكشف الدوري على المولّدات
	تقرير أعمال الصيانة اليومية
6. تعطّل نظام التبريد داخل المصنع	برنامج مراقبة التبريد (غرف و صالات)
	سجل الكشف اليومي
	تقرير مراقبة الحرارة عن بعد
7. خطر تسرّب الامونياك	الكشف الدوري على جميع إمدادات الامونياك
	تقرير أعمال الصيانة اليومية
	تقرير تلف منتج
8. جرح العمّال بالسكاكين	سجلات تدريب العمّال حول عن أفضل الطرق الوقائية
	تقرير تلف منتج
9. خطر الحرائق	الكشف الدوري من قبل فريق الصيانة
	ملصقات تثقيفية
	عقد صيانة المطافي
	تقرير تلف منتج
10. انقطاع المياه الساخنة	برنامج الصيانة
	سجل الكشف اليومي
	تقرير مراقبة حرارة المياه
11. التخريب والارهاب البيولوجي	سجلات الدخول، ومراجعة الكاميرات.
12. برنامج الوقاية و التعامل مع تعطل نظام التنظيف و التعقيم المركزي	برنامج الصيانة
	سجلات النظافة
	تقرير الجودة
13. التعامل مع حوادث نقل سيارات المنتج	تقرير الجودة
	تقرير الحادث

ملاحظات:

1. عند انقطاع الكهرباء لمدّة طويلة بسبب عطل ما، يقوم العمّال بإفراغ الغطاطة من الطيور.
2. في حال حدوث أي مشكلة في قساطل المياه، يتمّ إبعاد المنتج عن مصدر المشكلة، الإتصال بالصيانة، وفتح NCR من قبل قسم الجودة إذا لزم الأمر.
3. إذا حصل أي عطل في أي لانس يستعمل للتنظيف، ولم يكن هناك من بديل له، يبلّغ مسؤول قسم التنظيف قسم الجودة لفتح CAR والتصرّف على أساسها.

التعديل الحاصل: R6 زيادة التخريب والارهاب البيولوجي (قسم 11)

التعديل الحاصل:R7 زيادة برنامج الوقاية و التعامل مع تعطل نظام التنظيف و التعقيم المركزي(قسم 12)

التعديل الحاصل: R8 زيادة برنامج التعامل مع حوادث نقل سيارات المنتج(قسم 13)

APPENDIX G – TRAININGS CERTIFICATES

In-house training schedule for every department 2019

Topics : Food Safety (including GMP , GHP....) , HACCP , ISO22000 , Applied systems , administrative issues...

January		**July**		Training titles can be filled in Arabic or English
February		**August**		Prepared by : Quality department Department : Waste water and rendering Date : 15/02/2019 Manager's Signature : Amanda B. Awwad, Quality Assurance Manager
March		**September**		
April		**October**	Basic GMP/GHP	
May		**November**		AD-TRA-PRG-001 V1
June		**December**		

In-house training schedule for every department

Topics: Food Safety (including GMP, GHP…), HACCP, ISO22000, Applied systems, administrative issues…

January		**July**	Microbiological Training	Training titles can be filled in Arabic or English
February	KFC quality system(KPI, attributes measuring, calibration for personnel)	**August**	Training civil defense	Prepared By: Amanda Awwad Department: Quality Assurance Date: January -2019
March	Refresh ISO 22000 + HACCP,	**September**	GMP/GHP/Job safety	
April	FSSC 22000,Food Fraud, Food Defense	**October**	Monitoring and Inspection on site	Manager's Signature: Amanda Awwad Amanda B. Awwad Quality Assurance Manager
May		**November**	KFC calibration for personnel	AD-TRA-PRG-001 V1
June	ISO 17020 (General quality procedures)	**December**		

In-house training schedule for every department 2019

Topics : Food Safety (including GMP , GHP....) , HACCP , ISO22000 , Applied systems , administrative issues...

January		July	قسم الذبح	Training titles can be filled in Arabic or English
February		August	قسم القبان أول	Prepared by : Miled Jabbour Department : Production Date : 08/02/2019 Manager's Signature : Miled M. Jabbour Production Manager
March		September	قسم الفريزر	
April	قسم النظافة	October		
May		November		AD-TRA-PRG-001 V1
June	قسم المقطعات	December		

In-house training schedule for every department

Topics: Food Safety (including GMP, GHP…), HACCP, ISO22000, Applied systems, administrative issues…

January		July	**18/07/2019 training on emergency preparedness and response 29/07/2019 evaluation on emergency preparedness and response**	Training titles can be filled in Arabic or English
February		August	**17/08/2019 training on GMP / GHP 28/08/2019 evaluation on GMP / GHP**	Prepared By: Georges Kamel Department: maintenance Date: 22-02-2019 Manager's Signature: SLGH Maint Supervisor Georges J. Kamel SLGH Maintenance
March		September	**20/09/2019 general maintenance training 27/09/2019 evaluation on the general maintenance training**	
April		October	**18/10/2019 Training on Food Fraud & Food Defense 24/10/2019 Evaluation on Food Fraud & Food Defense**	
May		November		AD-TRA-PRG-001 V1
June	**27/06/2019Training on food safety policy & Calibration of the metal detector 30/06/2019 evaluation on food safety policy & Calibration of the metal detector**	December		

In-house training schedule for every department

Topics: Food Safety (including GMP, GHP…), HACCP, ISO22000, Applied systems, administrative issues…

January	Training on machines	**July**	General introduction for working in food industries	Training titles can be filled in Arabic or English
February	Cop monitoring	**August**		Prepared By: Roni Maghames Department: further processing Date: 03-01-2019 Manager's Signature: Roni S. Maghames Further Processing Manager
March		**September**	Food allergen	
April	Food fraud and food Defense + FSSC	**October**	Handling of potentially unsafe products	
May	Tracability and product recall	**November**	Emergency preparedness	AD-TRA-PRG-001 V1
June	Proper storage and fifo	**December**		

In-house training schedule for every department

Topics: Food Safety (including GMP,GHP,...),HACCP, ISO22000, Applied systems, administrative issues...

January		July		Training titles can be filled in Arabic or English
February	نظام العمل داخل القسم	August	دور ومسؤولية كل شخص في القسم	Prepared By : Farid Bchelly Department: Delivery Date: 15/1/2019 Manager's Signature: Farid W. Bchelly SLGH Delivery Supervisor
March		September		
April		October		
May	النظافة الشخصية	November	نظام العمل أثناء التوزيع	AD-TRA-PRG-001 V1
June		December		

In-house training schedule for every department

Topics: Food Safety (including GMP,GHP,…),HACCP, ISO22000, Applied systems, administrative issues…

January		**July**		Training titles can be filled in Arabic or English
February		**August**	تدريب اداري حول القضايا التي تتعلق بالتوزيع	Prepared By : ANTONIO HAWA Department: SALES AND DISTRIBUTION DEPT. Date: 15/1/2019 Manager's Signature:
March		**September**		
April	**GMP/GHP TRAINING**	**October**		
May		**November**		AD-TRA-PRG-001 V1
June	سياسة سلامة الاغذية برنامج الوقاية والتعامل مع تعطل سيارات توزيع المنتج كيفية تعبئة جداول الحرارات	**December**		

Antonio B. El Hawa
Sales Manager

APPENDIX H – WASTEWATER NETWORK WITHIN HAWA CHICKEN FACILITY

حدود العقار 204

خزان ماء مردوم

196

176

175

حدود العقار

173

180

181

83.85

157.25

EXISTING SLAUGHTER HOUSE

مسلخ الدجاج

196

3.11

حدود العقار

sewage water pipeline

4 %

sewage water pipeline

sewage water pipeline

196

167

167

168

196

3722

3723

158

3301

PUBLIC ROAD

NOTES

APPENDIX I – TREATED EFFLUENT MEASUREMENTS RESULTS – INTERNAL AND EXTERNAL

LABORATORY

Department

Waste Water Plant

Date:	05/11/2019

Tank:		M^3/hr Out :	45
Sample Description	Each Sample is a composite of 6 sub-samples taken each 2hrs starting from 8:00 pm. Slaughtering was done at usual capacity of 75000 birds		

Submitter:	Mahmoud Ajaj

Accession number	Type of sample	Limits Values *	BOD_5	COD	Total P	Total N	Suspended solids	Coliformes (37^0 C in 100 ml)	Salmonella	pH	Fat, Oil & Grease	Nitrate (NO3)
		Discharged into sea	*25 mg/L*	*125 mg/L*	*10 mg/L*	*30 mg/L*	*60 mg/L*	*$2x10^3$ cfu/100 mL*	*Not detected*	*6-9*	*30 mg/L*	*90 mg/L*
		Discharged into the sewer system	*125 mg/L*	*500 mg/L*	*10 mg/L*	*60 mg/L*	*600 mg/L*	—	*Not detected*	*6-9*	*50 mg/L*	—
19-2588	Infleunt	Results	2200	3680		228	1830					
19-2589	Pre-Treatment		1520	2424		190	610					
19-2590	Effluent		12	57		8	32					

* Environmental Limits Values (ELV) for wastewater refered to the National Standards for Environmental Quality, Ministry of Environment, Beirut, Lebanon

General Comments:

Laboratory Manager

Customer Information

Company: Hawa Chicken
Client's Contact Person: Ali Eid
Address: NS
Phone: 03-658376
Fax: NA **Email:** alieid@hawachickenlb.com
Date Sample Submitted to EVL: 05/11/2019@11:10AM
Sample Submitted By: Ali Eid
Payment Information:
Receipt #: 0666917

Sample Information

Type/Matrix: Wastewater
Submatrix: Industrial water
Sample Label: 1-Influent, 2-Pre-Treatment, 3-Effluent
Date Sample Collected: 05/11/2019@01:00AM
Sample Collected By: Ali Eid
Sample Collection Location: Company Premises
Production Date: NA
Expiration Date: NA
Sample Container provided by EVL:
Preservatives Added to Sample Container: No

Sample Containers' Identification	Volume/Weight & Quantity Delivered	Preservative [s] & Concentration Added
Commercial Glass Bottle	1L each	None

Further Sample/ Customer Information: None

Abbreviations:

MCL:	Maximum Contaminant Limit-Highest amount of a specific contaminant allowed for discharge into the sea or surface water from existing facilities and newly established facilities.	EU:	European Union Standards
		CFU:	Colony Forming Unit
EERC:	Environmental Engineering Research center at AUB	MOI:	Ministry of Industry
EPA:	Environment Protection Agency-United States	MOH:	Ministry of Health
UR:	Uncertainty Range of Reported Result	NA:	Not Applicable
MOE:	Lebanese Ministry of Environment	NE:	Not Estimated
LOQ:	Minimum Limit of Quantification	NS:	Not Specified
WHO:	World Health Organization		

References:

1. EPA 200- 7/8 (1991). Methods for the determination of metals in environmental samples
2. HACH Water Analysis Handbook Procedures, 5th edition, February 2008
3. ISO 6579 Microbiology of food and animal feeding stuffs - Horizontal method for the detection of Salmonella spp
4. Methods for the determination of extractable petroleum hydrocarbons (EPH) (2004, Rev. 1.1). Massachusetts Department of Environmental Protection
5. National standards for environmental quality-wastewater discharges, decree 8/1, official gazette (Issue # 10) dated on 1/3/2001, addendum 4-5, p. 685-688, Ministry of Environment.
6. OEA cookbook 33808255 Italy December 2001
7. Standard Methods For The Examination of Water and Wastewater, 21st edition, 2005-APHA
8. Subcontracted Services: Further bacterial identification on isolated colonies (if applicable to this job report) is done at the CAP accredited Microbiology Laboratory at the Pathology & Laboratory Medicine Department, AUBMC
9. TNT Persulfate Digestion Method. https://www.google.com.lb/url?sa=t&source=web&rct=j&url=https://www.hach.com/asset-get.download.jsa%3Fid%3D7639983633&ved=0ahUKEwjghM6w2PbUAhUHsBQKHcmsDiMQFggrMAI&usg=AFQjCNGNh8tmFkw7wy0rp_PkVkMluhSARA

Sample 1 Results - "Influent":

Physical & Chemical Parameters:

Analysis	LOQ	Sample Result (R)	Method	UR	MCL- Sea Existing & New Facilities	MCL- Surface Water Existing & New Facilities
Nitrogen, Total	10 mg/L	179 mg/L	HACH Method 10072	R±16% of R	40 mg/L & 30mg/L	40 mg/L & 30mg/L
Total Suspended Solids	5 mg/L Or 0.005g/L	4.87 g/L	Weighing-Gravimetry APHA 2540 D	R±17% of R	200 mg/L & 60 mg/L	200 mg/L & 60 mg/L
BOD 5	20 mg/L	671 mg/L	Respirometry APHA 5210 B	R±35% of R	100 mg/L & 25 mg/L	100 mg/L & 25 mg/L
COD	12.5 mg/L	4.60 g/L	COD reactor APHA 5220 D	R±14% of R	250 mg/L & 125 mg/L	250 mg/L & 125 mg/L

Sample 2 Results – "Pre-Treatment":

Physical & Chemical Parameters:

Analysis	LOQ	Sample Result (R)	Method	UR	MCL- Sea Existing & New Facilities	MCL- Surface Water Existing & New Facilities
Nitrogen, Total	10 mg/L	132 mg/L	HACH Method 10072	R±16% of R	40 mg/L & 30mg/L	40 mg/L & 30mg/L
Total Suspended Solids	5 mg/L	711 mg/L	Weighing-Gravimetry APHA 2540 D	R±17% of R	200 mg/L & 60 mg/L	200 mg/L & 60 mg/L
BOD 5	20 mg/L	961 mg/L	Respirometry APHA 5210 B	R±35% of R	100 mg/L & 25 mg/L	100 mg/L & 25 mg/L
COD	12.5 mg/L	11.3 g/L	COD reactor APHA 5220 D	R±14% of R	250 mg/L & 125 mg/L	250 mg/L & 125 mg/L

Sample 3 Results – "Effluent":

Physical & Chemical Parameters:

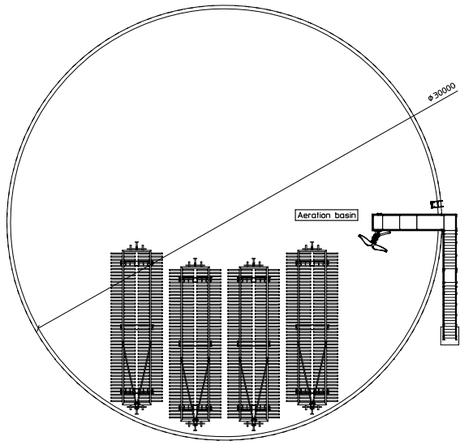
Analysis	LOQ	Sample Result (R)	Method	UR	MCL- Sea Existing & New Facilities	MCL- Surface Water Existing & New Facilities
Nitrogen, Total	10 mg/L	<10 mg/L	HACH Method 10072	R±16% of R	40 mg/L & 30mg/L	40 mg/L & 30mg/L
Total Suspended Solids	5 mg/L	22.8 mg/L	Weighing-Gravimetry APHA 2540 D	R±17% of R	200 mg/L & 60 mg/L	200 mg/L & 60 mg/L
BOD 5	20 mg/L	93 mg/L	Respirometry APHA 5210 B	R±35% of R	100 mg/L & 25 mg/L	100 mg/L & 25 mg/L
COD	12.5 mg/L	61 mg/L	COD reactor APHA 5220 D	R±14% of R	250 mg/L & 125 mg/L	250 mg/L & 125 mg/L

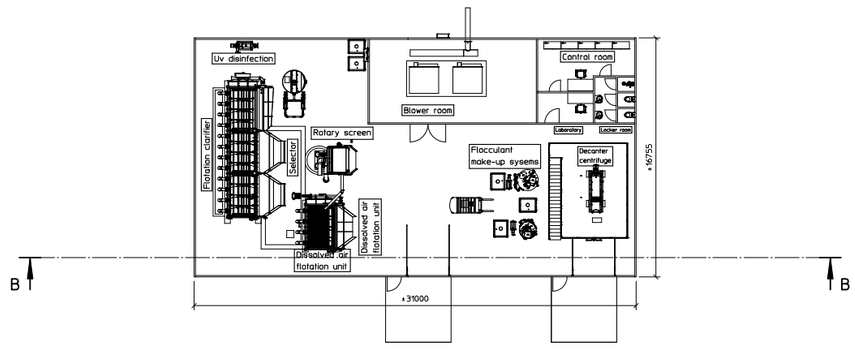
Retention of Samples: Samples are discarded one week after delivery of report.
Contact Information: For administrative information, complaints or any other queries, Dr. Asma Bazzi, EVL Administrator, can be reached at 01-350000, extension 4850, or by email at ab19@aub.edu.lb or by fax: 01-350000, extension 4824.

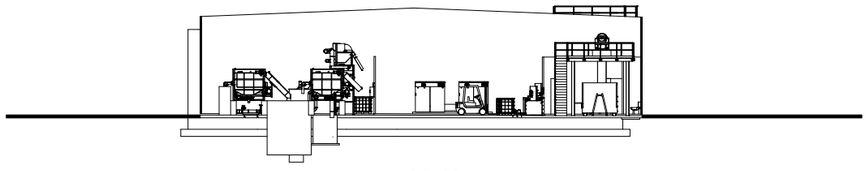
For further technical information, Dr. Carol Sukhn, EVL supervisor, can be reached at extensions 4845, 4824, or by email at cs02@aub.edu.lb. Thank you for using the Analytical Chemistry Laboratory at AUB.

Dr. Ghazi Zaatari
Chairman of Pathology and Laboratory Medicine
Chairman of Environment Core Laboratory

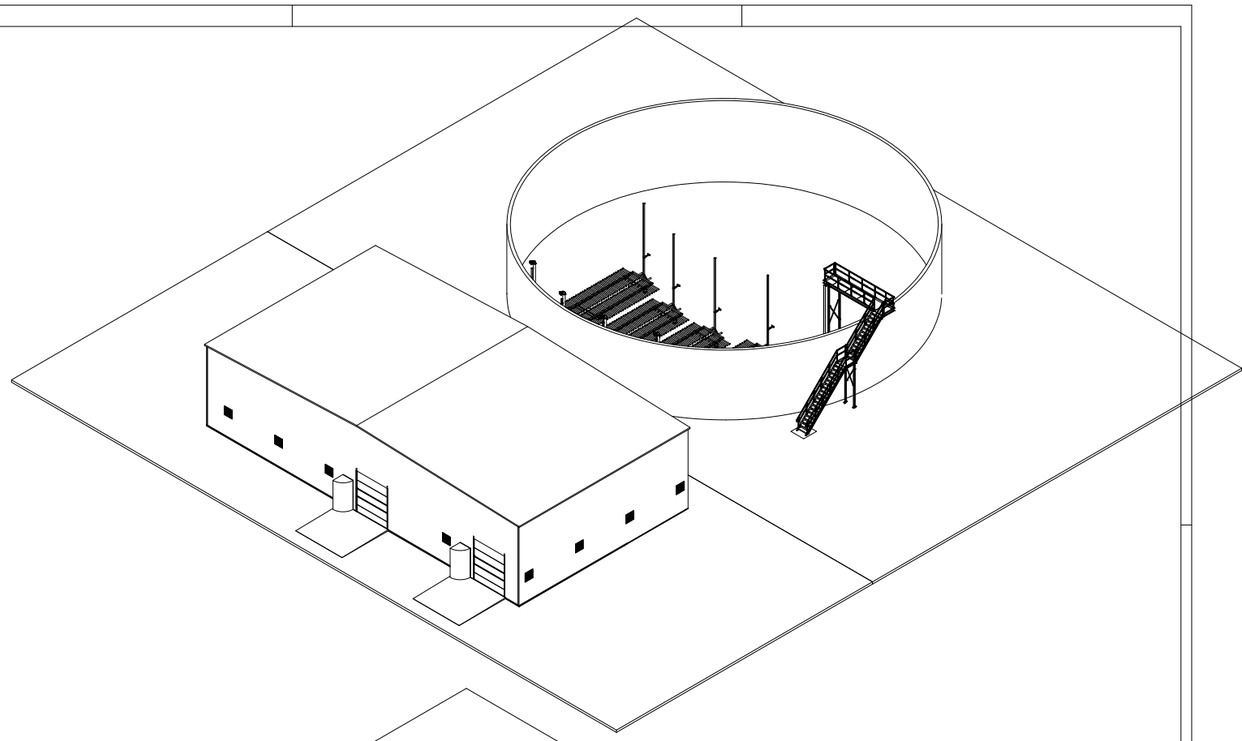
APPENDIX J - LAYOUT OF THE PROPOSED WWTP

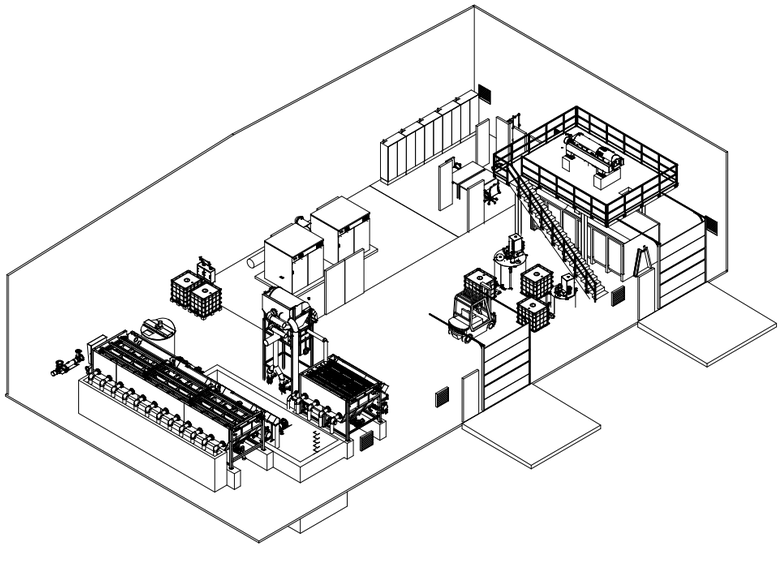






Section B-B





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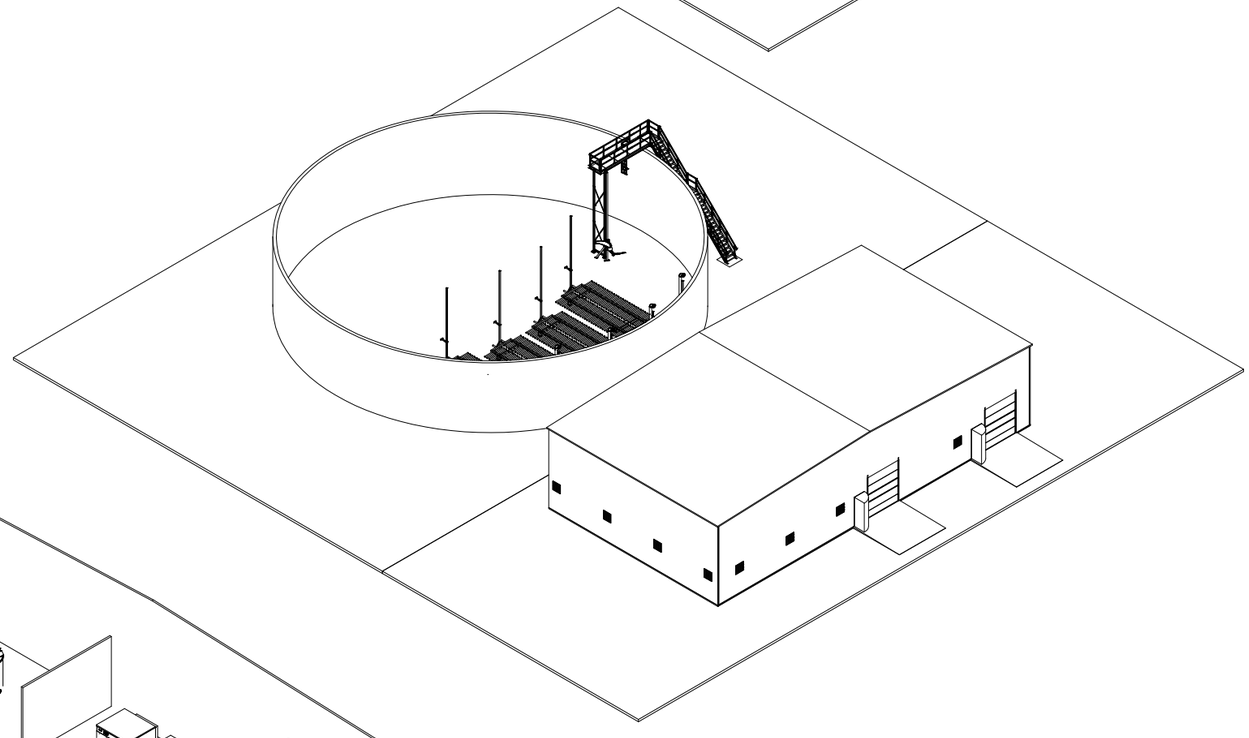

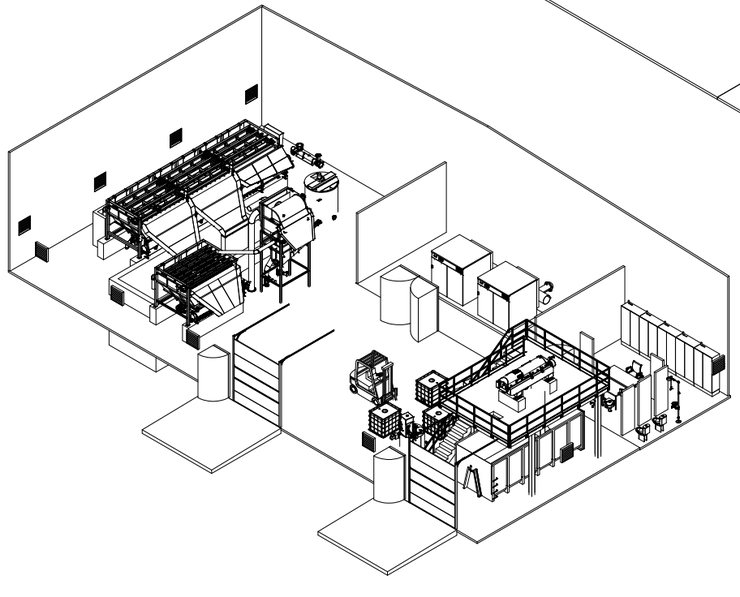

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Rev.	Drn. by	Date	Description revision

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Project nr.	Sub. nr.	Customer			Form. / Dim.
-	-	Hawa Chicken			A0 / mm.
Description	Layout proposal for an Aerobic biological treatment system				Projection / Scale -
Drn. by	Date	Status	Sheet	Draw. nr.	Rev.
MvB	29-08-2019	-	1	190567	A

APPENDIX K - ISO CERTIFICATE AND FSSC 22000

Certificate LB19/2342983

The Food Safety Management System of

HAWA CHICKEN s.a.l.

Anfeh, Koura, Lebanon

has been assessed and complies with the requirements of

Food Safety System Certification (FSSC) 22000

(Version 4.1)

Certification scheme for food safety management systems consisting of the following elements: ISO 22000:2005, ISO/TS22002-1:2009 and additional FSSC 22000 requirement (version 4.1).

This certificate is applicable for:

processing of frozen chicken products manually and automatically stuffed processed chicken products, ready to eat chicken products.

Food Category: CI - Processing of perishable animal products

This certificate is valid from 28 June 2019 until 29 June 2021
and remains valid subject to satisfactory surveillance audits.
Date of Certification decision 28 June 2019
Re-certification audit due 60 days prior to expiry date
Issue 1. Certified since 7 October 2019

The audit leading to this certificate commenced on
Previous issue certificate validity date was until

Authorised by

Authorised Accredited Office Manager

SGS United Kingdom Ltd
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK
t +44 (0)151 350-6666 f +44 (0)151 350-6600 www.sgs.com

UKAS MANAGEMENT SYSTEMS
0005

Validity of this certificate can be verified in the FSSC 22000 database of certified organizations available on www.fssc22000.com.

Certificate CH07/1317

The management system of

HAWA CHICKEN s.a.l.

Safra, Kesserwan, Lebanon
Anfeh, North-Lebanon, Lebanon

has been assessed and certified as meeting the requirements of

ISO 22000:2005

For the following activities

The Processing & Distribution of: Fresh & Frozen Poultry Meat, Frozen Processed Poultry Meat, Ready to eat Poultry, Table Eggs recovering Food Category – CI Processing of perishable animal products

This certificate is valid from 26 June 2018 until 21 June 2021
and remains valid subject to satisfactory surveillance audits
Recertificationaudit due before 28 May 2021 Issue 2.
Certified since June 2015

Authorised by

SGS Société Générale de Surveillance SA Technoparkstrasse
1 8005 Zurich Switzerland
t +41 (0)44 445-16-80 f +41 (0)444 45-16-88 www.sgs.com

APPENDIX L – EHS GUIDELINES

Environmental, Health, and Safety Guidelines for Poultry Processing

Introduction

The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP)[1]. When one or more members of the World Bank Group are involved in a project, these EHS Guidelines are applied as required by their respective policies and standards. These industry sector EHS guidelines are designed to be used together with the **General EHS Guidelines** document, which provides guidance to users on common EHS issues potentially applicable to all industry sectors. For complex projects, use of multiple industry-sector guidelines may be necessary. A complete list of industry-sector guidelines can be found at: www.ifc.org/ifcext/enviro.nsf/Content/EnvironmentalGuidelines

The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them. The applicability of the EHS Guidelines should be tailored to the hazards and risks established for each project on the basis of the results of an environmental assessment in which site-specific variables, such as host country context, assimilative capacity of the environment, and other project factors, are taken into account. The applicability of specific technical recommendations should be based on the professional opinion of qualified and experienced persons. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects are expected to achieve whichever is more stringent. If less stringent levels or measures than those provided in these EHS Guidelines are appropriate, in view of specific project circumstances, a full and detailed justification for any proposed alternatives is needed as part of the site-specific environmental assessment. This justification should demonstrate that the choice for any alternate performance levels is protective of human health and the environment.

Applicability

The EHS Guidelines for poultry processing include information relevant to processing of chickens, but can be applied to other similar types of poultry processing, such as turkey and ducks. These Guidelines cover process steps from the reception of live birds, slaughter, evisceration, and simple rendering. Poultry rearing is addressed in the EHS Guidelines for Poultry Production. For guidance on animal welfare, see the IFC Good Practice Note "Animal Welfare in Livestock Operations."[2] This document is organized according to the following sections:

Section 1.0 — Industry-Specific Impacts and Management
Section 2.0 — Performance Indicators and Monitoring
Section 3.0 — References and Additional Sources
Annex A — General Description of Industry Activities

[1] Defined as the exercise of professional skill, diligence, prudence and foresight that would be reasonably expected from skilled and experienced professionals engaged in the same type of undertaking under the same or similar circumstances globally. The circumstances that skilled and experienced professionals may find when evaluating the range of pollution prevention and control techniques available to a project may include, but are not limited to, varying levels of environmental degradation and environmental assimilative capacity as well as varying levels of financial and technical feasibility.

[2] http://www.ifc.org/ifcext/enviro.nsf/Content/Publications_GoodPractice. An additional source for animal welfare guidance is the Farm Animal Welfare Council available at www.fawc.org.uk

1.0 Industry-Specific Impacts and Management

The following section provides a summary of EHS issues associated with the operations phase of poultry processing, along with recommendations for their management. Recommendations for the management of EHS issues common to most large industrial facilities during the construction and decommissioning phases are provided in the **General EHS Guidelines.**

1.1 Environment

EHS issues in poultry processing projects include:

- Solid organic wastes and by-products
- Wastewater
- Emissions to air
- Energy consumption

Solid Organic Wastes and By-products

Slaughtering and rendering activities may generate significant quantities of organic waste. The carcass yield is, on average, 75 percent of the live bird weight. The resulting solid waste depends on the conversion rate of reprocessing the waste from slaughtering into saleable by-products.

Solid waste can be divided in to two groups: (1) low-risk material originating from healthy birds and, (2) high-risk material that has the potential to transfer disease to humans and animals. Examples of high-risk material include birds that died from causes other than slaughtering, birds or bird parts condemned as unfit for human consumption, and birds suspected of carrying a disease that can be transferred to animals (e.g. Newcastle Disease).[3] Due to potential impacts to humans, birds suspected of being infected with Highly Pathogenic Avian Inluenza (HPIA), or birds that are confirmed to be infected with HPIA, should also be treated as high risk material. Specific guidance on the handling of these birds is provided below.

Recommended management methods to prevent and control generation of organic solid waste include the following:

- Halting feeding 6 to 10 hours[4] before transport to reduce the volume of excreta to be removed after transport or slaughter. Provision of adequate slurry storage capacity for excreta until it is transported for disposal or for use as agricultural fertilizer;
- Reprocessing as much of the low-risk and high-risk material as possible. Recommended guidance on handling of risk materials includes:
  - Since disposal of high-risk material is typically conducted through off-site rendering in an energy intensive process, avoiding mixing low-risk and high-risk materials is recommended. A mixture of low-risk and high-risk materials should be classified as high-risk material and treated accordingly
  - Examples of reprocessing opportunities for low-risk material include use of feathers and down from waterfowl in garments and household items; use of heat treated products as animal feed for pigs, fish and shrimp production; and use of poultry feet for human consumption
- For low-risk material that cannot be reprocessed into by-products, alternative treatments such as acidification, biogas production, use as agricultural fertilizers, and incineration should be considered. Incineration should only

[3] A complete of the most relevant poultry disease can be found on the World Organization for Animal Health (OIE) website: http://www.oie.int/eng/en_index.htm.

[4] UK Environment Agency (2001).

be conducted in permitted facilities operating under international recognized standards for pollution prevention and control.[5]

Highly Pathogenic Avian Influenza (HPAI)

If a batch of birds delivered to the slaughterhouse is suspected of infection with Highly Pathogenic Avian Influenza (HPAI), the birds must be stored separately to avoid contact with healthy birds. HPAI should be suspected when the dead-on-arrival (DOA) frequency is abnormally high, and in connection with other symptoms (e.g. discoloring of the head and tail regions and respiratory problems). The presence of HPAI should be considered when heat stress and other poultry diseases can be excluded as the cause of high DOA frequency.

In general, birds suspected of HPAI infection are killed. Suspected dead birds, as well as all birds which have arrived at the slaughterhouse at a later time than the suspected birds, are kept isolated until testing has established their HPAI status.

If HPAI is confirmed, the entire carcass of the dead birds should be handled as high risk material and transported safely to a rendering facility. Trucks and equipment (e.g. crates and racks) used for transport, as well as personnel, should be thoroughly cleaned and disinfected to prevent disease transmission from one farm to another. The transport route should avoid areas with high density of poultry to reduce the risk of spreading the virus. The slaughterhouse should be cleaned and disinfected, and a minimum operational shutdown of 24 hours should be applied. Personnel working in close proximity should take necessary protective measures as detailed in the Occupational Health and Safety section (see below).[6]

Sludge Treatment and Disposal

Poultry processing operators should consider the following measures to minimize sludge generated from wastewater treatment processes:

- Reuse of high-quality, low risk by-products (e.g. screened materials), and suspended solids and emulsified fats from flotation that are separated during pretreatment processes (e.g. for pet food manufacturing);
- Use of aerobic stabilization or anaerobic digestion. If biogas is produced, blood, fat, and manure are good sources of organic materials. Anaerobic stabilization improves the sludge applicability for agricultural use. Pathogens present in the sludge can be destroyed during controlled anaerobic digestion (biogas) or aerobic treatment (composting);
- Disposal of fat at landfills if it can not be used for biogas production.

Wastewater

Industrial Process Wastewater

Poultry processing activities require large amounts of high quality water for process cleaning and cooling. Process wastewater generated during these activities typically has high biochemical and chemical oxygen demand (BOD and COD) due to the presence of organic material such as blood, fat, flesh, and excreta. In addition, process wastewater may contain high levels of nitrogen, phosphorus, residues of chemicals such as chlorine used for washing and disinfection, as well as various pathogens including salmonella and campylobacter.

Recommended techniques to minimize generation of wastewater include:

[5] Examples of key environmental issues associated with incinerations facilities are available in the IFC EHS Guidelines for Waste Management Facilities.
[6] Based on guidelines provided in articles 36-39 of Council Directive 2005/94/EC, and recommendations by the Danish Veterinary and Food Administration.

- Removal of solid organic waste from transport equipment before rinsing and washing. Organic materials should be collected separately for recycling;
- Use of grids and screens in the factory floor to prevent solid organic material from entering the wastewater collection channels;
- Ensuring that leakage from animal by-product storage containers is avoided (e.g. preventive maintenance, corrosion inspection);
- Use of dripping trays to collect blood and ensure that it is transported to the blood tank rather than into the wastewater stream;
- Consider use of steam scalding of birds to avoid excessive wastewater generation from scalding tanks;
- Where scalding tanks are used, ensuring the entry of birds to the scalding tank does not cause overflow of the tank liquid. Drippings from birds leaving the scalding tank and from overflows should be collected and reused in the scalding tank;
- Regular adjustment of evisceration machinery to reduce accidental release of fecal matter due to the rupture of birds' intestinal tract (resulting in the need for frequent rinsing);
- Where feasible, transportation of organic material using vacuum pumps instead of water transport;
- Application of appropriate tank and equipment cleaning procedures. Cleaning-in-Place (CIP) procedures are useful to reduce chemical, water, and energy consumption in cleaning operations;
- Choosing cleaning agents and application rates that do not have adverse impacts on the environment, or on wastewater treatment processes and sludge quality for agricultural application.

Process Wastewater Treatment

Techniques for treating industrial process wastewater in this sector include grease traps, skimmers or oil water separators for separation of floatable solids; flow and load equalization; sedimentation for suspended solids reduction using clarifiers; biological treatment, typically anaerobic (if high in organic content) followed by aerobic treatment, for reduction of soluble organic matter (BOD); biological nutrient removal for reduction in nitrogen and phosphorus; chlorination of effluent when disinfection is required; dewatering and disposal of residuals; in some instances composting or land application of wastewater treatment residuals of acceptable quality may be possible. Additional engineering controls may be required to (i) remove parasitic eggs or spores from influent that may pass through treatment system untreated, and (ii) contain and neutralize nuisance odors.

Management of industrial wastewater and examples of treatment approaches are discussed in the **General EHS Guidelines**. Through use of these technologies and good practice techniques for wastewater management, facilities should meet the Guideline Values for wastewater discharge as indicated in the relevant table of Section 2 of this industry sector document.

Other Wastewater Streams & Water Consumption

Guidance on the management of non-contaminated wastewater from utility operations, non-contaminated stormwater, and sanitary sewage is provided in the **General EHS Guidelines**. Contaminated streams should be routed to the treatment system for industrial process wastewater. Elevated consumption of high quality water is characteristic of poultry processing. Water is used for cleaning vehicles, rinsing carcasses and by-products, cooling, transporting the product during production processes, and cleaning and sterilizing equipment and process areas. Recommended techniques to reduce and manage water

consumption, especially where it may be a limited natural resource, are provided in the **General EHS Guidelines.** Specific water consumption recommendations for poultry processing operations include:

- Optimizing water consumption for rinsing and cooling without jeopardizing food safety;
- Where hygiene regulations permit, replacing transport of products and by-products that use water as a media (e.g. feathers after the plucking operation has taken place) with mechanical transport;
- Dry cleaning process areas with a scraper, broom, or specially designed vacuum cleaner before cleaning with water;
- Considering the use of an ice-water mixture in the counter flow water chiller to reduce the required volume of cooling water. (Note that this will likely increase energy consumption.)
- If feasible, replacing counter flow water chiller by air cooling to reduce water consumption. (Note that this will likely increase energy consumption.)

Emissions to Air

Air emissions from combustion sources, such as boiler houses and generators for electric power, are addressed in the **General EHS Guidelines.** Air emission issues of concern in this sector are mainly associated with odor.

Odor Prevention and Control

Major process odor sources include scalding, live bird handling, wastewater treatment, and rendering. Other sources of odors include by-products, blood collection tanks, manure piles, and fat traps.

Recommended measures to prevent the generation of odor emissions include:

- Maintenance of clean live bird handling areas by removing fecal matter and dead birds on a daily basis;
- Emptying and cleaning fat traps frequently;
- Reducing the inventory of raw carcasses, waste, and by-products and minimizing any storage to short periods of time in a cold, closed, well-ventilated area. Dead birds, waste, and byproducts should not be stored in open spaces, where possible;
- Sealing off animal by-products during transport and transporting blood in insulated containers to reduce temperature increase;
- Where feasible, installation of rendering equipment in enclosed buildings operated under negative air pressure.

Recommended measures to control odor emissions include:

- Use of exhaust stack heights from rendering and smoking processes that are consistent with Good Engineering Practice (GEP) as described in the **General EHS Guidelines**;
- If the facility is in close proximity to residential areas, the use of wet scrubbers to remove odor emissions should be considered. Wet scrubbers are used to remove odors with a high affinity to water, such as ammonia emitted during the rendering process.

Energy Consumption

Poultry processing facilities use energy to heat water and produce steam for process applications, cleaning purposes, and for the operation of mechanical and electrical equipment, refrigeration, and air compressors. In addition to the energy-efficiency recommendations presented in the **General EHS Guidelines**, recommended improvements in the poultry processing sector include:

- Coverage and insulation of scalding tanks; control of water levels and recirculation of water; use of steam rather than scalding for poultry processing; and use of insulated sterilizers to sterilize knives and other equipment;
- Improvement in cooling efficiency by insulating refrigeration room / areas and doors; installation of an automatic door-closing mechanism (e.g. micro-switches); use of airlocks; and setting alarms to alert operators when chill room doors and external loading doors are left open;
- Recovery of evaporative energy in the rendering process through the use of multi-effect evaporators.[7]

1.2 Occupational Health and Safety

Occupational health and safety issues during the operation of poultry processing facilities primarily include the following:

- Physical hazards
- Biological hazards
- Chemical hazards
- Exposure to heat and cold
- Exposure to noise and vibrations

Physical Hazards

Physical hazards include exposure to same-level fall hazards due to slippery conditions, the use of machines and tools, and collisions with internal transport equipment (e.g. forklift trucks and containers). Guidance on general workplace conditions, including design and maintenance of working and walking surfaces to prevent slips and falls, is presented in the **General EHS Guidelines**. Additional, industry-specific recommendations include[8]:

- Implementation of proper design and management of floor and equipment by:
  - Ensuring that the process layout reduces opportunities for process activities to cross paths, thus avoiding collisions and falls
  - Demarcating transport corridors and working areas, and installing handrails on platforms, ladders, and stairs
  - Grounding all electrical equipment and installations in wet rooms
  - Avoiding spillage and leakage of product or wastes, and implementing cleaning procedures, including drying wet floors after cleaning
  - Avoiding uneven floor surfaces
  - Ensuring adequate lighting in all work areas
  - Optimizing the temperature or providing appropriate personal protective equipment (PPE) at workstations, as the risk of injury is greater when working in a cold environment
  - Training workers in the use of cutting equipment, including the proper use of machine safety devices, and PPE for cutting activities (e.g. metallic gloves and leather aprons) , and protective footwear with rubber soles
  - Ensuring that moving parts on conveyor belts, packaging and skinning machinery, and gizzard peelers are properly safeguarded

Lifting, Carrying, and Repetitive Work

Poultry processing activities may give rise to a variety of situations in which workers can be exposed to lifting, carrying, and repetitive work, and work posture injuries.[9] Such situations include heavy lifting involved in live catch and shackling birds;

[7] UNEP (2000).

[8] Further industry specific guidance for the prevention and control of accidents in this sector is available from U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) Poultry Processing Industry e-Tool available at: http://www.osha.gov/SLTC/etools/poultry/index.html

[9] Ibid.

manual lifting of boxes; and pushing or pulling carts and manually operated fork lifts used for internal transport of poultry.

Examples of repetitive work include boning and operating machinery (e.g. slicing and vacuum packing machines). Poor working postures may result from the design of the workspace, furniture, machinery, and tools. Recommended prevention and control measures for repetitive work are discussed in the **General EHS Guidelines**. Industry-specific measures for poultry processing include the following:

- Reducing repetitive work operation by job rotation (e.g. live bird handling activities);
- Installation of gas stunning machines to facilitate bird shackling;
- Mechanizing manual processes (e.g. slaughtering and boning) if possible, including the use of electric cutting equipment.

Biological Hazards

Workers involved in operations requiring bird handling may be exposed to dust, biological, and microbiological agents. This may result in eye and skin irritations, allergic reactions, and Newcastle Disease or ornithosis. Pathogens including salmonella and campylobacter may cause skin and respiratory tract infections. Specific precautions need to be taken by workers that come into contact with birds that are suspected or confirmed of contamination with HPAI. Recommended industry-specific measures to control worker exposure to biological hazards include:

- Installation of exhaust ventilation at the source of dust and gases (e.g. the live bird handling area);
- Work rotation strategies to reduce occupational exposure to biological hazards;
- Avoiding dust and aerosol generating activities (e.g. use of compressed air or high pressure water for cleaning) and, where this is not possible, providing proper ventilation of enclosed or semi-enclosed areas to reduce or eliminate exposure to dust and aerosols;
- Providing workers with PPE appropriate for the activity (e.g. gloves, ventilated helmets, and other equipment in high-risk operations, such as live bird handling);
- Ensuring physical segregation of work and welfare facilities to maintain worker personal hygiene;
- Prohibition of smoking or eating in the workplace;
- Provision of washing facilities for workers.

Personnel working in close contact with birds that are suspected or confirmed of contamination with HPAI should protect themselves by:

- Use of appropriate PPE including face masks approved for virus protection, protective eyewear, rubber gloves, and disposable protective clothing that covers the entire body;
- Regular handwashing with soap and alcohol;
- Use of antivirus drugs (e.g. Tamiflu) for personnel working with birds and products suspected of infection with HPAI. In general, personnel should be vaccinated every year against human influenza to minimize the risk of recombination of human and avian influenza strains.

Chemical Hazards

Exposure to chemicals (including gases and vapors) typically involves chemical-handling activities related to cleaning operations and disinfection of process areas, in addition to the maintenance of heating (thermal oils) and cooling systems (ammonia). Recommended measures to prevent and control exposure to chemicals are discussed in the **General EHS Guidelines**.

Heat and Cold

Potential occupational impacts from exposure to heat and cold include heat from scalding and other operations, and cold in refrigeration areas and rooms. Recommendations for the management of exposure to heat and cold are presented in the **General EHS Guidelines**.

Noise and Vibration

Noise and vibration exposure may result from proximity to noisy machinery such as compressors, automatic packing machinery, condensers, ventilation units, and pressurized air, among other sources. Recommendations for noise management are addressed in the **General EHS Guidelines.**

1.3 Community Health and Safety

Community health and safety impacts during the construction and decommissioning of poultry processing facilities are common to those during the construction of other industrial facilities, and are discussed in the **General EHS Guidelines**.

Food Safety Impacts and Management

A robust food safety program can protect a company from product adulteration, contamination, and the impacts of food recalls that can damage a viable business. If products can be traced to specific lot numbers, recall is a matter of tracking and removing all foods associated with specific lot numbers.

Poultry processing should be performed according to internationally recognized food safety standards consistent with the principles and practice of Hazard Analysis and Critical Control Point System (HACCP)[10] and Codex Alimentaria.[11] In addition, recommended food safety principles and measures include:

- Respecting "clean" and "dirty" zoning, designed in accordance with HACCP prerequisites (e.g. sanitary standard operating procedures as discussed below);
- Ensuring the cooling chain is unbroken for sensitive products requiring refrigeration;
- As far as possible, ensuring full traceability of all materials and products throughout the supply chain;
- Adequate veterinary inspection, including examination of vaccination certificates for the animals in the supply chain;
- Compliance with veterinary regulations and precautions to be taken for waste, sludge, excreta, and by-products;
- Establishment of appropriate laboratory facilities to undertake testing of swabs, products, and processes;
- Regular testing of staff for salmonella (and other diseases)
- Full institutionalization of HACCP prerequisites throughout the supply / production chain including:
    - Sanitation
    - Good Management Practices (GMPs)
    - Pest control
    - Chemical control
    - Allergen control
    - Customer complaints mechanism
    - Traceability and recall

In addition, the HACCP program should consider industry-specific issues for poultry processing such as the risk of pathogens (e.g. salmonella, campylobacter, and listeria monocytogenes); drug and chemical residues; and metal fragments from processing machinery.

[10] ISO (2005).
[11] FAO and WHO (1962–2005).

2.0 Performance Indicators and Monitoring

2.1 Environment

Emissions and Effluent Guidelines

Table 1 presents effluent guidelines for the poultry processing sector. Guideline values for process emissions and effluents in this sector are indicative of good international industry practice as reflected in relevant standards of countries with recognized regulatory frameworks. These guidelines are achievable under normal operating conditions in appropriately designed and operated facilities through the application of pollution prevention and control techniques discussed in the preceding sections of this document.

Table 1. Effluent levels for poultry processing

Pollutant	Unit	Guideline Value
pH	pH	6 – 9
BOD_5	mg/l	50
COD	mg/l	250
Total nitrogen	mg/l	10
Total phosphorus	mg/l	2
Oil and grease	mg/l	10
Total suspended solids	mg/l	50
Temperature increase	°C	<3[b]
Total coliform bacteria	MPN[a] / 100 ml	400
Active Ingredients / Antibiotics	To be determined on a case specific basis	

Notes:
[a] MPN = Most Probable Number
[b] At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity

These levels should be achieved, without dilution, at least 95 percent of the time that the plant or unit is operating, to be calculated as a proportion of annual operating hours. Deviation from these levels in consideration of specific local project conditions should be justified in the environmental assessment.

Effluent guidelines are applicable for direct discharges of treated effluents to surface waters for general use. Site-specific discharge levels may be established based on the availability and conditions in use of publicly operated sewage collection and treatment systems or, if discharged directly to surface waters, on the receiving water use classification, as described in the **General EHS Guidelines**.

Emissions guidelines are applicable to process emissions. Combustion source emissions guidelines associated with steam- and power-generation activities from sources with a capacity equal to or lower than 50 Megawatt thermal (MWth) are addressed in the **General EHS Guidelines. L**arger power source emissions are addressed in the **EHS Guidelines for Thermal Power.** Guidance on ambient considerations based on the total load of emissions is provided in the **General EHS Guidelines**.

Resource Use

Tables 2 and 3 provide examples of resource consumption indicators for energy, water, materials, and waste in this sector. Industry benchmark values are provided for comparative purposes only and individual projects should target continual improvement in these areas.

Table 2. Byproduct and Waste Generation

Outputs per Unit of Product	Unit	Industry [a]	Denmark [b]
Waste			
Solid organic waste	g/head		3–8 *
Byproduct for rendering			510
Packaging waste			15
Yield Process Figures			
Blood	% of whole bird live weight	3	3.5
Feathers		5.5	8.8
Head		3	3
Feet		3	3.9
Hocks		5	
Shank		2	
Intestine		6	8 **
Neck skin		1.5	
Neck		2	
Gizzard		1.5	
Liver		2	
Heart		0.5	
Other offal [c]		2	

[a] Meyn Poultry Processing Solutions. 2004. Yield Process Figures. Percentages are based on a live weight of 2000 gr. Percentages are indicative and can vary depending on age, race, feed etc. Meyn Food Processing Technology B.V., Oostzaan:Meyn. The Netherlands.

[b] Danish EPA. 2000. Miljøprojekt Nr. 573 Renere teknologi på fjerkræslagterier – Projektrapport. Ole Pontoppidan and Poul-Ivar Hansen, Slagteriernes Forskningsinstitut. P. 13-14. Data derived fom a survey of 10 poultry slaughterhouses with an average capacity of 12 million chickens per year

[c] (lungs, gall bladder, wind pipe, gizzard content, pro-stomach)

* Less flocculation sludge (15-30 g dry matter per chicken)

** Intestines and other material

Environmental Monitoring

Environmental monitoring programs for this sector should be implemented to address all activities that have been identified to have potentially significant impacts on the environment, during normal operations and upset conditions. Environmental monitoring activities should be based on direct or indirect indicators of emissions, effluents, and resource use applicable to the particular project. Monitoring frequency should be sufficient to provide representative data for the parameter being monitored. Monitoring should be conducted by trained individuals following monitoring and record-keeping procedures and using properly calibrated and maintained equipment. Monitoring data should be analyzed and reviewed at regular intervals and compared with the operating standards so that any necessary corrective actions can be taken. Additional guidance on applicable sampling and analytical methods for emissions and effluents is provided in the **General EHS Guidelines**.

2.2 Occupational Health and Safety

Occupational Health and Safety Guidelines

Occupational health and safety performance should be evaluated against internationally published exposure guidelines, of which examples include the Threshold Limit Value (TLV®) occupational exposure guidelines and Biological Exposure Indices (BEIs®) published by American Conference of Governmental Industrial Hygienists (ACGIH),[12] the Pocket Guide to Chemical Hazards published by the United States National Institute for Occupational Health and Safety (NIOSH),[13] Permissible Exposure Limits (PELs) published by the Occupational Safety and Health Administration of the United States (OSHA),[14] Indicative Occupational Exposure Limit Values published by European Union member states,[15] or other similar sources.

[12] Available at: http://www.acgih.org/TLV/ and http://www.acgih.org/store/
[13] Available at: http://www.cdc.gov/niosh/npg/
[14] Available at: http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9992
[15] Available at: http://europe.osha.eu.int/good_practice/risks/ds/oel/

Table 3. Resource and Energy Consumption

Outputs per Unit of Product	Units	Finland [a]	Nordic [b]	EU [c]	Denmark [d]	
Energy / Fuel					*Chicken*	*Duck*
Electricity	kWh/head	0.67	---	---	0.37	0.93
	kWh/kg slaughtered animal	0.49	0.16-0.86	---	0.21	0.24
Heat	kWh/head	0.69	---	---	0.22	0.97
	kWh/kg slaughtered animal	0.50	0.03-0.16	---	0.12	0.25
Total energy consumption	kWh/head	---	---	---	0.59	1.87
	kWh/kg slaughtered animal	---	---	0.152-0.86	0.33	0.49
Water Consumption						
	l/head	17.9-18.7	---	---	16.1	43
	l/kg slaughtered animal	12.8-14.0	---	5.07-67.4	8.6	10.1

[a] Finnish Environment Institute. 2002. Finnish Expert Report on Best Available Techniques in Slaughterhouses and Installations for the Disposal or Recycling of Animal Carcasses and Animal Waste. The Finnish Environment. 539. Helsinki. 2002. Table 3, p. 19. Energy consumption by Finnish slaughterhouses (including stand alone slaughterhouses as well as plants with integrated meat cutting, deboning, and further processing). (The number of installations where data was obtained varies from 1 to 5); and Table 5. p. 20. Water consumption by Finnish slaughterhouses (including stand alone slaughterhouses as well as plants with integrated meat cutting, deboning, and further processing). (The number of installations where data was obtained varies from 1 to 4).

[b] Nordic Council of Ministers, BAT report, TemaNord 2001.553, p.72, Main key figures for the poultry slaughter process based on averages of data supplied by 8 slaughterhouses in Denmark in 1998.

[c] European Commission. 2005. Integrated Pollution Prevention and Control. Reference Document on Best Available Techniques in the Slaughterhouse and Animal By-products Industries. Seville: EC. P. 107. Table heading "Consumption and emission data for poultry slaughter". http://eippcb.jrc.es (accessed on 20-10-2005).

[d] Danish EPA. 2000. Miljøprojekt Nr. 573 Renere teknologi på fjerkræslagterier – Projektrapport. Ole Pontoppidan and Poul-Ivar Hansen, Slagteriernes Forskningsinstitut. P. 10-14. Data derived fom a survey of 10 poultry slaughterhouses with an average capacity of 12 million chickens per year and 1duck slaughterhouse with an average capacity of 0.5 million ducks per year.

Accident and Fatality Rates

Projects should try to reduce the number of accidents among project workers (whether directly employed or subcontracted) to a rate of zero, especially accidents that could result in lost work time, different levels of disability, or even fatalities. Facility rates may be benchmarked against the performance of facilities in this sector in developed countries through consultation with published sources (e.g. US Bureau of Labor Statistics and UK Health and Safety Executive)[16].

Occupational Health and Safety Monitoring

The working environment should be monitored for occupational hazards relevant to the specific project. Monitoring should be designed and implemented by accredited professionals[17] as part of an occupational health and safety monitoring program. Facilities should also maintain a record of occupational accidents and diseases and dangerous occurrences and accidents. Additional guidance on occupational health and safety monitoring programs is provided in the **General EHS Guidelines**.

[16] Available at: http://www.bls.gov/iif/ and http://www.hse.gov.uk/statistics/index.htm

[17] Accredited professionals may include Certified Industrial Hygienists, Registered Occupational Hygienists, or Certified Safety Professionals or their equivalent.

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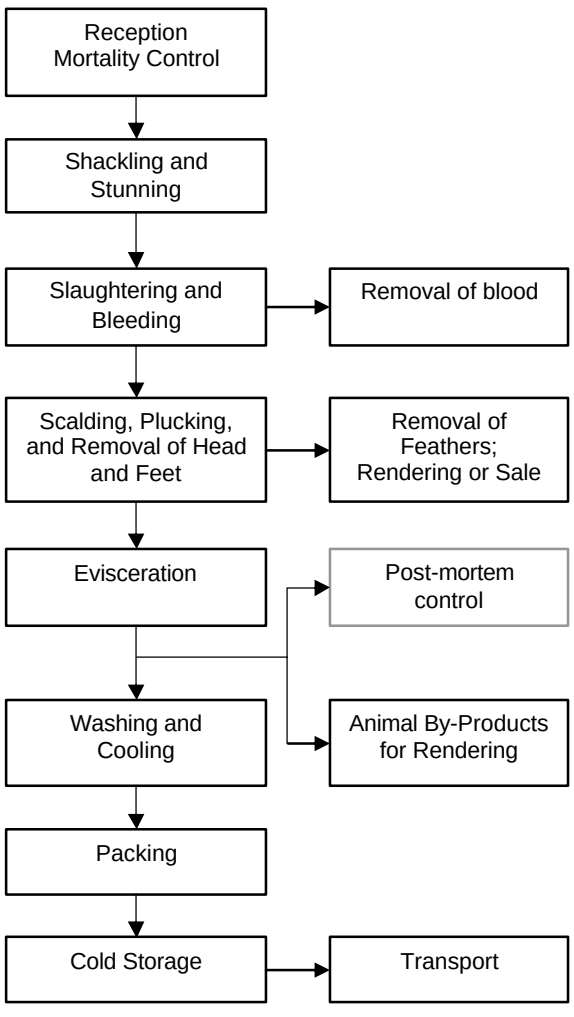
Annex A: General Description of Industry Activities

The most common product produced in poultry slaughterhouses is the whole bird. However, poultry meat can be further processed into various products based on the type of poultry meat (e.g. from simple cuts to ready-to-eat meals). Figure A-1 provides a simplified diagram of the various operations performed in poultry processing.

Figure A.1: Poultry Processing Operations



Source: Adapted from the Danish Poultry Meat Association

Preprocessing

The birds are transported by truck to the poultry slaughterhouse, usually in specially designed crates that are stacked on racks and then loaded onto the vehicle. Consideration should be given to prevent heat stress during transport, which may jeopardize animal welfare and cause bird fatalities.

Upon arrival at the poultry slaughterhouse, the birds are held in the reception area in the transport crates, pending veterinarian inspection. The reception area should be designed to avoid heat stress. The official veterinarian then inspects each transport crate of live birds to approve them for human consumption. Sick birds are killed and disposed of. Birds that may be infected with Highly Pathogenic Avian Influenza (HPAI), are segregated to avoid contact with healthy birds, slaughtered, and their remains transported off-site for final disposal. Trucks and equipment (e.g. crates and racks) used for transport, as well as personnel, should be thoroughly cleaned and disinfected to prevent disease transmission from one farm to another.

After inspection, the birds are removed from the crates in the reception area and put on the killing line. The birds are hung upside down by their feet by shackles on a conveyor, which moves them to the stunning area. Once the birds are shackled, stunning is carried out using one of three possible methods that include: (i) an electrically-charged water bath; (ii) gas inhalation; or (iii) a blow to the head using a blunt object.

Slaughtering, Bleeding, and Scalding

Slaughtering can be performed manually or by using an automatic circular knife system. The equipment should be kept sharp at all times, and mechanical slaughtering should be supervised at all times to ensure that all birds are cut correctly. The birds should bleed for at least two minutes to ensure a total

bleed-out. The blood is collected in a tank and handled as an animal by-product for further processing.

After bleeding, the birds are exposed to either steam or hot water as part of the scalding procedures. Scalding loosens the feathers and facilitates plucking. If high-temperature scalding is used, the epidermis will be removed during the plucking process. The scalding process is controlled by regulating temperature and time. Birds prepared for subsequent freezing are scalded at approximately 65 degrees Celsius (^{o}C) and birds prepared for chilled distribution are scalded at approximately 60^{o}C. During low-temperature scalding, water should be continuously added to the scalding tank because the birds absorb water. Cross-contamination of the birds can be reduced during the scalding process by applying a counter-current flow where clean make-up water is added near the point where scalded birds are removed (at the opposite end of the tank from where birds are introduced). Steam scalding can reduce energy consumption and improve hygiene, but this technique is still in the developmental phase.

Further Processing and Evisceration

Feathers are removed in a specially designed plucking machine or by hand. All rotating parts of the machine must be in good working order to avoid damaging the skin of the bird. Feathers are collected and treated as an animal by-product. The birds are showered with water during the automated plucking operation and the feathers are collected in a trough under the plucking machine. The feathers are then transported with recirculated water through a screen and into a container.

If possible, waterfowl feathers are collected and sold. Plucking of waterfowl is difficult, and an extra process is necessary to remove all feathers and downs. Waterfowl may either be plucked manually or by using a process in which the birds are dipped in a bath of hot liquid wax. The hardened wax with the feathers attached is hand stripped after cooling, removing the feathers that were not removed in the first plucking process.

Following scalding and plucking activities, the head and feet are removed. The heads from birds are treated as animal by-products. The feet are treated as animal by-products or, if they are going to be used for human consumption, are further processed using heat and mechanical treatment to remove inedible parts, followed by a visual quality inspection. The neck is broken off and residues present in the windpipe are removed from the neck cavity.

Evisceration is carried out mechanically or manually to remove the internal organs. Care must be taken to prevent contamination with material from the intestinal tract. The open bird and the organs are presented for inspection by a trained individual. Birds unfit for human consumption are removed. Inedible organs including the intestinal tract and lungs are removed and treated as animal by-products. The eviscerated carcass should be rinsed internally and externally with potable water before further processing.

Storing and Packaging

After rinsing, the carcass should be cooled as quickly as possible to at or below 4°C. Several methods are used for chilling including air chilling, which takes place in either a chill room or by continuous air blast; spray chilling, where water aerosols are added to the air; and immersion chilling, which involves moving carcasses through a counter-flow current in a water bath. If this last process is used, the maximum amount of water uptake must be considered.

Birds are weighed individually and sorted according to their weight. After weighing, the birds are inspected visually and categorized. Whole birds are typically packed in plastic bags or in containers wrapped in film. All packing material should be approved according to current national regulation or other

internationally accepted approaches.[18] Birds are stored before sale at or below 4°C. Birds intended to be sold as quick-frozen poultry are frozen in a blast freezer or similar equipment that enable rapid freezing.

Cleaning

Cleaning is one of the most important processes in a poultry processing plant. Some rinsing and cleaning should occur during working hours. After working hours, a total cleaning and disinfection of the plant is carried out, normally on a daily basis. The cleaning process involves these major steps, including disassembling of machinery and equipment, as necessary; physical removal of solid material; rinsing and washing cycles; disinfection; drying; and application of lubricants.

Rendering

Rendering is a heat treatment of animal by-products to eliminate the risk of spreading disease to animals and humans, and to produce usable products such as proteins and fat. Rendering includes evaporative processes that may generate a foul odor. Although rendering is usually conducted at off-site facilities, some poultry slaughterhouses have special, isolated areas of the slaughterhouse designated for on-site rendering.

Low-Risk Material

Low-risk by-products are by-products obtained from animals that have been approved as fit for human consumption (e.g. blood, heads, and feet). Blood is collected in a separate tank. Depending on the storage time before further processing, the need for cooling and chemicals that can prevent coagulation should be considered. Blood is filtered and spray dried to produce blood meal. Blood meal can be used for feeding of fish, pets, and other animals.

Feathers are collected in a separate container. Before transfer to the container, water from the scalding process has to be pressed out of the feathers. Because the plucking process can remove portions of the heads as well, some heads may be present with the feathers. Feathers can be burned to produce heat, or processed with heat to hydrolyze the proteins. The low-value proteins from feathers can be used in pet food or animal feed.

Heads and feet that are not destined for human consumption are collected in a separate container. When these by products are to be used for human consumption they should be approved during the inspection process. Typically, feet used for human consumption are heat treated in order to remove skin and nails before packing. Heads are normally not used for human consumption, although duck tongues are consumed in some countries.

High-Risk Material

High-risk by-products include birds that have died from reasons other than slaughtering, condemned birds, and condemned parts of birds, as well as all other by-products not intended for human consumption. Solid organic material that is captured in the wastewater treatment system screens with a particle size of 6 millimeters (mm) or more should also be treated as high-risk by-products and sent for rendering. Grids used in the slaughterhouse and pre-filtering of waste streams should be designed so that these kinds of animal by-products can be recovered and sent for rendering.

Processing By-products

By-products should be collected in separate containers, which are isolated in such a way that food safety is not jeopardized. The container should be covered to prevent wild birds and animals from coming into contact with the material. The material

[18] For an example refer to the US Food and Drug Administration's (FDA) Inventory of Effective Food Contact Substances (http://www.cfsan.fda.gov/)

must be transported on a regular basis to the rendering plant in sealed containers.

At the rendering plant, the materials are chopped up and then heated under pressure (e.g. in the conventional batch dry rendering method) to kill microorganisms and remove moisture. The liquefied fat and solid protein are separated by centrifugation or pressing. The solid product can then be ground into various animal protein powders for animal feed or pet food. The effectiveness of the heat process used for rendering depends on various factors, including the holding time, the core temperature, and the particle size of the products treated in the process. The rendering process should produce final products that are free from salmonella and clostridium and contain only a limited number of enterobacteriaceae.

APPENDIX M – STAKEHOLDERS MEETING LIST OF ATTENDEES

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حول مشروع مكافحة التلوث البيئي في لبنان (LEPAP)

٠٤ آذار ٢٠٢٠

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حول مشروع مكافحة التلوث البيئي في لبنان (LEPAP)

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