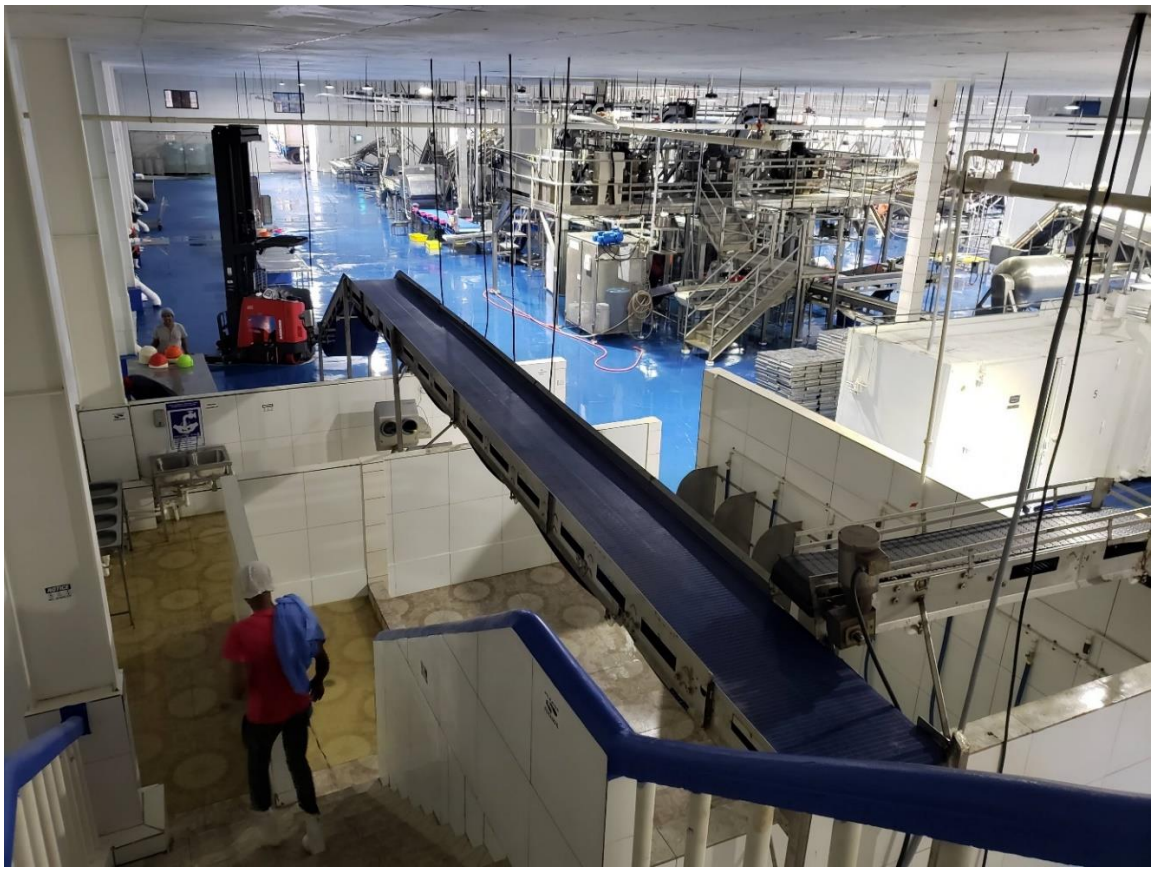
PRITIPAUL SINGH INVESTMENT INCORPORATED

SEAFOOD PROCESSING COMPLEX



PROJECT SUMMARY FOR THE OPERATION OF A SEAFOOD PROCESSING COMPLEX AND SUPPORTING FACILITIES AT PLANTATION PROVIDENCE, EAST BANK DEMERARA, GUYANA, SOUTH AMERICA

Prepared for:

PRITIPAUL SINGH INVESTMENTS INCORPORATED
Plantation Providence,
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For Submission to:

ENVIRONMENTAL PROTECTION AGENCY
Ganges Street, Sophia
Georgetown

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SECTION 1: INTRODUCTION

1.1 Project Background

Pritipaul Singh Investments Incorporated is a privately owned Guyana based vertically integrated company involved in the harvesting, processing, value addition, packaging, export, and local retail of a range of high-quality seafood products. It is owned and operated by Mr. Pritipaul Singh (Snr)

Pritipaul Singh Investments Incorporated (PSII) in May 2005 acquired the trawling vessel fleet, existing Prawn processing plant along with essential supporting infrastructure including trawling/ vessel repair operation from Georgetown Seafoods and Trading Company Limited incorporated which was operated by Salman Seafoods Incorporated – a family-owned company located in Tampa, Florida.

After acquisition, given the state of the infrastructure of the complex established since the 1940's, PSII found it necessary to comprehensively upgrade and expand all the facilities of the complex. First, a number of basic infrastructural upgrades were undertaken and a Tuna Processing plant and supporting facilities commissioned.

A number of factors have forced us to operate differently. First, with the commencement of Oil and Gas Activities within the Economic Exclusive Zone of Guyana a precipitous decline has been experienced in the amount of Fin Fish and Seabob/ Prawns caught. Secondly, owing to strict COVID-19 measures which were in place both locally and internationally we experienced significant declines in the demand for our finished seafood products in traditional high consumption markets. These new realities have made it necessary for us to make serious decisions in relation to our operations.

These new realities have forced us to take a number of strategic measures to stem the tide of revenue loss. First, more immediately, we have had to re-evaluate our operations and scale down or close non-feasible elements of our facilities. As a consequence, we have had to reduce our staffing. Secondly, we have had to embarked upon an ambitious but feasible plan to consolidate our local Seafood Processing operations at Providence. We have started the process of winding down our operations at Mc Doom with the view of eventually closing same in 2023. And at the same time, we have been undertaking significant upgrading works to our facilities at Plantation Providence. These are expected to be completed in 2023.

1.2 Project Overview

Pritipaul Singh Investments Incorporated is currently reapplying to the Environmental Protection Agency (EPA) for an Environmental Authorization to operate its upgraded State-of-the-Art Seafood Processing Complex and Supporting Facilities (See Attachment) at Plantation Providence, East Bank Demerara within the jurisdiction of the Eccles/ Ramsburg Neighbourhood Democratic Council District along the Eastern Bank of the Demerara.

PSII - by virtue of these new facilities - will consolidate its local operations and produce and market a range of seafood products including: Seabob Shrimp/ Prawns; Fresh Fish on Ice and Fresh Frozen Fish.

PSI has erected new and improved structures and is currently in the process of readying them for operations. In the sections of the complex that have been upgraded is currently being utilized. Thus far the company has made a substantial capital investment. It is anticipated that this facility will have a useful operational life of greater than 25 years in which it will provide incalculable benefits to the local economy.

SECTION 2: DESCRIPTION OF THE PROJECT LOCATION

The existing Upgraded Seafood Processing Complex and Associated Facilities operated by Pritipaul Singh Investments Incorporated is located at Area "S" and Lots S1" and S2" being portions of the South Half of the Frontlands of Plantation Providence, situated on the Eastern Bank of the Demerara River in the County of Demerara.

Occupying approximately 6 acres of land, the existing Seafood Processing Complex is immediately bordered to the **North** by Machinery Corporation of Guyana Limited (MACORP) and the Guyana Oil Company Limited (Guy Oil) Providence Fuel Terminal, to the **East** by the Guyana Football Federation National Training Centre, to the **South East** and **South South East** by property held by Demerara Contractors and Engineering Limited – a Demerara Distillers Limited (DDL) subsidiary, Sterling Products Limited Manufacturing Facility and Rubis Guyana Providence Fuel Terminal, to the **West** by the Company's existing wharf and the Demerara River and to the **South** by River Defence Reserve that is currently the subject of an ongoing legal dispute. **(See Figure 1)**

2.1 Feasible and Reasonable Alternatives

The proposed area is zoned for industrial/ commercial land use. With specific reference to the proposed project, the location is considered the most appropriate for a Seafood Processing Complex. With reference to the various components, there are a number of alternatives that can be explored.

However, for the time being it has been determined by our experts that the current configuration is best for our purpose.

2.2 Layout of the Seafood Processing Complex

The Upgraded Seafood Processing Complex and Associated Facilities operated by Pritipaul Singh Investments Incorporated at Plantation Providence include the following elements:

1. Modernized Trawling Vessel Fleet
    a. Seabob Shrimp Trawlers
    b. Fish Trawlers
2. Marine Vessel Dry Docking Facility
3. Improved Wharf and Associated Facilities
    a. New Reinforced Concrete Wharf and Associated Fendering System
    b. Flood and Erosion Control Retaining Wall Structure
4. Improved Seafood Processing Facility
    a. Fish Processing Plant
    b. Shrimp Processing Plant
5. Refrigeration and Cold Storage Facilities
    a. Compressor Rooms for Industrial Refrigeration System
    b. Ice Plants
    c. Holding Rooms
    d. Refrigerated (Reefer) Containers and Trucks
    e. Finished Product Warehouse (Semi-Automated)
6. Fuel Storage Area (Inclusive of Aboveground Fuel and Compressed Gas Storage Areas)
7. Power Generation Area
8. Water Abstraction, Storage, Treatment and Distribution System
9. Warehouses and Multi -Purpose Storage Areas

a. Grocery Storage Areas
b. Material Storage Areas (Inclusive of Industrial Cleaning Product Storage Area, Plastic Packaging Storage Area and Carton Storage Area)
c. Secured Chemical Storage Areas

10. Maintenance Workshop Areas
11. Retail Outlet for Finished Seafood Products
12. New Bridges and Paved Access Roads
13. Concrete Parking Areas for Container Stowage and Staff Parking
14. Staff Facilities (Inclusive of Administrative Office Areas, Food Preparation and Canteen Area, Washing/ Changing Areas, Washroom Facilities, Training Room Facilities, Medical Area etc.)

SECTION 3: DESCRIPTION OF PROPOSED PROJECT

3.1 Production Process

Pritipaul Singh Investments Incorporated be involved in the harvesting, processing, value addition, packaging, export, and local retail of a range of high-quality shrimp, prawns, and fin fish products. **(See Table 1 below)**

<Table 1: Seafood Products>

General Seafood Products	Categories of Specific Finished Products
Seabob Shrimp/ Prawns	• Headless Frozen Wild Caught Shrimp • Peeled Frozen Shrimp • Headless Frozen Shrimp (Second Quality) • Peeled and Deveined Frozen Shrimp (P&D) • Instant Quick Freeze (IQF) Shrimp (Peeled and Deveined; Shell-On, and Tail on Peeled and Deveined) • Head-on Frozen Wild Caught Shrimp
Fish on Ice	• Cavalli, Marlin, Mahi-Mahi • Caribbean Red Snapper, Land Snapper and Beeliner/ Vermillion Snapper • Corvina or Weakfish or Green Weakfish; Grey Snapper or Weakfish; Croaker, Small Eye Croaker; Snook, Tarpon.
Frozen Fish	• Frozen Fish (King Weak Fish or Bangamary) • Pampano and Grouper • Blue Fish, Bashaw, mullet, Sliver Snapper, Cabio/ Cobia • Grunt, Catfish, High Water, Pagi, Sea Donkey, Annafolk, Shark and Sword Fish • Spanish Mackerel, King Mackerel

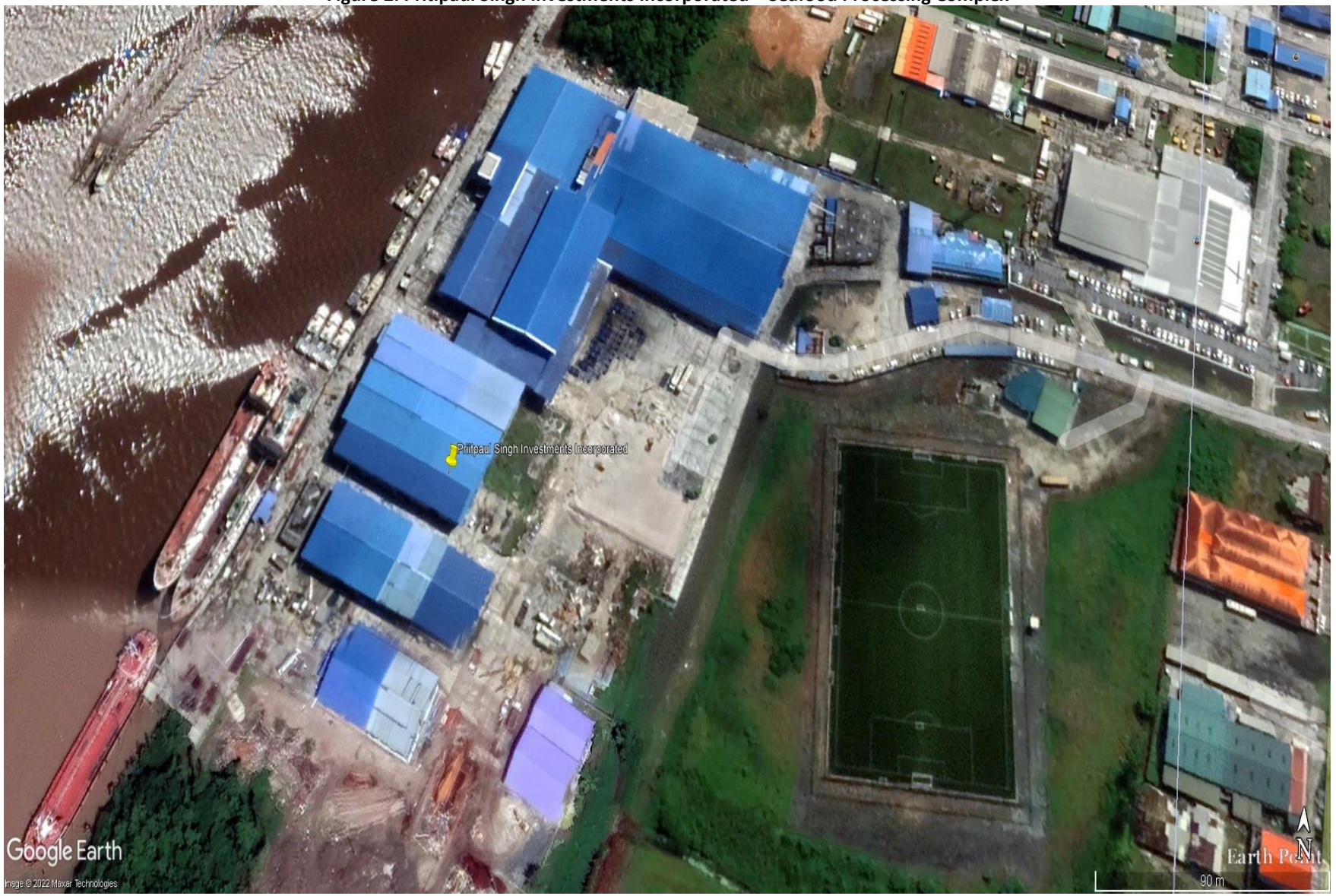
Each of the above referenced seafood products marketed by Pritipaul Singh Investments Incorporated will be produced in accordance with strict food safety procedures articulated in Hazard Analysis Critical Control Point (HACCP) Plans. (**Refer to <u>Annex for Sample Process Flow Description and Process Flow Chart for One (1) Seafood Product</u> produced by Pritipaul Singh Investments Incorporated)**[1]

[1] Hazard Analysis Critical Control Point (HACCP) Plan for Pritipaul Singh Investments Incorporated (Mc Doom Plant) Mid Atlantic Seafoods – Various Species Frozen Fish, January 2019

Figure 1: Pritipaul Singh Investments Incorporated – Seafood Processing Complex

Source: Google Earth, 2022

<Figure 2: Pritipaul Singh Investments Incorporated – Seafood Processing Complex>



Source: Google Earth, 2022

3.2 Material Requirements

The following materials will be required for use in our operations:

1. Raw Product
    - Shrimp/ Seabob,
    - Prawns
    - Fin Fish
2. Water
3. Ice
4. Chemicals
    - Food Additives
    - Preservatives (Salt, Sodium Metabisulphite)
    - Cleaning and Disinfecting Agents (Calcium Hypochlorite, Kon Kleen, Ozone Soap Powder, ChemStation Chlorinated Foam Cleaner, Neutra Alk, ChemSan Sanitizer, HSC Hand Sanitizing Cleaner, Ozone, Isopropyl Alcohol, Bleach, Formula 88 Multipurpose Degreaser, Caustic Soda, Jeyes Fluid (Cleaning Compound), Extreme II, Bright Bowl, Keeper Solution)
    - Pest Control Agents (Rodenticides, Insecticides)
    - Machine Lubricants (Food and Non-Food Grade)
5. Petroleum and Petroleum Products
    - Diesel
    - Lubricating Oils
6. Compressed Gases
    - Ammonia
    - Acetylene

3.3 Source of Utility Services

Electricity, Fresh water, Ice, Industrial Refrigeration services will be provided through facilities that will be operated onsite. Information, Communication and Telecommunication services will be provided by Guyana Telephone and Telegraph Company.

3.4 Air Emissions

There are likely to be air emissions from the following sources at Pritipaul Singh Investments Incorporated – Seafood Processing Complex. **See Table below**

No.	Types	Sources
1	Gaseous Pollutants (Combustion Gases)	Power Generation System
		Several Classes of Motor Vehicles
		Several Classes of Marine Vessels
		Several Classes of Heavy-Duty Equipment
2	Releases (Gaseous)	Aboveground Fuel Storage Tanks
		Industrial Based Refrigeration System
3	Odours	Seafood Processing Complex – Processing Plants Organic Waste Holding Areas Raw Product Storage Areas Finished Product Storage Areas Chemical Storage Areas
4	Particulate Emissions	Maintenance Areas

		Dry Docking Area
		Exposed Concreted Surfaces

3.5 Waste Management Details

Types of Waste

PSI Incorporated's Seafood Processing Plant at Providence is expected to generate the following categories of waste materials.

- **Solid Waste:** General Construction waste; Obsolete Equipment Parts and Components; Organic Residues from Fish, Shrimp and Prawn Processing Plants; Non-Hazardous Wastes.
- **Liquid Waste:** Process Effluent from Seafood Processing Plants**,** Human Waste (Urine, Excrement)
- **Hazardous Waste Materials:** Bilge Waste from Trawlers, Spent Oil from Marine Vessels and Land Based Vehicles and heavy-duty equipment.

Methods of Waste Disposal/ Treatment

PSI Incorporated's Seafood Processing Plant at Providence is expected to employ the following approaches to treating and disposing of the following waste streams:

Categories	Specific Wastes	Treatment/ Disposal Methods
Solid Waste	General Construction Waste	Use in backfilling low spots on property Collection of unusable fractions by Waste management service for disposal at authorized disposal site
	Obsolete Equipment Parts and Components	Collection of for Resale to Recycler
	Organic Residues from Seafood Processing Plants Non-Hazardous Wastes (Domestic Waste)	Collection by Waste Management Service Contractor for Treatment and Disposal
Liquid Waste	Process Effluent from Seafood Processing Plants	Installation and Operation of a Waste Water Treatment System
	Human Waste (Urine, Excrement)	Installation and Operation of Septic Tank Facilities with Soak Away Systems
Hazardous Waste Materials	Bilge Wastes from Marine Vessels	Collection by Waste Management Service Contractor for Treatment and Disposal
	Spent Oil from Marine and Land based Vessels	Collection for Resale to a Recycler

SECTION 4: POTENTIAL IMPACTS AND MANAGEMENT

Given the proposed activities elaborated at **Section 3 above** that are to be undertaken at the project site during the operational phases, several environmental impacts are anticipated and mitigation measures will be implemented for the management of the same.

A comprehensive assessment will be undertaken at a later stage if it is so determined by the Agency.

4.1 Environmental and Social Impacts

The following environmental and social impacts are likely during the operations of all elements of the Seafood Processing Complex.

Environmental Impacts

- Use of Water Resources
- Use of Energy Resources
- Emissions to the Air: Dust/ Particulates
- Emissions to the Air: Gaseous Emissions (Combustion Gases)
- Emissions to the Air: Gaseous Emissions (Volatile Organic Compounds)
- Emissions to the Air: (Odiferous Compounds)
- Noise and Vibration Impacts
- Potential Releases/ Discharges to Surface Water
- Potential Releases to Land/ Soil
- Generation of Solid, Liquid and Hazardous Waste

Social Impacts

- Health and Safety Risks to Onsite Workers

4.2 Mitigation Measures

Pritipaul Singh Investments Incorporated will implement the following mitigation measures to address adverse impacts associated operations of all elements of the machining workshop. **See Table below.**

ASPECTS	MITIGATION MEASURES
ENVIRONMENTAL IMPACTS	
Use of Water Resources	• Implementation of water conservation initiatives
Use of Energy Resources	• Implementation of Energy conservation initiatives
Emission to Air: Dust/ Particulates	• Use of Wet Suppression methods • Limiting Vehicle Speeds onsite to minimize kick up dust
Emissions to Air: Gaseous Emissions (Combustion Gases)	• Use of improved Equipment with lower pollutant emission levels • Regular inspection and maintenance of heavy-duty equipment in accordance with manufacturer's specifications
Emission to Air: Gaseous Emissions (Volatile Organic Compounds)	• Installation of Venting Systems on Aboveground Fuel Storage Tank • Design areas to improve ventilation.
Emissions to Air: Odiferous Compounds	• Implement a comprehensive cleaning and disinfection programme in an around Seafood Processing Facilities
Noise and Vibration Impacts	• Use of Sound Attenuated Power Generation Systems

ASPECTS	MITIGATION MEASURES
	• Use of Heavy-Duty Equipment with lower noise emission levels • Placement of Heavy-Duty Equipment on Level Ground/ Foundations. • Placement of Noise Generating Equipment away from sensitive receptors. • Regular inspection and maintenance of heavy-duty equipment in accordance with manufacturer's specifications • Restricting Noise generating activities
Discharges to Surface Water	• Use of Effluent Treatment Technologies
Potential Releases to Land/ Soil	• Use of drip trays • Use of Prepositioned Spill Kits • Use of Secondary Containment structure to recover materials that can be spilt.
Generation of Solid, liquid and Hazardous Waste	• Holding of Waste material in sealed high-capacity bins onsite • Private Waste Management Contractor will collect, transport, treat and dispose of waste material generated
SOCIAL IMPACTS	
Health and Safety Risks	• Emergency Response Plans to address Emergency Situations that may potentially arise • Strategic placement of Emergency Resources: First Aid Kits, Spill Kits, Fire Extinguishers etc.

SECTION 5: ANNEX

5.1 Annex 1: Process Flow Description (Frozen Fish)

Pritipaul Singh Investments, Inc., Mc Doom	HM 007

PROCESS FLOW DESCRIPTION
FROZEN FISH – GROUP 2

1. **Sorting, Gutting, Washing**
   Fish is sorted to remove foreign material and separate by catch. Then gutted and washed with clean sea water.

2. **Placing into ice hold**
   Fish is taken into the ice hold and ice added.

3. **Unloading:**
   Fish is unloaded from the hold of the vessel into baskets on a sheltered wharf.

4. **Washing:**
   Each basket of fish is then washed with running potable water.

5. **Weighing:**
   Each basket of fish is then placed into trays and weighed.

6. **Icing:**
   Ice is then added to each tray of fish.

7. **Transporting to Receiving Area:**
   The bin filled with fish is transported to the Receiving Area via a forklift.

8. **Receiving:**
   In the Receiving Area, a Quality Control inspector conducts organoleptic evaluations to determine the quality of the fish. The daily "Fish Incoming Raw Material/Fish Receiving Inspection Record" (QUAR 044) is completed by Quality Control personnel.

9. **Thawing**
   Frozen fish received are thawed with running ozone treated water.

Version: 1	Date: 26/09/2014	Page: 1 of 4	Approved By: Quality Control Manager	Authorised By: Managing Director	Process Flow Description Ref. HP 002
Revision: 2	Date: 31/01/2018				

10. Mechanically Grading & weighing :

Fish is placed on a grading belt that grades it according to size. Each size drops into its own tray or workers grade fish according to size and place into trays. Each tray of fish is then weighed.

11. Icing:

Each tray with fish is layered with ice and transported to the Processing Area.

12. Cleaning:

In the Processing Area, workers clean the belly cavity of the fish to remove any remaining blood and loose scales. The clean fish is then placed into trays with ice and taken to the packing Area.

13. Rinsing:

In the Packing Area the product is dipped into an ozone treated chilled water bath (0°C or below).

14. Racking:

Product is then transferred onto beds lined with clean pieces of plastic and moved to the blast freezers four beds at a time.

15. Blast Freezing:

The product is placed in the blast freezer on trolleys for twenty four hours at a temperature of -18°C and below.

16. Glazing:

The blast frozen product is then placed into baskets and dipped into a chilled water bath at a temperature of 0°C or below with 20-40 ppm keeper solution.

17. Weighing/ Packaging/Sealing:

The glazed product is weighed individually and packed individually into plain plastic bags then into master cartons or packed into master cartons lined with plastic and weighed. Quality Control monitors to ensure that all packaging material have the required information.

18.Cold Storage/Shipping:

Cartons of product are either placed into the Holding Room for storage until ready to be shipped or directly into a refrigerated container and shipped to destination. Both Holding Room and refrigerated containers are maintained at -18°C or below.

19.Packaging Material Reception:

Packaging material is transported covered from the Warehouse and kept in a designated area in the plant where labeling is done.

20.Labelling/Lining box with plastic:

With the "Glazing Area" personnel are assigned to write on/stick on labels pertaining to production and shipping codes.

IQF

21.Placing in bulk tank with water

Depending on customer specification products would freeze using IQF. It is first placed in a tank with water.

22.Aligning fish on conveyor belt

Worker would align the fish on belt before it passes through the freezer.

23.Individual quick Freeze (IQF)

The fish then passes through the IQF. The freezing time is approximately 10 minutes at -29^{o}C or below.

24.Mechanical Glazing

After freezing the fish passes into a tank with chilled water.

25.Mechanically drying

The glazed fish is then conveyed through a dryer system which allows with the removal of water.

26.Conveying into trays

Workers manually place frozen fish into trays.

27. Manual Grading

Product is manual graded according to size.

28.Placing fish individually into plastic bags

Glazed product based on customer specification can be placed individually into plastic bags, then proceed to step 17

5.1 Annex 1: Process Flow Chart (Frozen Fish)

Pritipaul Singh Investments, Inc., Mc Doom	HP 02

PROCESS FLOW CHART
Pompano & Grouper