



Bio-Gas Facility

TECHNICAL FACT SHEET

- The concept Bio-Gas Facility was initially discussed in 2004 with detailed design beginning in 2006. Development of the plant, including the architectural design leading to construction, took 15 months.
- Cavendish Farms worked with Andy Krieg of the German engineering firm of Krieg and Fischer Engineering GmbH on the application of bio-fuel technology for the plant.
 - Founder Andreas Krieg is an authority on biogas / bio fuel technology, and his firm has participated in the development and construction of a number of similar facilities around the world.
 - Currently Krieg and Fischer consult and work in 8 countries around the world including, US, Canada, Spain, Ireland, Italy, Serbia, France and Germany.
 - This is their second such plant in Canada, but the largest. They have designed a smaller scale plant near Saskatoon.
 - We are aware of 16 Bio-Gas plants operating in Canada, most of them in Ontario. Our facility in New Annan, P.E.I, is the largest by far, with a thermal power output of 12.6 MW.
- Architectural work was done by Stantec Engineering, based in Fredericton.
- Groundbreaking on the site took place Oct 2007, during this time the preparation of the land for spring construction was completed.
- Construction began in April 2008 and the facility was completed in December 2008.
 - During construction on average 50 people worked on site each day with peak days totaling over 100 people, during the 8 month construction period.
 - Construction crews were led by members of the Irving Group Moncton engineering team with sub-contractors from the Maritime Provinces and Europe.
 - The plant footprint is approximately 7,126 square meters.
 - The plant is situated on approximately 5 acres.
- The facility officially began to operate on January 2nd 2009 and since that time biogas generation has steadily increased to design levels. During the month of February the first methane-rich biogas produced from the Plant was consumed in the Cavendish Farms boiler and we have continued with minimal interruptions.

- During planning, Cavendish Farms worked collaboratively with the PEI government to ensure the preservation of the Confederation trail system which continued to operate throughout the construction of the Bio Gas Facility.
- The Cavendish farms Bio-Gas Facility
 - Is the only one of its kind in the french fry processing industry in North America.
 - Has one of the largest physical footprints of any biogas plant in the world.
 - Is designed to produce the second largest output of biofuel using potato waste of any similar plant in the world. The largest similar plant we are aware of exists in Wietzendorf Germany, which has a thermal power output of 20MW.
 - Is the largest such facility in Canada.
 - Has the capacity to replace more than ½ of the oil and gas needed to power Plant 1, and overall will provide approximately 1/3rd of the total thermal energy required to power both plants combined.
- The Plant Manager is Darren Cash
 - 11 Year Irving Employee.
 - Background in Biology and is presently the Plant Manager of the Cavendish Farms Waste Water Treatment Plant.
 - Involved in the Concept, Design and Start Up of the Bio Gas Plant and going forward will be the Plant Manager of the new facility.
- The Project Director is Chris Matters
 - 15 Year Irving Employee.
 - Background in Manufacturing Operations, moving into Corporate Engineering in 2001.
 - Responsible for overseeing the Concept Development, Design, Construction and Plant Start Up.
- The Business Manager is Blaine MacPherson
 - 35 Year Irving Employee.
 - General Manager of Cavendish Produce.
 - VP Agriculture for the Cavendish group of companies.
- Bio Gas Plant Design Information
 - Capacity to digest 100,000 tons of potato waste at a solid content of 24.5%.
 - At the design feed rate the plant will replace 30,000 liters of fuel per day in the form of methane-rich biogas.
 - The remaining biosolids left from the digestion process is expected to be 8,000 tons per year at a solid of 22%. The ratio of ‘potato waste in’ to ‘biosolids out’ is 12 to 1.
 - When the Plant reaches full operation it will require 50 cubic meters of fresh water per day which is mainly used to for general cleaning and potable water.