



Biosolids To Renewable Fuel Process

INTRODUCTION

U.S. Enviro Pur has developed a new approach to an age-old problem. The management of biosolids and industrial sludge has been an increasing dilemma for decades; landfill space is becoming more and more scarce, disposal costs are rising, and areas permitted for land-application are diminishing. U.S. Enviro Pur's Biosolids To Renewable Fuel (BTRF) Process has been developed to help solve this problem. U.S. Enviro Pur's process renders biosolids free of pathogens and organic/inorganic pollutants while increasing the available BTU and energy value. Today's world is striving to find cost efficient renewable energy resources and constantly searching for beneficial use of problematic waste streams. U.S. Enviro Pur's BTRF has a goal to solve these problems by providing a beneficial use of a municipal or residual waste to a renewable fuel source.

THE BTRF PROCESS



The BTRF is a Patent-Pending treatment process in which untreated biosolids and industrial sludge are washed in a non-hazardous, proprietary reagent. The sludge or biosolids are added to a "mixing vessel" along with the reagent and water. The sludge or biosolids are then mixed for a minimal retention time and discharged into a conventional dewatering apparatus. The reagent destroys pathogens on contact and removes most unwanted organic and inorganic pollutants. The treated biosolids meet USEPA 503 "Class A" criteria for various forms of beneficial use, including as a renewable fuel. In addition, reagent can be retained in the treated fuel as a NO_x and SO₂ reducing agent when the fuel is combusted independently or blended with coal or biomass.

FLEXIBILITY

The BTRF Process can easily be incorporated into existing Waste Water Treatment Plant as part of their sludge management process or it can be utilized as an end-of-pipe treatment process for dewatered biosolids. The process is relatively simple and can be installed using readily available components. U.S. Enviro Pur can also provide end-of-pipe treatment of dewatered biosolids for small facilities by utilizing a mobile batch treatment plant.

BENEFITS

The traditional management practices for waste biosolids has come under great public scrutiny over the past several years. Land application has felt the effects of "NIMBY" reducing the available areas for application. Transportation and disposal costs at permitted landfills have increased dramatically, and composting facilities are not able to move out enough product to handle increased volumes of incoming wastes. The industry has searched for cost effective beneficial use of this waste. The BTRF process provides a cost effective approach that converts municipal waste to Class-A biosolids and removes many pollutants from industrial sludge. One of several targeted uses for the processed biosolids is as a renewable fuel source for the energy industry.

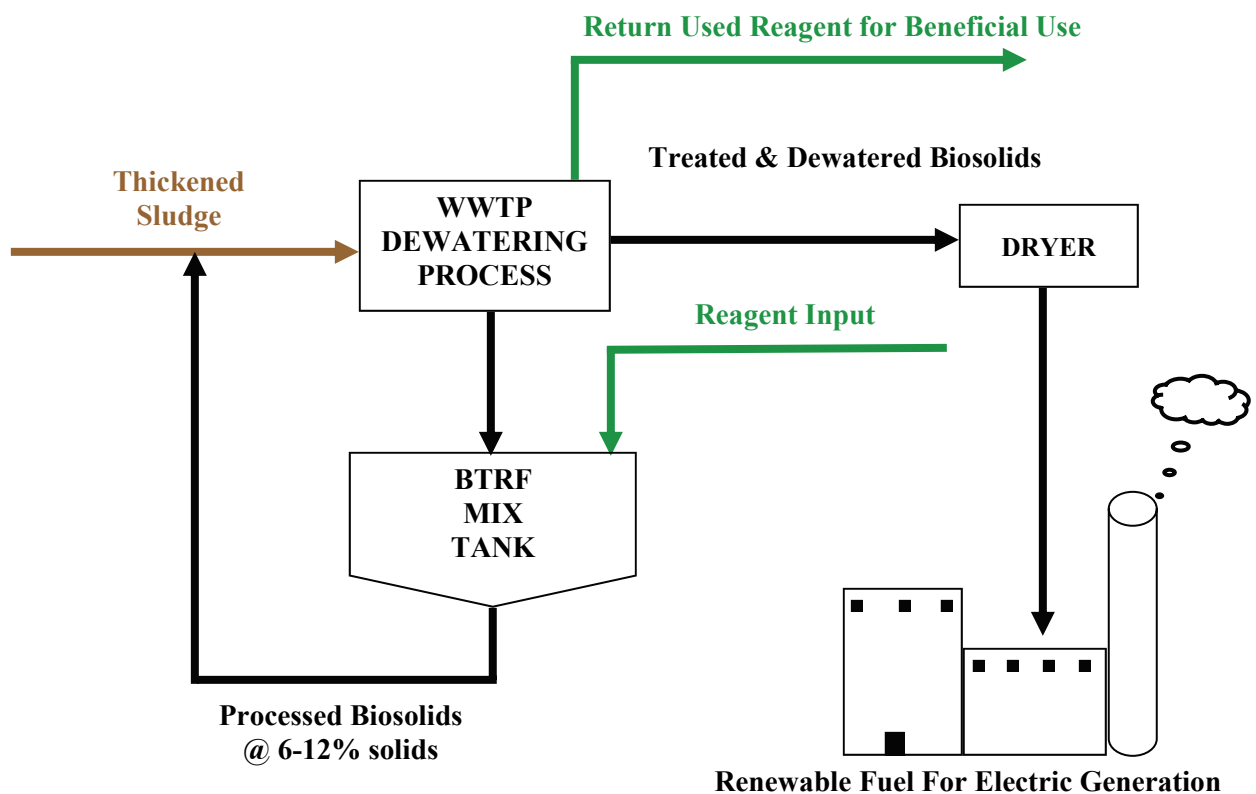


The Bio-Solids To Renewable Fuels Process

COST

The treatment cost is less than current disposal costs and will produce a product that can be sold as a renewable energy source creating an asset in lieu of remaining a liability as a waste.

FLOW SCHEMATIC



RENEWABLE PORTFOLIO STANDARDS

Renewable Portfolio Standards (RPS) are state policies mandating a state to generate a percent of its electricity from renewable sources. Each state has a choice of how to fulfill this mandate using a combination of renewable energy sources, including wind, solar, biomass, geothermal, or other renewable sources. Twenty-two (22) states and the District of Columbia have established an RPS.

Pennsylvania integrated its RPS into its use of market-based mechanisms for supply of electric generation. It therefore explicitly authorized trading of renewable energy credits. This legally recognized trading regime will work with a voluntary regime already in place.

More States are beginning to adopt the RPS Program and a large number are giving some serious attention to an RPS and existing RPS' are being revisited legislatively and increasingly expanded in scope and ambition.

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