CASE STUDY

PermaFlux™ V8

National Research Council Canada

Algae Thickening

Application: Algae Thickening as Centrifuge Pretreatment
Capacity: 30,000 gpd
Location: Nova Scotia, Canada
Commissioned: 2020 (Single Day Completion)

Introduction and Challenge:

One of the facets that the NRC is involved in is the cultivation, growth, and harvesting of various algae strains. The concentration that algae can be grown to is limited by the depth that sunlight can penetrate the solution. Although photobioreactors can help increase the attainable concentration during the growth phase the results are still inadequate. A far more concentrated solution is required for various testing as well as storage and transport. Thickening the dilute algal mixture via centrifugation is labour intensive, requires high energy consumption, can rupture the algae cells over time, and is very inefficient until higher concentrations are attained. Finding an alternative thickening option is paramount to reducing costs and providing a higher quality product.

Solution:

After a successful pilot study Thetis was awarded the contract to provide a standalone PermaFlux filtration solution to thicken algae as an intermediate step between the photobioreactors and the centrifuges. The system draws freshly grown algae and thickens the contents until they are sufficient to be sent to a centrifuge. Energy cost savings and reduced labour requirements are two of the major advantages of PermaFluxTM in this application. **Implementing the PermaFlux solution reduced the centrifugation time required by >90%** and also signficantly lowered the labour required due to fewer centrifuges needing to be operated, monitored, and cleaned.

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