

**Environment and Natural Resources Trust Fund
2020 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 114-B

Innovative Solution for Protecting Minnesota from PFAS contamination

Category: B. Water Resources

Sub-Category:

Total Project Budget: \$ 750,000

Proposed Project Time Period for the Funding Requested: June 30, 2022 (2 yrs)

Summary:

Demonstration of an innovative technology to protect the States drinking water and natural resources by eliminating Perfluoroalkyl and Polyfluoroalkyl substances (PFAS) from point source discharges.

Name: Bill Keegan

Sponsoring Organization: Dem-Con

Job Title: President

Department: _____

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Location:

Region: Metro

County Name: Scott

City / Township: Shakopee

Alternate Text for Visual:

Minnesota's Industrial Wastewater is treated using innovative technology to remove PFAS and other water contaminants protecting our environment. Clean water is then released into the environment.

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ TOTAL	_____ %



Environment and Natural Resources Trust Fund (ENRTF) 2020 Main Proposal

Project Title: Innovative Solution for Protecting Minnesota Natural Resources from PFAS contamination

Grant Category: Water Resources: Research, Evaluation, Technology Development, and Engineering Design pertaining to emerging water contaminants.

Project Objective: Protection of State's drinking water resources and natural resources by eliminating a new Contaminant of Emerging Concern (CEC) known as Perfluoroalkyl and Polyfluoroalkyl substances (PFAS) from point source discharges.

I. PROJECT STATEMENT

Per – and polyfluoroalkyl substances (PFAS) are a group of synthetic chemicals that have been in use since the 1940s. PFAS are found in a wide array of consumer and industrial products such as food packaging materials, nonstick cookware, stain/water resistant carpet and clothing, cleaning products, paints, varnishes, sealants, firefighting foam, cosmetics, etc. Current water treatment technologies are ineffective at removing PFAS resulting in impacts to the State's drinking water, surface water, fish and wildlife, and human populations. Due to the widespread use, documented contamination, and persistence in the environment, PFAS has become a Contaminant of Emerging Concern (CEC) both federally and locally in Minnesota. Research indicates that these contaminants can be harmful to human health and the Minnesota Department of Health (MDH) established health-based advisory values as low as 15 parts per trillion (ppt). An innovative treatment technology is being proposed by Dem-Con Companies (Dem-Con) to remove PFAS from contaminated water before it enters the environment. Once demonstrated, this technology can be implemented on a broader basis for residential, commercial, and industrial discharges throughout the State of Minnesota protecting our natural resources.

Dem-Con is a third-generation family owned company known as a progressive leader in the waste recycling, processing, and public education space. We were one of the first in the country to pioneer robotics at a single stream recycling facility, develop a comprehensive recycling education and outreach program, and propose new and innovative ways to recycle construction and demolition materials. We will continue to look for opportunities to improve the environment by moving beyond the status quo and this project is another example of this initiative. Our interest in this project is to not only to address an emerging environmental and health concern for Minnesota, but we believe that addressing this issue "up-stream" at the source, regardless of the source, is a more proactive way of protecting the environment and our natural resources. To demonstrate our commitment to the project and the environment, Dem-Con is proposing to fund 50% of the initial project costs and 100% of the annual operations, reporting, and maintenance costs (\$100,000/yr) throughout the expected 15-year life of the treatment system. The proposed system will clean up over 60 million gallons of contaminated water at the Dem-Con site alone and infinitely more when applied to sites throughout the state of Minnesota. The financial commitment from Dem-Con will maximize the return on investment for the Legislative Citizen Commission on Minnesota Resources (LCCMR) and the State of Minnesota.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity: Demonstrate the efficacy of an innovative treatment technology to remove PFAS from contaminated water sources (residential, commercial, or industrial) prior to discharge to the environment.

Dem-Con, along with the patented Clark Engineering LeachBuster® technology, is in a unique position to pioneer this new technology given that our landfill provides access to a known point source discharge (leachate) with existing historical data documenting the PFAS contamination levels. In addition, Dem-Con already has much of the needed infrastructure in place such as permits and licenses, piping, tanks, trucks, roads, etc. which will help demonstrate the project while minimizing the project costs. Dem-Con meets all of our permitting discharge requirements to the Waste Water Treatment



**Environment and Natural Resources Trust Fund (ENRTF)
2020 Main Proposal**

Plant (WWTP) and we have no compliance issues. Further, this is not to address any WWTP issues, but rather to prove out a larger concept that treatment of environmental issues, namely PFAS, is better done “up-stream” at the source.

Outcome 1 - Design, Engineer, & Build Treatment System:

Design, engineer, and build a LeachBuster® wastewater treatment system at the Dem-Con Environmental Campus in Shakopee, Minnesota to treat leachate from the landfill located at the site. The LeachBuster® LB-L9 treatment system is unique from existing treatment technologies in that it can treat <2000 Daltons particle size and can handle up to 10% of suspended solids and co-contaminants while still removing PFAS contaminates down to less than 20 ppt. The documented PFAS concentrations present in the landfill leachate are higher than most domestic wastewater providing a unique opportunity to evaluate this technology on a “industrial strength” discharge which could then be applied not only to other industrial point source discharges but also more broadly to the lower concentrations found in domestic wastewater.

Outcome 2 - Conduct Research Program:

To conduct a structured research program to characterize the feed material (leachate), conduct treatability studies, perform repeatability tests and durability evaluation.

Outcome 3 – Report, Conclusions, Recommendations & Broader Implementation:

Prepare data summaries, conclusions and recommendations for application of this technology to different sources of these contaminants. Opportunities for applying the results of these studies may include various industrial discharges, groundwater and surface water treatment/remediation systems, and domestic water quality treatment systems.

Outcomes Table	Completion Date
1. Design, Engineer, & Build Treatment System (\$650,000):	December 2020
2. Conduct Research Program (\$50,000):	June 2021
3. Report, Conclusions, Recommendations & Broader Implementation (\$50,000):	November 2021

ENRTF Grant:	\$750,000		
Dem-Con Initial Commitment:	\$750,000	Dem-Con O&M Costs (\$100,000/yr for 15 yrs):	\$1,500,000
Initial Project Costs:	\$1,500,000		\$1,500,000

EVALUATION CRITERIA: The individual LCCMR evaluation criteria are addressed in Attachment A.

- III. **PROJECT PARTNERS AND COLLABORATORS:** The project partners are listed in Attachment B.
- IV. **LONG TERM IMPLEMENTATION AND FUNDING**

As a progressive leader in the industry, Dem-Con is committed to the success of this project and helping to pioneer a new technology that will improve the quality of human health, the environment, and our natural resources. To demonstrate this commitment, we are proposing to fund 50% of the initial project costs matching each grant dollar with an in-kind Dem-Con contribution. Additionally, Dem-Con will be responsible for funding 100% of the ongoing operational, maintenance, and reporting costs throughout the expected 20-year life of the equipment.

V. ADDITIONAL PROPOSAL COMPONENTS

- | | |
|---|---|
| A. Proposal Budget Spreadsheet – Attached | B. Visual Component or Map – Attached |
| C. Parcel List Spreadsheet – NA | D. Easements and Restoration – NA |
| E. Research Addendum – NA | F. Qualifications – Attachment C |
| G. Letter or Resolution – NA | H. Certified Audit/990 Tax Information - NA |

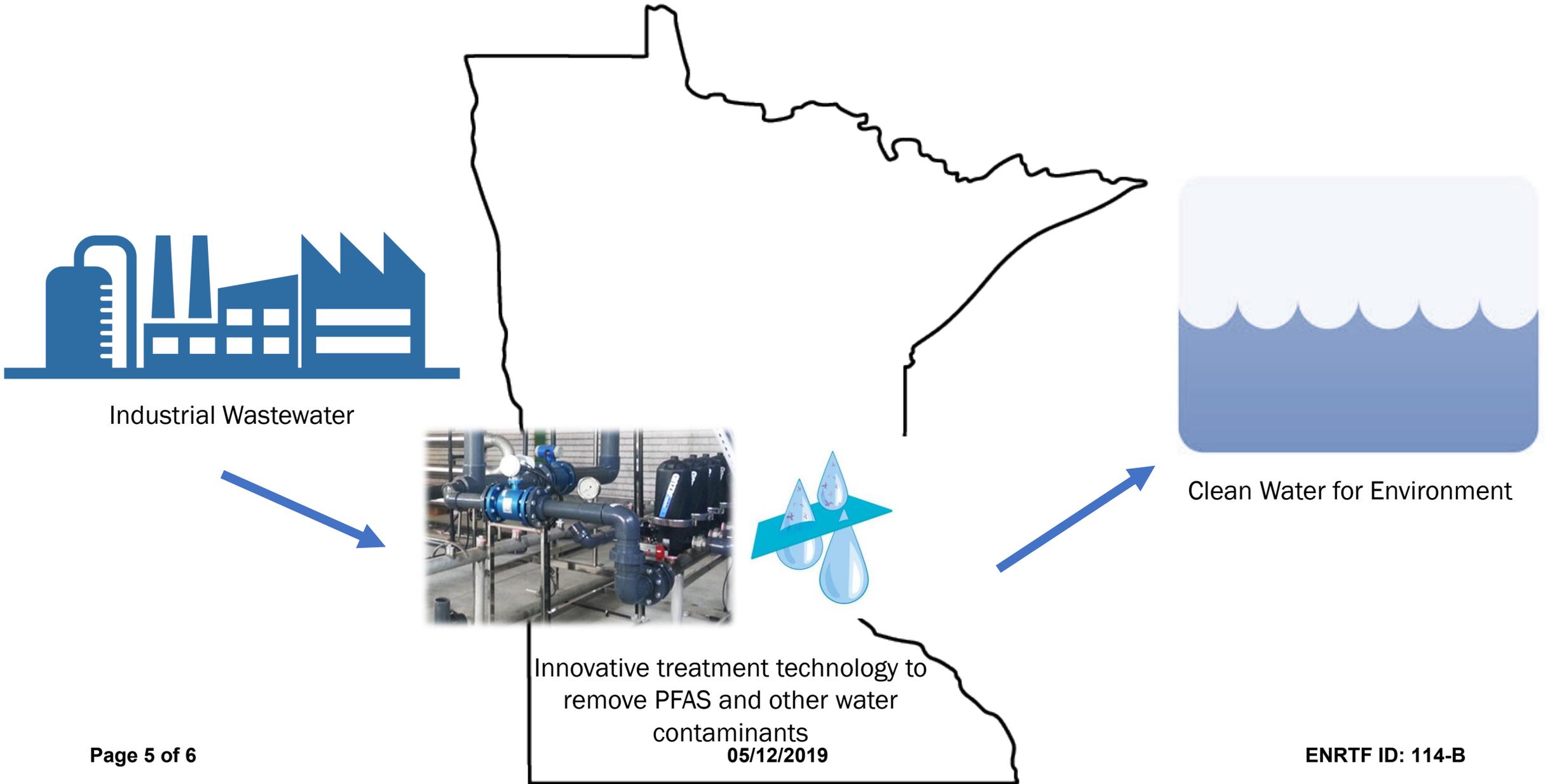
Attachment A: Project Budget Spreadsheet
 Environment and Natural Resources Trust Fund
 M.L. 2020 Budget Spreadsheet



Legal Citation:
 Project Manager: Bill Keegan
 Project Title: Innovative Solution for Protecting Minnesota Natural Resources from PFAS contamination
 Organization: Dem-Con Companies
 Project Budget: \$750,000
 Project Length and Completion Date: December 2020 - November 2021
 Today's Date: April 15, 2019

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET		Budget	Amount Spent	Balance	
BUDGET ITEM					
Personnel (Wages and Benefits)		\$ -	\$ -	\$ -	
Professional/Technical/Service Contracts		\$ -	\$ -	\$ -	
Equipment/Tools/Supplies					
Conduct research to characterize feed material, conduct treatability studies, perform repeatability		\$ 50,000	\$ -	\$ 50,000	
Report, conclusions, recommendations & broader implementation		\$ 50,000		\$ 50,000	
Capital Expenditures Over \$5,000					
Design, engineer, and build a LeachBuster® wastewater treatment system at the Dem-Con		\$ 650,000	\$ -	\$ 650,000	
Fee Title Acquisition		\$ -	\$ -	\$ -	
Easement Acquisition		\$ -	\$ -	\$ -	
Professional Services for Acquisition		\$ -	\$ -	\$ -	
Printing		\$ -	\$ -	\$ -	
Travel expenses in Minnesota		\$ -	\$ -	\$ -	
Other		\$ -	\$ -	\$ -	
COLUMN TOTAL		\$ 750,000	\$ -	\$ 750,000	
SOURCE AND USE OF OTHER FUNDS CONTRIBUTED TO THE PROJECT		Status (secured or pending)	Budget	Spent	Balance
Non-State:			\$ -	\$ -	\$ -
State:			\$ -	\$ -	\$ -
In kind: Dem-Con Companies initial capital contribution		secured	\$ 750,000	\$ -	\$ 750,000
In kind: Dem-Con Operations & Maintenance (15 years @ \$100,000/year)		secured	\$ 1,500,000		\$ 1,500,000
Other ENRTF APPROPRIATIONS AWARDED IN THE LAST SIX YEARS		Amount legally obligated but not yet spent	Budget	Spent	Balance
			\$ -	\$ -	\$ -

Protecting Minnesota's Water by Removing PFAS



ATTACHMENT C

Project Manager Qualifications and Organization Description:

Dem-Con Companies (Dem-Con) is a third-generation family owned business that has been providing waste disposal, recycling, and processing solutions to Scott County residents since the 1960s. Dem-Con has continued to evolve toward more processing and recycling, leading the industry toward a more integrated approach to solid waste management system. One example of this evolution and move toward increasing landfill diversion is our “Environmental Campus” of processing and recycling operations surrounding the landfill. The Dem-Con Environmental Campus consists of a Construction and Demolition (C&D) recycling facility, shingle recycling facility, wood recycling facility, metals scrap and recycling yard, and one of our newest additions the Dem-Con Materials Recovery Facility (DCMRF). Dem-Con has been recognized as a leader in the industry receiving several awards from the National Waste and Recycling Association (NWRA) for Recycling Facility of the Year in 2018, the Recycling Association of Minnesota (RAM) for Recycler of the Year in 2015, the Solid Waste Association of North America (SWANA) award for Gold Excellence in Recycling Systems in 2015, and we the Minnesota Governors Award for Pollution Prevention in 2012.

Applicant: Dem-Con Companies, 13020 Dem-Con Drive, Shakopee, MN 55379

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