



# Environment and Natural Resources Trust Fund (ENRTF)

## M.L. 2020 ENRTF Work Plan (Main Document)

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**Today's Date:** February 28, 2020

**Date of Next Status Update Report:** April 1, 2021

**Date of Work Plan Approval:**

**Project Completion Date:** December 2021

**Does this submission include an amendment request?** \_\_\_

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**PROJECT TITLE:** Innovative Solution for Protecting Minnesota from PFAS contamination

**Project Manager:** Bill Keegan

**Organization:** Dem-Con Companies

**College, Department, or Division:**

**Mailing Address:** 13020 Dem-Con Drive

**City, State, Zip Code:** Shakopee, MN 55379

**Project Manager Direct Telephone Number:** 952.224.7102

**Email Address:** billkeegan@dem-con.com

**Web Address:** dem-con.com

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**Location:** Metro Area – Scott County, Shakopee, Minnesota

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**Total Project Budget:** \$250,000

**Amount Spent:** \$0

**Balance:** \$250,000

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**Legal Citation:** M.L. 2020, Chp. xx, Sec. xx, Subd. xx

**Appropriation Language:**

## **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 contaminate 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 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 address an emerging environmental and health concern for Minnesota, but we believe that addressing this issue “up-stream” at the source, regardless of the sources, 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 83% of the initial project costs and 100% of the annual operations, reporting, and maintenance cost (\$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. OVERALL PROJECT STATUS UPDATES:**

**First Update April 1, 2021**

**Second Update October 1, 2021**

**Final Report between project end (December 31) and February 15, 2022**

## **III. PROJECT ACTIVITIES AND OUTCOMES:**

Design, engineer, and build a LeachBuster® wastewater treatment system at the Dem-Con Environmental Campus 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 Dalton particle size and can handle up to 10% of suspended solids and co-contaminants while still removing PFAS contaminates down to less than 10 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 an “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.

**ACTIVITY 1 Title: Design, Engineer, and Build Treatment System**

**Description:**

Construction of fully functional LeachBuster® leachate treatment system which can be used to treat leachate from various sources which may contain the above-mentioned contaminants. The system can be applied more broadly to other sites in Minnesota.

**ACTIVITY 1 ENRTF BUDGET: \$210,000**

| <b>Outcome</b>   | <b>Completion Date</b> |
|--|------------------------|
| 1. Design treatment system for our facility by evaluating site specific criteria and analytical data.          | <i>December 2020</i>   |
| 2. Engineer and implement process solutions based on the design developed.                                     | <i>January 2021</i>    |
| 3. Construct the system including supporting infrastructure such as the building and discharge infrastructure. | <i>June 2021</i>       |

**First Update April 1, 2021**

**Second Update October 1, 2021**

**Final Report between project end (December 31) and February 15, 2022**

**ACTIVITY 2 Title: Conduct Analysis of Program**

**Description:**

Conduct a structured analysis of the program to characterize the fee material (leachate), conduct treatability studies, perform repeatability test and durability evaluation.

**ACTIVITY 2 ENRTF BUDGET: \$ 20,000**

| <b>Outcome</b>   | <b>Completion Date</b> |
|--|------------------------|
| 1. Characterize the feed material (leachate).            | <i>June 2021</i>       |
| 2. Conduct treatability studies.                         | <i>July 2021</i>       |
| 3. Perform repeatability test and durability evaluation. | <i>August 2021</i>     |

**First Update April 1, 2021**

**Second Update October 1, 2021**

**Final Report between project end (December 31) and February 15, 2022**

**ACTIVITY 3 Title: Report Conclusions, Recommendations & Broader Implementation**

**Description:**

To collect, collate, infer, and analyze all the data produced during these activities and prepare a comprehensive report which will include data summaries, conclusions, and recommendations for application of this technology to different sources of these contaminants. Potential 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.

**ACTIVITY 3 ENRTF BUDGET: \$ 20,000**

| <b>Outcome</b>  | <b>Completion Date</b> |
|---|------------------------|
| 1. Collect and analyze data.  | <i>November 2021</i>   |
| 2. Preparation of a comprehensive report.                             | <i>December 2021</i>   |
| 3. Recommendation of potential sources that could utilize technology. | <i>December 2021</i>   |

**First Update April 1, 2021**

**Second Update October 1, 2021**

**Final Report between project end (December 31) and February 15, 2022**

**IV. DISSEMINATION:**

**Description:**

Dem-Con will produce a report showing the results of the findings and place share those findings with LCCMR as well as the MPCA. The report will be posted on the Dem-Con webpage. Public outreach will be done including tours for interested parties.

The Minnesota Environment and Natural Resources Trust Fund (ENRTF) will be acknowledged through use of the trust fund logo or attribution language on project print and electronic media, publications, signage, and other communications per the [ENRTF Acknowledgement Guidelines](#).

**First Update April 1, 2021**

**Second Update October 1, 2021**

**Final Report between project end (December 31) and February 15, 2022**

**V. ADDITIONAL BUDGET INFORMATION:**

**A. Personnel and Capital Expenditures**

**Explanation of Capital Expenditures Greater Than \$5,000:**

Design, engineer, and build a LeachBuster® wastewater treatment system at the Dem-Con Environmental Campus to treat leachate from the landfill located at the site. The LeachBuster®, wastewater treatment system, or similar technology, will be depreciated over seven years and will be maintained throughout that projected useful life. Dem-Con commits that if the wastewater treatment system is sold before that time the Environment and Natural Resources Trust fund will be paid the cash value received from the sale or a residual value approved by the LCCMR director.

**Explanation of Use of Classified Staff:**

None

**Total Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation:**

|  |   |
|--|---|
| Enter Total Estimated Personnel Hours for entire duration of project: none | Divide total personnel hours by 2,080 hours in 1 yr = TOTAL FTE: none |
|--|---|

**Total Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation:**

|   |  |
|---|--|
| Enter Total Estimated Contract Personnel Hours for entire duration of project: none | Divide total contract hours by 2,080 hours in 1 yr = TOTAL FTE: none |
|---|--|

**VI. PROJECT PARTNERS:**

- A. Partners outside of project manager’s organization receiving ENRTF funding: None
- B. Partners outside of project manager’s organization NOT receiving ENRTF funding: Clark Technology, LLC

**VII. 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 83% of the initial project costs matching each grant dollar with an in-kind Dem-Con contribution. Additional, 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.

**VIII. REPORTING REQUIREMENTS:**

- Project status update reports will be submitted April 1 and October 1 each year of the project
- A final report and associated products will be submitted between December 31 and February 15, 2022

**IX. SEE ADDITIONAL WORK PLAN COMPONENTS:**

- A. Budget Spreadsheet**
- B. Visual Component or Map**
- C. Parcel List Spreadsheet**
- D. Acquisition, Easements, and Restoration Requirements**
- E. Research Addendum**

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: \$250,000

Project Length and Completion Date: December 2020 - December 2021

Today's Date: February 28, 2020

| ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET  |                                    | Budget  | Amount Spent  | Balance        |
|--|------------------------------------|---|---------------|----------------|
| <b>BUDGET ITEM</b>   |                                    |   |               |                |
| <b>Personnel (Wages and Benefits)</b>  |                                    | \$ -  | \$ -          | \$ -           |
| <b>Professional/Technical/Service Contracts</b>  |                                    |   |               |                |
| Design & engineer LeachBuster® wastewater treatment system a unique provider of technology. Although we have gained confidence in the efficacy of the LeachBuster® system, since this is an emerging technology, Dem-Con will evaluate other similar treatment providers if they are available. We will issue an RFP if other viable providers are found however, due to the unique nature of this technology the provider used may not necessarily be the lowest cost provider. |                                    | \$ 10,000   | \$ -          | \$ 10,000      |
| Conduct research to characterize feed material, conduct treatability studies, perform repeatability tests and durability evaluation. A written RFP will be issued for this research and study. The contractor that is the most qualified will be chosen to do the work.  |                                    | \$ 20,000   |               | \$ 20,000      |
| Report, conclusions, recommendations & broader implementation. A written RFP will be issued and the contractor that is the most qualified will be chosen to do the work.   |                                    | \$ 20,000   |               | \$ 20,000      |
| <b>Equipment/Tools/Supplies</b>  |                                    |   | \$ -          | \$ -           |
| <b>Capital Expenditures Over \$5,000</b>   |                                    |   |               |                |
| LeachBuster® wastewater treatment system, 4 tanks, 6 pumps, 8 sensors, 4 flow meters, & 4 pH meters at the Dem-Con Environmental Campus to treat leachate from the landfill located at the site.   |                                    | \$ 200,000  | \$ -          | \$ 200,000     |
| <b>Fee Title Acquisition</b>   |                                    |   |               |                |
|  |                                    | \$ -  | \$ -          | \$ -           |
| <b>Easement Acquisition</b>  |                                    |   |               |                |
|  |                                    | \$ -  | \$ -          | \$ -           |
| <b>Professional Services for Acquisition</b>   |                                    |   |               |                |
|  |                                    | \$ -  | \$ -          | \$ -           |
| <b>Printing</b>  |                                    |   |               |                |
|  |                                    | \$ -  | \$ -          | \$ -           |
| <b>Travel expenses in Minnesota</b>  |                                    |   |               |                |
|  |                                    | \$ -  | \$ -          | \$ -           |
| <b>Other</b>   |                                    |   |               |                |
|  |                                    | \$ -  | \$ -          | \$ -           |
| <b>COLUMN TOTAL</b>  |                                    | \$ 250,000  | \$ -          | \$ 250,000     |
| <b>SOURCE AND USE OF OTHER FUNDS CONTRIBUTED TO THE PROJECT</b>  |                                    |   |               |                |
|  | <b>Status (secured or pending)</b> | <b>Budget</b>                                     | <b>Spent</b>  | <b>Balance</b> |
| <b>Non-State:</b>  |                                    | \$ -  | \$ -          | \$ -           |
| <b>State:</b>  |                                    | \$ -  | \$ -          | \$ -           |
| <b>In kind: Dem-Con Companies initial capital contribution</b>   |                                    | secured   | \$ 1,250,000  | \$ -           |
| <b>In kind: Dem-Con Operations &amp; Maintenance (15 years @ \$100,000/year)</b>   |                                    | secured   | \$ 1,500,000  | \$ 1,500,000   |
| <b>Other ENRTF APPROPRIATIONS AWARDED IN THE LAST SIX YEARS</b>  |                                    | <b>Amount legally obligated but not yet spent</b> | <b>Budget</b> | <b>Spent</b>   |
|  |                                    |   |               | <b>Balance</b> |
|  |                                    | \$ -  | \$ -          | \$ -           |