

2016 UDOT RESEARCH PROBLEM STATEMENT

*** Problem statement deadline is March 14, 2016. Submit statements to Tom Hales at tahales@utah.gov. ***

Title: Filter systems to produce Industrial Use Water for UDOT Maintenance Stations **No. (office use):** 16.02.04

Submitted By: Kevin E. Griffin P.E.

Organization: UDOT

Email: kgriffin@utah.gov

Phone: 801-965-4120

UDOT Champion (suggested): Kevin E. Griffin

Select One Subject Area

Materials/Pavements

Maintenance

Traffic Mgmt/Safety

Preconstruction

Planning

Public Transportation

1. Describe the problem to be addressed.

UDOT Maintenance Stations have numerous Retention and Detention Ponds that hold water from the runoff of the paved surfaces at the maintenance stations. There are currently a number of the maintenance stations that are pumping this water to make brine for winter operations. There are also numerous locations where these pond will overflow their boundaries during the year. These operations are not allowed under UDOT's new MS4 permit and a solution to these issues needs to be found. There are filtering systems that are available that can pump this water and make it usable for "Industrial Water" applications. UDOT would like to study the viability of these systems and determine if a solution can be derived for UDOT to address this current problem.

2. Explain why this research is important.

The new MS4 permit that was recently signed between UDOT and the Utah Division of Environmental Quality requires UDOT to find a solution to the pumping and overflowing of its current pond systems located at the UDOT Maintenance Stations.

3. List the research objective(s):

1. Literature search on the use of "Industrial Use Water"
2. Verification with the Utah Division of Environmental Quality that Industrial use Water is applicable for making brine for UDOT's winter operations.
3. Identify filter systems that will accomplish the desired outcomes for the production of Industrial use Water.
4. Purchase and test different systems with verifiable lab results to identify the filtering systems that could be used for these purposes.
5. Make recommendations to UDOT about which systems would be the most economical to use based on a life cycle costs analysis.
6. Produce a final report that identifies the research done so it can be posted on the UDOT research site and the UDOT Maintenance home page.

4. List the major tasks:

1. Literature search on Industrial use Water
2. Identification of potential filter systems
3. Purchasing and testing of potential system with verifiable lab results.
4. Lifecycle cost analysis on proposed systems.
5. Final Report

5. List the expected results:

1. The identification of a water filtering system that UDOT can purchase to solve the issue of pumping water from our Retention and Detention ponds.
2. Approval from the Utah Division of Environmental Quality that the filter system is an applicable method to solve the current pond issues.

6. Describe how this research will be implemented.

UDOT Central Maintenance will purchase the filter systems and implement them at the four UDOT Regions.

**7. Requested from UDOT: \$100,000
(or UTA for Public Transportation)**

Other/Matching Funds: \$

Total Cost: \$100,000

8. Outline the proposed schedule, including start and major event dates.

Literature Search and Identification of potential filter systems complete by October 2016

Purchase and test filter systems by April 2017

Lifecycle and final report by June 2017