

UTC Project Information	
Project Title	MPC-656 – Nutrient Removal and Recovery from Stormwater Using Water Treatment Residual Coated Woodchips
University	South Dakota State University
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Total Project Cost	\$195,439
Agency ID or Contract Number	69A3551747108
Start and End Dates	May 21, 2021 to July 31, 2022

<p>Brief Description of Research Project</p>	<p>Stormwater discharge from transportation, municipal and agricultural sources may contain various pollutants that can deteriorate water quality of receiving water bodies and threaten public health. Nitrate and phosphate are two important nutrients identified in stormwater runoff. Elevated nutrient levels in surface waters can lead to eutrophication and frequent harmful algal blooms. Woodchip bioreactors have been used to remove nitrate from stormwater runoff. However, woodchips are not effective at phosphate removal. Water treatment residuals (WTR) are sludge produced during coagulation and flocculation processes during drinking water treatment. WTRs typically contain large amounts of aluminum, iron, or calcium compounds with high phosphate adsorption capacity. The objective of this project is to investigate the performance of WTR coated woodchips for nitrate and phosphate removal from stormwater runoff and evaluate the recovery potential of phosphate adsorbed by WTRs. Laboratory batch and column experiments will be conducted to evaluate factors that affect nitrate and phosphate removal by WTR coated woodchips. The phosphate desorption potential of WTR coated woodchips will also be determined. The results of this project can lead to the development of a new, low-cost technology for sustainable nutrient management in stormwater runoff.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project Website 	