TECHNOLOGY PROVIDER
TECHNOLOGY INFORMATION REQUEST

Technology/Service:	Sand-Manure Separator		
Information by:	Rob Plank	**Date:**	January 11, 2018

COMPANY INFORMATION

Company:	McLanahan Corporation		
Phone:	(814) 695-9807	**Web Site:**	www.mclanahan.com
Address:	200 Wall Street	**City:**	Hollidaysburg
State:	PA	**Zip Code:**	16648

TECHNICAL CONTACT

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DEMONSTRATION SITE CONTACT

Site Name:	
Contact:	
Title:	
Phone:	
Email:	
Address:	
City:	
State:	
Zip Code:	

INITIAL TECHNOLOGY OVERVIEW

This information is to guide in the development of a more specific and detailed Technology Information Request.
Please answer the following questions for each Technology or Service Provided.

What is the name of the technology or service you provide?

Sand-Manure Separators (SMS)

Describe how this technology is used in a larger Nutrient Management System. *Please be as detailed as possible.*

Sand bedding provides a healthy environment for cows, keeping them cleaner, thereby aiding in maximizing overall cow comfort and ultimately enhancing dairy profitability. When sand is mixed with manure, the manure stream becomes abrasive, difficult to agitate and pump, and expensive to land apply. McLanahan Sand-Manure Separation Systems utilize proven sand-processing technology to separate sand from manure. Separating the two produces clean recycled sand that is suitable for reuse within days. The resulting manure effluent containing water, manure fibers, and all the manure nutrients can be further processed through a Liquid-Solid Separation System.

McLanahan Corporation Sand-Manure Separation Systems are also designed to achieve sufficient sand recovery to enable manure waste to be processed through anaerobic digesters, as well as other treatment systems requiring high sand recovery.

How many systems do you have installed on dairy farms or other livestock operations?

SYSTEMS	NUMBER OF SITES	SIZE OF INSTALLATIONS
Dairy	250	Herd sizes from 200 to 15,000
Pork		
Poultry		

What's the smallest and largest farm using your system?

Dairies with 200 to 15,000 cows

Does this technology have a 12-month record of reliable performance on at least three dairy farms?

The SMS equipment has a record of reliable performance on multiple dairies

Do you have a preferred region or area for the location of projects?

Globally. Systems are successfully operating around the world.

Input and output of your unit/system – do you have a mass balance analysis?
If a mass balance is available, please include below or attach as a separate document.

The input is sand-laden manure. The output is two separate recyclable products – clean, dryer sand that could be re-used for cow bedding, as well as sand-free manure effluent that is easy-to-manage and can be used on fields. A mass balance analysis is available.

Input material description and characteristics:
For example: raw manure, digestate, screened digestate, suitable non-farm feedstocks, other.

Sand laden manure and flush waster

Does the technology treat the full manure stream for a farm or a fraction of the stream?

SMS treats the full manure stream

Do you consider this a mature system or ongoing farm development?

SMS is a mature technology, operating successfully on multiple dairy farms for over 20 years.

Any weather constraints? **Yes** ☐ **No** ☑ *If so, please describe.*

Any bedding constraints? **Yes** ☑ **No** ☐ *If so, please describe.*

This processing equipment is used on farms that bed with sand.

Output material description and characteristics:
Please include the % of the total stream for each material, i.e. 10% fiber and 90% screened liquid by weight.

The output is two separate recyclable products – clean, dryer sand that could be re-used for cow bedding, as well as sand-free manure effluent. that is easy-to-manage and can be used on fields or sent to a digester.

Do the Outputs of the process have a resale market identified? **Yes** ☐ **No** ☑
If so, under what brand name or who is the contract with?

The sand-free manure is easy-to-manage and can be used as crop nutrients on fields

Is this process scalable and to what extent (top and bottom limits)? **Yes** ☑ **No** ☐ *If so, please describe.*

The SMS system can be sized for 200 cows to no upper limit because the system is modular.

Do you have a known scaling factor? **Yes** ☐ **No** ☑ *If so, please describe.*

Sizing and scaling factors are not a matter of technology but of economics.

Does this technology require any air input? **Yes** ☑ **No** ☐

Air is used in some systems for agitation in the SMS

What is the preferred air connection? *For example: psi, fitting size, air quality.*
If not distributed by the system, please list each connected device.

4 CFM @ 20 psi from compressor, unfiltered

Does this technology require any water input? **Yes** ☑ **No** ☐ *If so, please describe.*

A freshwater spraybar is located on the machine to rinse the sand before it exits.

What is the preferred water connection? *For example: psi, fitting size, water quality, gpm.*
If not distributed by the system, please list each connected device.

2-5 gpm @ 40 psi (normal tap pressure). Connection is 1" FNPT

Does this technology require any electrical input? **Yes** ☑ **No** ☐ *If so, please describe.*

The SMS system requires electrical input for controls, pumps and other equipment.

What is the preferred electrical connection? *For example: phase #, voltage, full load amps.*
If not distributed by the system, please list each connected device.

Standard dairy electrical service

Does this technology require any mechanical input? **Yes** ☐ **No** ☑ *If so, please describe.*

Electric motor provided.

What is the preferred mechanical connection? *For example: horsepower, connection, rpms.*
If not distributed by the system, please list each connected device.

Electric motor provided.

Does this system require any special plumbing? **Yes** ☑ **No** ☐ *If so, please describe what is required.*

Plumbing for liquid outputs uses standard size PVC

Does this system require any special foundations or pads? **Yes** ☐ **No** ☑ *If so, please describe.*

A thicker concrete pad is typically poured at location of the SMS feet.

Do you consider this technology part of a larger system that you provide? **Yes** ☐ **No** ☑ *If so, please describe.*

The SMS is a complete system for sand-manure separation. McLanahan Nutrient Separation System provides the optimum solution that maximizes the value of nutrients and water. By separating and concentrating nutrients, this system allows application where and when they are needed. Separated clean water can be land irrigated, re-used or even discharged into a water source.

Does your system require any other components that you do not provide or are not included in your proposal? **Yes** ☑ **No** ☑
If so, please describe.

Most SMS systems require agitators and pumps which are not supplied by McLanahan.

How is the system delivered to the site? *For example: skid mounted, assembled on site, constructed on site.*

The system needs assembled on site

Is this system portable or configured in such a way that it could be easily transported for use in several locations?
Yes ☐ **No** ☑ *If so, please describe.*

Has your technology been accepted by the NRCS and is it included into a practice standard? Yes ☐ No ☑
If so, please describe if necessary.

NRCS is familiar with this technology but it is not included into a standard practice.

Are there any unusable or hazardous byproducts of this process? Yes ☐ No ☑
If so, please describe the product and recommended means of disposal.

What spare parts and redundant components are included with the system?

Spare parts are industry standard and available

How is the system controlled and what are the components and capabilities of the control system?

McLanahan typically supplies a control panel which contains the operational logic for the system.

What is the usable life of the system?

Really depends on the installation but up to 15 years.

What is the salvage value at the end of the usable life?

Metal scrap value

What is the educational and technical level of competence for the operation of the system?

Trained labor should be able to operate the system. Outsourced O/M contractors are available

What level of maintenance is required for the system?
Please indicate if rebuilds or major components must be replaced and what the frequency is for these components.

Component parts require maintenance and replacement per maintenance schedule. Daily walk through inspections and periodic response to system upsets are required.

Are consumables used in the process? Yes ☐ No ☑
Please provide the nature and purchase relationship for these consumables. For example: proprietary, special contract, generally available.

Which of these NRCS codes would your technology be classified under? *Check all that apply. Add if necessary.*

CODE	NRCS DESCRIPTION	CHECK ALL THAT APPLY
472	Access Control	☐
560	Access Road	☐
309	Agrichemical Handling	☐
371	Air Filtration and Scrubbing	☐
591	Amendments for the Treatment of Agricultural Waste	☐
366	Anaerobic Digester	☐
672	Building Envelope Improvement	☐
372	Combustion System Improvement	☐
317	Composting Facility	☐
554	Drainage Water Management	☐
375	Dust Control from Animal Activity on Open Lot Surfaces	☐

373	Dust Control on Unpaved Roads and Surfaces	☐
374	Farmstead Energy Improvement	☐
512	Forage and Biomass Planting	☐
561	Heavy Use Area Protection	☐
516	Livestock Pipeline	☐
590	Nutrient Management	☐
521A	Pond Sealing or Lining, Flexible Membrane	☐
533	Pumping Plant	☐
588	Roof Runoff Structure	☐
367	Roofs and Covers	☐
318	Short-Term Storage of Animal Waste and By-Products	☐
570	Stormwater Runoff Control	☐
606	Subsurface Drain	☐
635	Vegetated Treatment Area	☐
601	Vegetative Barrier	☐
360	Waste Facility Closure	☐
632	Waste Separation Facility	☐
313	Waste Storage Facility	☐
634	Waste Transfer	☐
629	Waste Treatment	☑
359	Waste Treatment Lagoon	☐
		☐
		☐
		☐

Can you provide an estimate of the capital required for the installation of this technology?
Please include all components and designate if provided by you or others.

Depends on the type and size of system and location.

Can you provide an estimate of the operational costs required for this technology?
Please include all costs and designate if provided by you or others.

Depends on type of system and can be supplied at time of quote.

Is there financing available for this system? **Yes** ☐ **No** ☑ *If so, what are the conditions for this financing?*

Is the system available for lease? **Yes** ☐ **No** ☑ *If so, please describe.*

What sort of warrantee or guarantee do you provide with this technology?
Do you provide any performance guarantees or strictly defects in parts and materials?

1 year warranty for all components except wear items. Yes, a guarantee can be provided.

Explain how this system is unique or transformative and how does it improve upon or go beyond other technologies that are currently available.

This system uses a patented process and mining duty equipment to create a cost effective solution for sand recovery.

Would you be willing to provide a location for a site visit by Newtrient? **Yes** ☑ **No** ☐ *If so, please provide location.*

There are many locations around the world which are available.

TECHNOLOGY REFERENCES

Please provide customers with whom we can discuss this technology and its performance.
Include a company name, location, contact name and contact information.

Case Studies are available on-line for the following dairies:
https://www.mclanahan.com/products/sand-manure-separators-sms/

Reference 1

Company Name:	Car-Min-Vu Dairy in Webberville, Michigan
Company Location:	Webberville, Mich
Contact Name:	Chad Minnis
Contact Information:	Upon request

Reference 2

Company Name:	Dutch Made Holsteins dairy
Company Location:	Lake Geneva, Wisconsin
Contact Name:	Martin Vanderstappen
Contact Information:	Upon request

Reference 3

Company Name:	Prairieland Dairy
Company Location:	Belleville, Wisconsin
Contact Name:	Mark Faheey
Contact Information:	Upon request

Reference 4

Company Name:	SwissLane Dairy
Company Location:	Alto, Michigan
Contact Name:	Fredrick Oesch
Contact Information:	Upon request

Are there any other facts about this technology that you feel should be included in this document?

McLanahan's equipment offering is supported by some of the most knowledgeable persons in the industry