

GSI

F A R M E R S U N I O N C O O P

A S / S V E S Y S T E M

Submitted by Maple Leaf Environmental Equipment Ltd.
In co-operation with Gunnar Peterson of ABE Inc

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Quote Number: 400991R3

Technical Notes

Engineering Assumptions:

230V three-phase power available

Hazardous CL 1 DIV 2 location for AS/SVE equipment

Ambient up to 110 degrees F

Altitude 1870 feet

Design Parameters:

VACUUM EXTRACTION SYSTEM:

VES system to have a one zone nineteen leg influent manifold

SVE system capacity – 1, 045 SCFM at 45" WC

MLEE 55 G vapor liquid separator

ENCLOSURE MODULE:

AS/SVE equipment mounted in 8'x 14' enclosure, piped, wired and tested;

all wiring suitable for Class 1 Div 2 locations

CONTROL PANEL:

PLC based control system with control and alarm features

Equipment Description

VACUUM EXTRACTION MANIFOLD MODULE

- Includes: One 6" MLEE Head Series steel vacuum extraction manifold with nineteen 3" legs, each leg to contain:
- Gate valve
 - MLEE PFLOW Pitot tube only
 - Vacuum gauge
 - Termination outside of enclosure
- Four gauges mounted on wall for connection to pitot tubes

VAPOR LIQUID SEPARATOR MODULE

- Includes: VLD-800, 85 G vapor liquid separator with:
- Epoxy coated exterior
 - 1/2" sight glass
 - High level alarm switch - *discrete input*
 - Baffle added to reduce swirling of any accumulated water
 - Manual drain

PRESSURE FAN SVE MODULE

- Includes: One **New York Blower model 2606A** with 15 HP 230/460V/3P EXP motor:
- *Discrete output*
 - Performance at inlet of blower: 1045 SCFM at 54" WC
 - Expected inlet pressure losses through MLE system: 20" WC
- Inlet piping to blower to contain:
- Vacuum gauge
 - Screen
 - Vacuum gauge
 - Air flow indicator
 - MLEE PFLOW Pitot tube flow indicator
 - Dilution valve with filter/silencer
 - PVC piping
- Discharge piping from blower to contain:

- Pressure gauge
- Temperature gauge
- Air flow indicator
 - MLEE PFLOW Pitot tube flow indicator

AIR SPARGE MANIFOLD MODULE

Includes: One 2" MLEE Head Series steel air sparge discharge manifold with seven 1" legs, each leg to contain:

- Gate valve
- Rotameter style flow indicators
- Termination outside of enclosure

REMEDIATION ENCLOSURE

Built to NEC Class 1 Div 2 standards, all wiring intrinsically safe and all equipment prepiped factory tested and mounted in enclosure

Includes 8' x 14' enclosed cargo trailer with the following standard features:

- 6.5' standard interior height
- Tandem 3500 lbs axles
- 5316 lbs payload capacity
- Aluminum siding
- Independent suspension
- Electric brakes
- Break away kit
- Safety chain
- Four jacks stands
- Plywood floor
- Insulated walls and ceiling
- Barn-style rear double doors
- Control panel mounted to exterior

Interior to be rated hazardous and to contain the following:

- Vacuum extraction system
- Space for air sparge system
- Lighting - powered device
- Ventilation fan with thermostat and hood - discrete output
- Heater with thermostat - powered device
- Passive vent louvers with hood
- All influent, effluent, and drain lines plumbed to outside of building

CONTROL SYSTEM

- Includes: PLC Series Direct Logic PLC based control panel with the following standard features:
- UL certification
 - NEMA 3R lockable panel enclosure
 - Panel box heater
 - Inner swing panel
 - Primary circuit protection using fused main disconnect
 - Surge and lightning protection for control system
 - Main power block
 - Branch circuit protection with circuit breakers for motors
 - Motor starters with overload protection
 - Branch circuit protection with circuit breakers for powered devices
 - Direct Logic PLC control system
 - 24 VDC IS power supply
 - Intrinsically safe barriers
 - Factory tested prior to shipping
- Outside cover of inner swing panel to contain the following:
- HOA switches with green run lights
 - Power on light
 - Red alarm indicator lights
 - Alarm reset button

NOTE: All spare components in panel (starters, HOA, IS barriers, etc.) will be installed. All wiring for spare system will be run from panel to junction boxes. Wiring from junction boxes to spare components will be done by others.

OPERATION AND MAINTENANCE MANUAL

- Includes:
- Operating instructions for all treatment system components
 - Copy of operating manual for each piece of equipment
 - Summary of system components
 - Summary of system operation principals
 - Summary of operation controls and failsafes
 - Summary of maintenance requirements for each piece of equipment

M A P L E L E A V E B M S I R O O M E C P A L
 B O I L E R M E N T A R E A

INPUT: DESCRIPTION	DISCRETE	IS	ALM
VLS high level alarm switch	1	1	1
Building ventilation fan thermostat	1	1	
Building heater thermostat	1	1	

OUTPUT: DESCRIPTION	MOTOR STARTER	HOA	RUN LIGHT
SVE blower motor	15 HP 230V/3P	1	1
BLD hazardous ventilation fan motor	0.33 HP 230V		
BLD hazardous heater			

ESTIMATED FREIGHT TO DANNEBROG, NE

Customer will be billed for actual shipping cost. Customer is responsible for off-loading of equipment at site.

ONSITE START-UP ASSISTANCE

Two (2) days of onsite assistance by manufacturer representative.

OPTIONS:

Does not include freight to site if equipment is to be sent separate from trailer.

ADDER FOR TELEMETRY

Includes software, modem, autodialer and surge/lightning protection for phone line.

DEDUCT FOR 2" SVE MANIFOLD LEGS

Includes: One 6" MLEE Head Series steel vacuum extraction manifold with nineteen 2" legs, each leg to contain:

- Gate valve
- MLEE PFLOW Pitot tube only
- Vacuum gauge
- Termination outside of enclosure

Four gauges mounted on wall for connection to pitot tubes

NOTE: MLEE uses 2" pipe for air flows of up to 130 cfm. Pressure losses at an estimated flow per leg of 55 cfm will be minimal.

MLEE also provides rental units; please contact MLEE for further information.

MLEE will purchase back used equipment; please contact MLEE for further information.

INCLUDED

Detailed manuals

Shipping

Assembly drawings and instructions

Operating and maintenance manuals for all components

NOT INCLUDED

Electrical service and hook-up to system

Federal, State/Provincial, or Local taxes unless otherwise stated

Local approvals and certificates

PACKING LIST

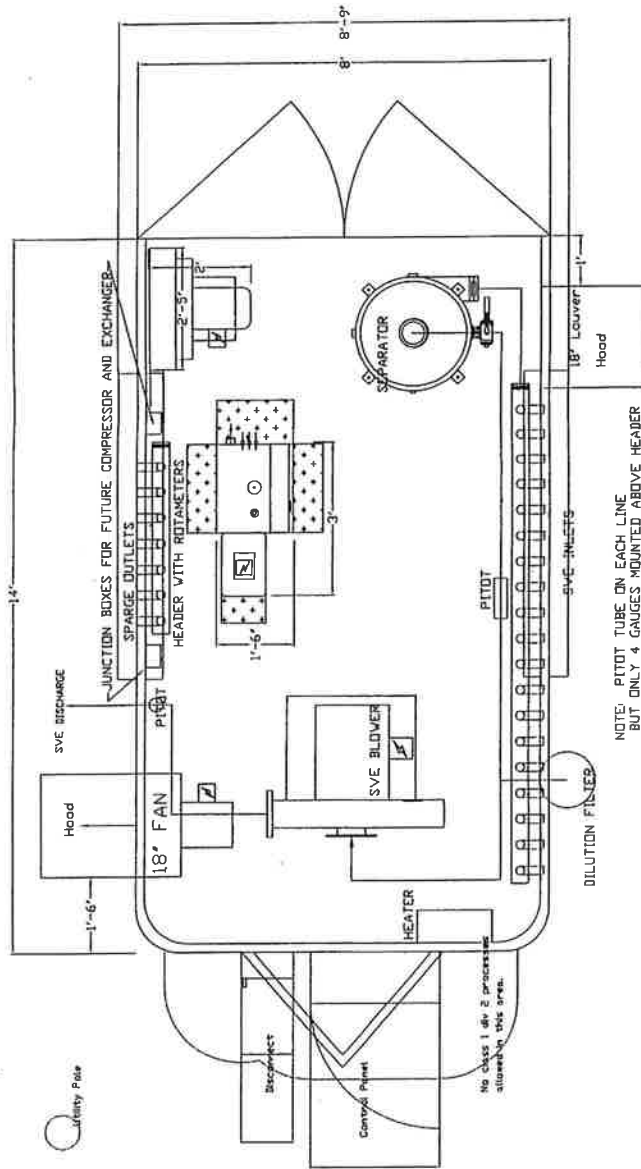
DESCRIPTION	DIR. (LXWXH)	WEIGHT
Trolley	14'x8'x6.5'Int	7000lbs

SPECIAL PROJECT NOTES

1. FAN & LOUVER HOODS NEED TO BE INSTALLED ON SITE. CANNOT SHIP WITH HOODS ATTACHED.
2. THERMAL INSULATION IN INTERIOR PAINTED PLYWOOD WALLS.
3. LOCATE COOLING THERMOSTAT IN THE WARMEST LOCATION AT CEILING LEVEL.

SCALE BAR, EACH BLOCK IS 12" LONG

Existing Building This Side



NOTE: PITOT TUBE ON EACH LINE BUT ONLY 4 GAUGES MOUNTED ABOVE HEADER



THIS AREA REPRESENTS SERVICE SPACE REQUIRED

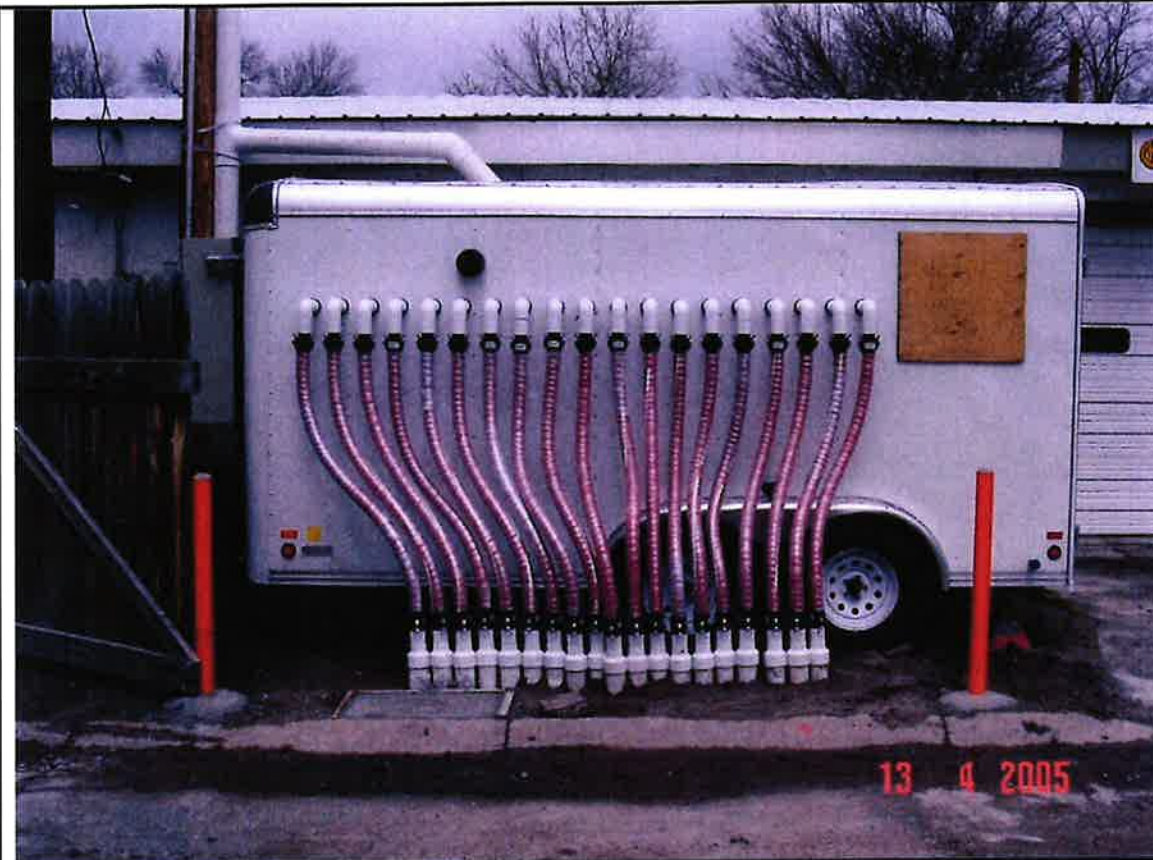
- FLOW DIRECTION
- ⊙ FLOW DOWN INTO THE PAGE
- ⊗ FLOW OUT OF THE PAGE
- ⎓ ELECTRICAL CONNECTION
- SPACE ALLOCATED FOR SERVICING

Read This Side

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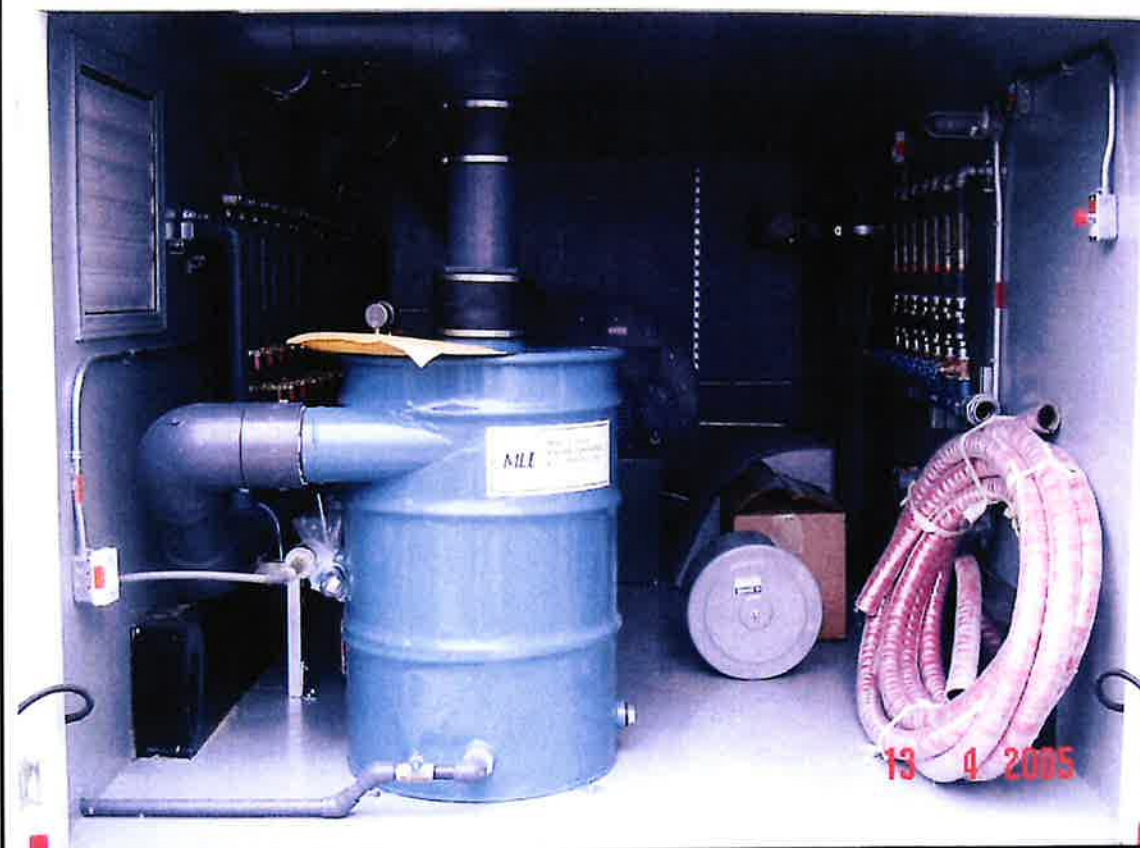
DATE	DESCRIPTION	BY
10/1/01	REVISED TO ADD CUSTOMER'S COMMENTS	J. J. J.
10/1/01	REVISED TO ADD CUSTOMER'S COMMENTS	J. J. J.
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SWG. NO. 3534-02
System Layout
CUSTOMER'S COMMENTS
10/1/01



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View to north, equipment trailer installation showing SVE line manifold



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Interior of equipment trailer showing knockout tank (foreground), SVE blower (background), SVE lines (left), and future sparge lines (right)



3826 Arch Avenue Grand Island, Nebraska 68803 (308) 381-1987

Project Farmers Union Coop

Location Dannebrog, Nebraska

Job No. 2105802

Date 04/18/05

NEBRASKA

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