Notice of Alteration Form

Manitoba Sustainable Development

Client File No. :	Environment Act Licence No. : 58 HW S2 RRRR
Legal name of the Licencee: Miller Environmental Corporation	
Name of the development: Miller Environmental Corporation	
Category and Type of development per Classes of Development Regulation: Waste Treatment and Disposal <SELECT>	
Licencee Contact Person: Dave Howes Mailing address of the Licencee: 1803 Hekla Avenue City: Winnipeg Province: MB Postal Code: R3N0T1 Phone Number: (204) 925-9604 Fax: Email: daveh@millerenvironmental.mb.ca	
Name of proponent contact person for purposes of the environmental assessment (e.g. consultant): Dave Howes	
Phone: (204) 925-9604 Fax:	Mailing address: 1803 Hekla Avenue, Winnipeg, MB R3N 0T1
Email address: daveh@millerenvironmental.mb.ca	
Short Description of Alteration *(max 90 characters):* Installation of solvent recycling system in existing organics processing building.	
Alteration fee attached: Yes: ☐ No: ☑ If No, please explain: TBD	
Date: 2024-10-01	Signature [redacted] Printed name: Dave Howes

A complete Notice of Alteration **(NoA)** consists of the following components:

- ☑ **Cover letter**
- ☑ **Notice of Alteration Form**
- ☐ **2 hard copies and 1 electronic copy of the NoA detailed report** (see "Information Bulletin - Alteration to Developments with Environment Act Licences")
- ☐ **$500 Application fee, if applicable** (Cheque, payable to the Minister of Finance)

Submit the complete NoA to:

Director
Environmental Approvals Branch
Manitoba Sustainable Development
1007 Century Street
Winnipeg, Manitoba R3H 0W4

For more information:

Phone: (204) 945-8321
Fax: (204) 945-5229
http://www.gov.mb.ca/sd/eal

Note: Per Section 14(3) of the Environment Act, Major Notices of Alteration must be filed through submission of an Environment Act Proposal Form (see "Information Bulletin – Environment Act Proposal Report Guidelines")

Miller Environmental Corporation
1803 Hekla Avenue
Winnipeg, Manitoba R2R 0K3
Tel. (204) 925-9600 Fax (204) 925-9601

Committed to Leadership in Our Industry

October 1, 2024

Environmental Approvals Branch
MB Environment and Climate Change
Box 35, 14 Fultz Boulevard
Winnipeg MB R3Y 0L6

Attn: Agnes Wittmann – Director, Environmental Approvals Branch

Dear Ms. Wittmann:

RE: Solvent Recycling System - Licence DGHTA No. 58 HW S2 RRRR

Please accept this as Miller Environmental Corporation's (Miller) request to install a solvent recycling system as regulated under the issued Dangerous Goods Handling & Transportation Act License No. 58 HW S2 RRRR.

Miller receives annually on average 4,500,000 litres of contaminated solvent from various industries as byproducts of cleaning and manufacturing processes. Currently, the majority of received solvents are fuel blended and sent to cement kilns in the US, where they are used as a recyclable fuel source. Miller supplies clients with recyclable solvents for use in various applications, including the paints and coatings industry. Miller partners with an external client to supply recyclable solvents, which are then sold to our customers. Implementing an on-site solvent recycling system will cut transportation costs and provide us with better control over this service.

This fully automated, computer-controlled solvent recycler can process a variety of solvents contaminated with paints, pigments, inks, greases, oils, and more. Using a straightforward distillation method, it effectively separates contaminants from the original solvent. For more unit information, refer to Appendix A – Solvent Recycler Details.

The system is fully automated and controlled by its embedded computer. The unit sends a constant data feed to the cloud and is monitored by the manufacturer's technicians and engineers. Notifications and alerts are delivered to users to communicate operating information via SMS text message or email.

The system features a distillation chamber encased in a reservoir filled with thermal oil, which is heated by an electric heating element. Solvent vapors from the distillation chamber pass through a fan-cooled condenser, where they return to a liquid state. The purified, cooled solvent is then automatically transferred to a clean drum, tote, or tank. This process preserves the original properties of the solvent, allowing for continuous, uninterrupted operation.

There are many safety features in the design of the recycler including:

- Certification to be used in hazardous locations,
- Vapour management system for VOC emissions,
- Manual shut off, and
- Temperature monitoring for overheating.

Please refer to the safety features detailed on page 5 of Appendix B - Operator Training AlwaysClean 150.

The equipment will be installed in process building 1 (PB1) which is designed to house Miller's organic processing and fuel blending operations. PB1 design includes the following safety features which makes it the proper building to install this equipment in:

- Fire suppression system
- Building perimeter berming
- Sloped flooring to blind sumps
- Monitored organic vapour scrubbing system

Current facility daily inspections will encompass this new equipment. For information on the proposed equipment setup in PB1, refer to "AC 150 footprint" in Appendix C – Equipment Location in PB1.

Project information has been submitted to the CLC for review and acceptance. With recent client requests for solvent recycling, we would like to propose receiving approval to move this project forward by November 1, 2024.

If you have any questions, please feel free to contact me at 204-925-9604 or by email at daveh@millerenvironmental.mb.ca.

Sincerely yours,
Miller Environmental Corporation

[redacted]

Dave Howes
Director of Regulatory Affairs

CC: Tyler Kneeshaw – MB Environment and Climate Change
Paul Bauer – President, Miller Environmental Corporation
Yolo Ortiz – Director of Operations & Engineering, Miller Environmental Corporation

Appendix A

Solvent Recycler Details

CleanPlanet
SOLVENT RECYCLING REINVENTED

AlwaysClean Solvent Recycler Process Description & Diagrams

MANUAL BALL VALVE

PNEUMATIC ANGLE SEAT VALVE

DOUBLE DIAPHRAGM PUMP

POINT FLOAT
AC350 MONITORED

PNEUMATIC FLOAT

CHECK VALVE

PNEUMATIC MIXER

A
EA P
3-Way Single Pressure Acting
Solenoid with Spring Return

VISUAL LEVEL INDICATOR

90 PSI
90 PSI
90 PSI

FEED TOTE
550 GAL

Process Step 3

Process Step 2

ROVING TOTE
550 GAL

Process Step 1

CUSTOMER PROCESS

Process Step 4

Process Step 5

Process Step 9

Process Step 8

Process
Step 10

VMS RETURN

VMS RETURN

STILL
DRUM 2

STILL
DRUM 1

Process
Step 6

90 PSI

Process Step 7

CLEAN TOTE
793 GAL

90 PSI

DRUM
55 GAL

AlwaysClean Solvent Recycler Process Description

The AlwaysClean solvent recycling system is designed to efficiently process contaminated solvents, allowing for their reuse and minimizing environmental impact. This document outlines the steps involved in the storage and processing of contaminated and recycled solvent using the AlwaysClean system.

Process Step 1: Customer Storage of Contaminated Solvent

- Contaminated solvents are collected as byproducts of cleaning and manufacturing in designated customer storage drums, totes or tanks.

Process Step 2: Customer Storage to Feed Storage

- Contaminated solvents from customer storage are transferred to the feed storage tanks via pump.

Process Step 3: Feed Storage

- The feed storage totes temporarily hold the waste solvents before processing. These totes are equipped with sensors and safety features to monitor solvent levels to avoid overfilling. A mixer ensures that the waste solvent remains homogeneous and avoids settling of solids.

Process Step 4: Feed Storage to AlwaysClean Solvent Recycler

- Waste solvents are moved from the feed storage totes into the AlwaysClean solvent recycler's input tank. The transfer process is automated and monitored to ensure the correct volume of solvent is transferred.

Process Step 5: Solvent Recycling

- The AlwaysClean solvent recycler heats the waste solvent to its boiling point, causing it to vaporize. The vapor passes through a condenser, where it is cooled and converted back into liquid form, separating contaminants and impurities.

Process Step 6: AlwaysClean Solvent Recycler to Clean Storage

- The distilled, clean solvent is moved out of the recycler and collected in clean storage totes. These totes are isolated from waste solvent storage to prevent cross-contamination.

Process Step 7: Clean Storage to Customer Drums

- The recycled solvent is transferred from the clean storage tanks back into customer drums for reuse. This solvent is now ready for re-use in cleaning and manufacturing processes.

Process Step 8: AlwaysClean Solvent Recycler to Still Bottom Drum 1

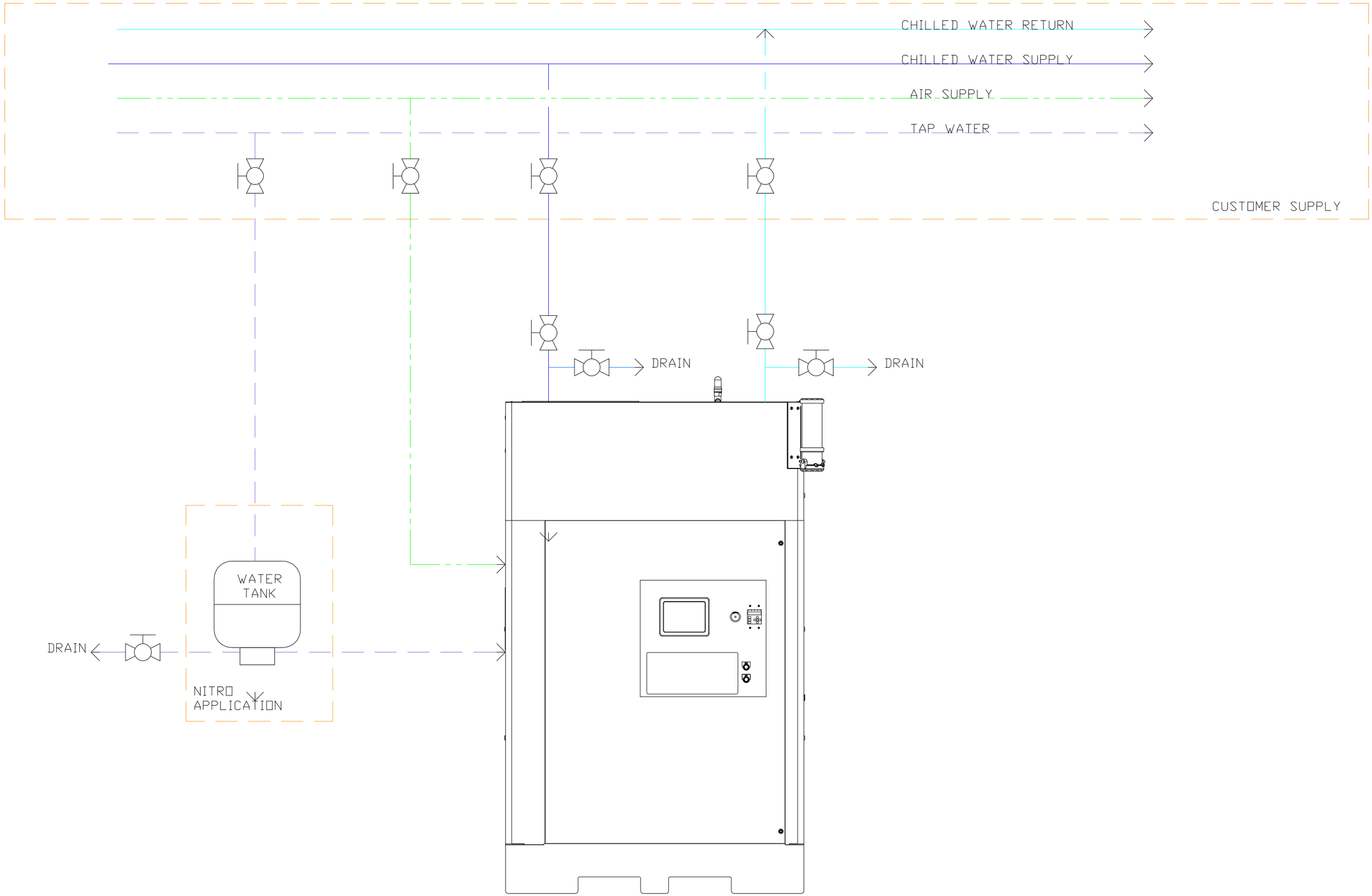
- Residual waste (leftover contaminant), known as still bottoms, is transferred from the solvent recycler to Still Bottom Drum 1. This drum collects the waste by-products generated during the recycling process until full.

Process Step 9: AlwaysClean Solvent Recycler to Still Bottom Drum 2

- When Still Bottom Drum 1 is full, waste is transferred to Still Bottom Drum 2. This drum collects the remaining by-products, ensuring that all waste materials are appropriately managed.

Process Step 10: Still Bottom Drum Solvent Vapor Management

- Vapors from the still bottom drums are managed through a solvent vapor management system. This system captures and condenses any solvent vapors, preventing them from being released into the environment and ensuring compliance with environmental regulations.


CHILLED WATER RETURN
CHILLED WATER SUPPLY
AIR SUPPLY
TAP WATER
CUSTOMER SUPPLY
DRAIN
DRAIN
WATER TANK
DRAIN
NITRO APPLICATION

Maximum® Series
Air & Water-Cooled Portable Chillers

Proudly Made In The USA

ADVANTAGE®
MAKING WATER WORK

since 1977

ADVANTAGE®
MAKING WATER WORK

Efficient & Reliable Process Cooling

Advantage manufactures over 35 standard chiller models covering a wide range of capacities to meet your cooling requirements. If one of these standard models does not match your specific application requirements, Advantage's experienced machine designers can customize a standard chiller model that will.

Advantage's Maximum Series Portable Chillers are refrigeration units coupled with an integral fluid circulation system that range in cooling capacity from 1/4 to 40 tons. These units are used to cool fluids to support industrial process cooling applications requiring a fluid temperature range from 20°F to 80°F.

Maximum Portable Chillers are easily installed and operated requiring only a source of electrical power, coolant fluid and a process load to be temperature controlled. Units are placed inside the production facility and are available in Air-Cooled or Water-Cooled* models. These chillers can be configured with a remote, air-cooled condenser to decrease heat within your facility.

Portable Chillers are delivered fully charged with a non-ozone depleting refrigerant, tested and ready to run right out of the box.† All control instrument information is conveniently located permitting instant diagnosis of performance.

Over 20,000 Advantage chiller units have been put into service worldwide, demonstrating their wide acceptance.

* Water-cooled models require an external water supply source for operation.

† Units with remote condensers are not portable and require field piping and charging.

Proudly Made In The USA

www.AdvantageEngineering.com

ADVANTAGE®
MAKING WATER WORK®

Air-Cooled and Water-Cooled Models

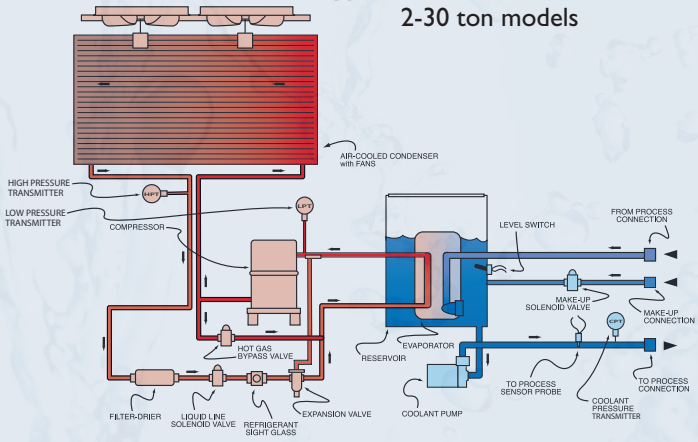
AIR-COOLED MODELS

These chillers utilize plant ambient air to extract heat from the refrigeration circuit. A fan or blower system moves plant air across the generously sized finned condenser coils to permit full rated capacity at design conditions.

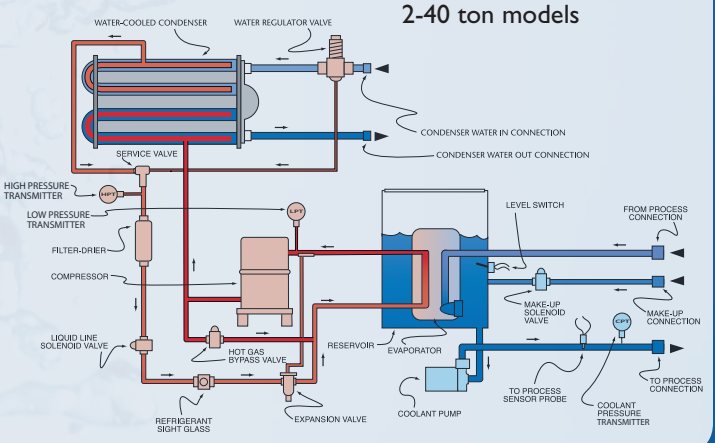
WATER-COOLED MODELS*

These chillers utilize a secondary plant water source such as cooling tower or city water to extract heat from the refrigeration circuit. Water-cooled chillers operate independently of plant ambient air temperature to provide full rated capacity even during the hottest weather and will not add extra heat to your building.

Typical Air-Cooled Schematic
2-30 ton models



Typical Water-Cooled Schematic
2-40 ton models



*** Water-cooled models require an external water supply source for operation.**

Units Using Remote Outdoor Condenser

The Maximum Series Chillers can also be configured with a remote condenser to provide process cooling while rejecting the absorbed heat outside, reducing heat inside your building.

The remote condenser is designed for outdoor installation and is equipped with controls that permit operation in a wide range of weather conditions, including ambient temperatures as low as -20˚F. Capacity ratings are selected at 95˚F with optional condenser selections available for higher ambient conditions.

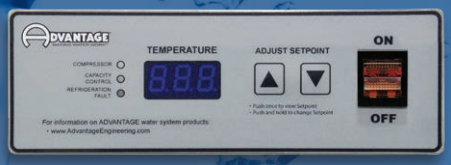
The remote condenser is installed outside and requires field piping and system charging by a qualified installer. Refrigerant piping is installed from the indoor chilling unit to the remote condenser. The installed piping makes this system a more permanent installation.

Control Instrumentation To Fit Your Needs

Maximum Portable Chillers are supplied with a tailor made microprocessor control instrument that monitors and controls all aspects of the chiller functions assuring accurate and dependable operation. The control is designed to support the specific and unique requirements of process cooling in an industrial environment.

MAXIMUM M1 CONTROL FEATURES:
(Standard for 1/4 to 1.5 ton models)

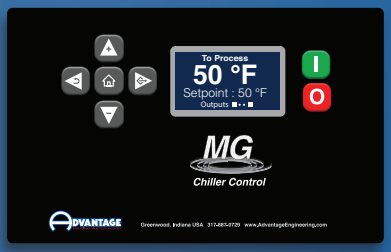
- **ACCURATE CONTROL**
- Large & bright LED temperature display
- Digital setpoint selection with soft touch keys
- Illuminated chiller on/off switch
- Compressor on light
- Basic chiller diagnostics with refrigeration fault light
- Capacity control light
- Custom control software to operate optional hot gas bypass capacity control feature
- 50-100% capacity modulation, standard on 2-40 ton models, optional on 1/4-1.5 ton models



Standard for 1/4 to 1.5 ton models

MAXIMUM MG CONTROL FEATURES:
(Standard for 2 to 40 ton models)

- Graphic LCD display with intuitive navigation
- Digital refrigerant pressure display
- Digital water pressure display
- Plain language error message reporting
- Controls hot gas bypass or digital scroll compressor for capacity control
- Alarm output with audible signal
- **INDUSTRY 4.0 READY** – Modbus RTU or SPI communication included, Modbus TCP communication optional
- High water temperature shut down feature



Standard for 2 to 40 ton models

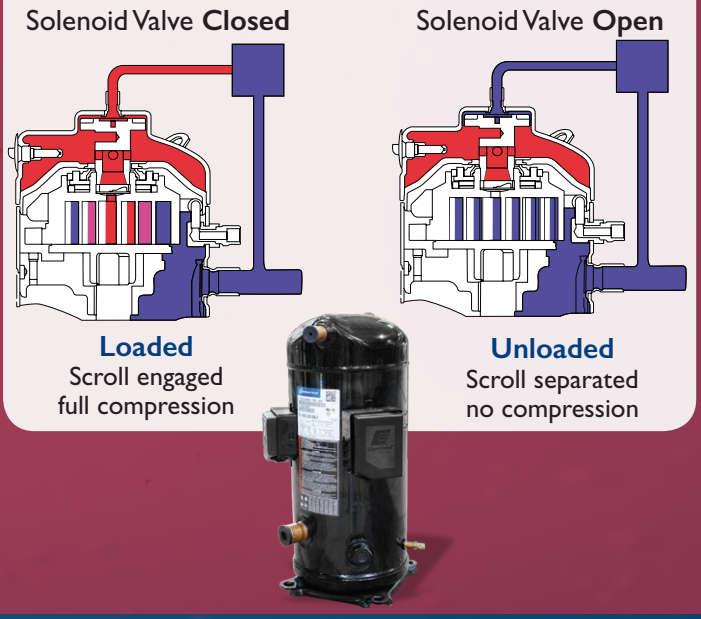
Digital Scroll Technology

Nominal 5, 10 & 15 ton units include a Copeland Scroll Digital Compressor™. The compressor is controlled by Advantage's MGD advanced microprocessor control instrument. It uses a simple and effective method to modulate chiller capacity from 20 - 100%, giving unparalleled energy efficient performance in the modulation field.

The Copeland Scroll Digital™ Compressor operates in two stages - the loaded state, when the control solenoid valve is normally closed and unloaded state, when the control solenoid valve is open. During the loaded state, the compressor operates like a standard scroll compressor and delivers full capacity and mass flow. During the unloaded state, there is no mass flow through the compressor so no cooling takes place.

By controlling the amount of time that the compressor is in the loaded and unloaded state, the Advantage MGD control instrument can effectively and efficiently modulate the chiller capacity from 20 to 100%. This saves energy, reduces compressor starts and stops promoting longer compressor life while providing stable cooling fluid temperatures.

Copeland Scroll Digital Technology™



Durably Constructed With Quality Components

CONSTRUCTION

- Heavy-duty frame
- Easy access enclosure panels
- Durable casters

RUGGED REFRIGERATION CIRCUIT

- Reciprocating, scroll or digital scroll compressors
- Environmentally-friendly refrigerant
- High-efficiency evaporators
- High & Low refrigerant pressure limit settings
- Standard High & Low refrigerant pressure display on MG control instrument 2-40 ton models

AIR-COOLED UNITS

- Generously sized finned tube construction with fans or blowers for air movement
- Remote outdoor condenser (RC models)

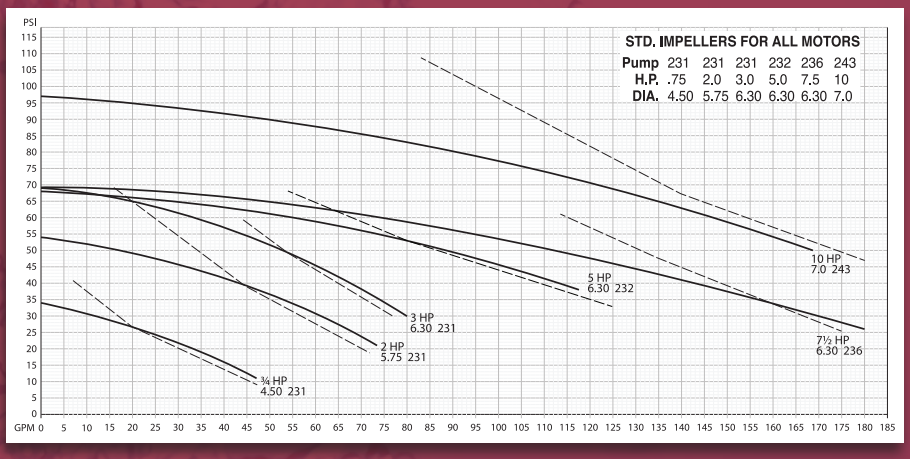
WATER-COOLED UNITS

- High efficiency cleanable condenser
- Water regulator valve to maintain proper refrigeration pressures

HIGH PERFORMANCE WATER CIRCUIT

- Pumps produce ideal water flow promoting optimal heat transfer
- Lifetime, non-rusting, vented, water reservoir
- All non-ferrous wetted surfaces on standard units
- Standard auto water make-up on 4-40 ton models
- Digital water pressure readout provided on models with MG control instrument
- High water temperature shut down feature on models with MG control instrument

Pump Performance Curves



Chiller Options

ALARMS

- High water temperature & low water pressure audible or audible/visual alarm (1/4-1.5 ton models with M1 instrument)
- High dB audible or audible/visual alarm (2-40 ton models with MG instrument)

OVERHEAD PIPING KIT

- Prevents the chiller reservoir from over flowing on shutdown due to backflow from overhead piping

REVERSE FLOW CIRCUIT

- Reverse flow circuits are used on open processes where an external reservoir is used

AUTOMATIC LOW FLOW BYPASS

- Maintain proper evaporator flow when the process flow is below the minimum evaporator flow requirement

LARGER PROCESS PUMPS

- Optional pumps enable the chiller to provide greater flow and/or pressure

ELECTRICAL SYSTEM OPTIONS

- UL508A enclosed electrical panel
- Emergency stop operator
- Control instrument upgrades
- Disconnect switch

CONDENSER PROTECTION

- With screen and air filter

BAG FILTER OR STRAINER

- Protects water system from debris

CCPR VALVE

- For fluid temperatures from 65°F to 80°F, 1/4-1.5 ton models

LOWER ENCLOSURE PANELS

- 1/4-1.5 ton models

PROCESS LINE SHUT-OFF VALVES

Specifications – Air-Cooled 1/4 - 40 Tons

	Model[1] M1/M1D/MG/MGD	.25A	.33A	.5A	.75A	1A	1.5A	2A	3A	4A	5A	7.5A	10A	15AF	15AB	20AF	20AB	25A	30A	40A*
Capacity @ 50°F LWT	Tons[2]	.29	.39	.50	.75	1	1.5	2	2.9	4	4.9	7.2	9.8	14.5	14.5	18.5	18.5	23.1	30	36.7
	Kilowatts[2]	1	1.36	1.75	2.53	3.5	4.73	7.0	10.8	14.0	17.2	25.3	34.4	50.9	50.9	65.0	65.0	81.0	105.3	128.8
Compressor	Horsepower	.25	.33	.50	.75	1	1.5	2	3	4	5	7½	10	15	15	20	20	25	30	2@20
	Type[3]	R	R	R	R	SC	SC	SC	SC	SC	DSC	SC	DSC	DSC	DSC	SC	SC	SC	SC	TSC
Refrigerant	Type	134A	134A	134A	134A	134A	134A	410A	410A	410A	410A	410A	410A	410A	410A	410A	410A	410A	410A	410A
Air-Cooled Condenser	Type[6]	F	F	F	F	F	F	F	F	F	F	F	F	F	B	F	B	B	B	–
	CFM x 1000	.25	.33	.45	.65	.71	1.1	2	3	5	5	10	10	15	15	20	20	20	30	–
	Static Pressure[7]	–	–	–	–	–	–	–	–	–	–	–	–	–	1.35	–	1.35	1.35	1.35	–
	Ambient[11]	90	90	90	90	90	90	95	95	95	95	95	95	95	95	95	95	95	95	95
Process Pump	Horsepower	⅓	⅓	⅓	⅓	½	½	¾	¾	¾	2	2	2	3	3	3	3	5	5	7½
	Gallons/Minute	.7	.9	1.2	1.8	2.4	3.6	4.8	7.2	9.6	12	18	24	36	36	48	48	60	72	92
	PSI[8]	60	60	60	60	60	60	32	30	30	52	50	48	55	55	50	50	59	57	61
	Type[4]	P	P	P	P	P	P	C	C	C	C	C	C	C	C	C	C	C	C	C
	Construction[5]	B	B	B	B	B	B	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
Tank Capacity (gallons)	Holding	4	4	4	4	4	4	7½	7½	25	25	25	25	65	65	65	65	65	65	65
	Auto Make-Up[13]	0	0	0	0	0	0	0	S	S	S	S	S	S	S	S	S	S	S	S
Connection Sizes (inches, NPT)	Process (to/from)	½	½	½	½	½	½	¾	1	1¼	1¼	1¼	1¼	2	2	2	2	2	2	2½
	Make-Up	–	–	–	–	–	–	–	–	–	½	½	½	½	½	½	½	½	½	½
Full Load[12] Amperage	115/1/60	13	15	17	21	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	230/1/60	–	–	–	11	15	20	–	–	–	–	—	–	–	–	–	–	–	–	–
	230/3/60	–	–	–	–	–	–	17	20	24	34	48	56	86.6	87	105	120	150	200	–
	460/3/60	–	–	–	–	–	–	8.5	10	12	17	24	28	43.3	44	52.2	60	75	100	–
	575/3/60	–	–	–	–	–	–	–	7.5	9	14	19	23	35	31	42	48	60	80	–
Dimensions[15] (inches)	Height	33	33	33	33	37	37	30	43	60	60	60	60	65	96	66	96	96	96	–
	Width	18	18	18	18	19	19	37	34	34	34	34	34	58	58	59	58	58	58	–
	Depth	24	24	24	24	25	25	24	40	40	40	56	56	64	70	58	70	70	70	–
Weight (lbs.)	Shipping[14]	250	250	250	265	345	350	415	800	975	975	1,100	1,100	1,800	2,300	2,000	2,600	3,200	3,400	2,500

* Available configured with remote condenser only.

Remote Air-Cooled Condenser†

	Model[1] M1/M1D/MG/MGD	5A-RC	7.5A-RC	10A-RC	15A-RC	20A-RC	25A-RC	30A-RC	40A-RC
Chiller Dimensions[15] (inches)	Height	40¼	40¼	40¼	58	58	58	58	58
	Width	35	35	35	35	35	35	35	35
	Depth	56½	56½	56½	77½	77½	77½	77½	101½
Chiller Full Load[12] Amperage	230/3/60	30	40	48	78	76	106	134	180
	460/3/60	15	20	24	35	38	53	67	90
Condenser Dimensions[15] (inches)	Height	39	54	54	54	54	54	54	54
	Width	28	45	45	45	45	45	45	45
	Depth	42	60	60	115	115	170	170	170
Condenser Full Load[12] Amperage	230/3/60	5.2	5.2	5.2	12	12	18.4	18.4	18.4
	460/3/60	2.3	2.3	2.3	5.5	5.5	8.5	8.5	8.5
Condenser Air Flow	Fan Quantity	1	1	1	2	2	3	3	3
Chiller/Condenser Weight (lbs.)	Shipping[14]	900/355	900/355	1,000/380	1,800/680	1,900/740	2,100/1,050	2,200/1,150	2,500/1,200
Factory ID		008	014	017	025	032	041	050	056

† Remote Air-Cooled Condensers (RC) are used in conjunction with Air-Cooled Maximum Chillers from 5 - 40 tons indicated by the model code to the left of the hyphen in the first row of this table. For chiller specifications with the indicated model, please see table at top of this page.

Specifications – Water-Cooled 2 - 40 Tons

	Model[1] M1/M1D/MG/MGD	2W	3W	5W	7.5W	10W	15W	20W	25W	30W	40W
Capacity @ 50°F LWT	Tons[2]	2.0	3.0	5.0	7.6	10	15	20	25	30	40
	Kilowatts[2]	7.0	10.5	17.1	26.7	34.1	52.6	70.2	87.7	105.3	140.4
Compressor	Horsepower	2	3	5	7½	10	15	20	25	30	2@20
	Type[3]	SC	SC	DSC	SC	DSC	DSC	SC	SC	SC	TSC
Refrigerant	Type	410A	410A	410A	410A	410A	410A	R410A	R410A	R410A	R410A
Process Pump	Horsepower	¾	¾	2	2	2	3	3	5	5	7½
	Gallons/Minute	4.8	7.2	12	19	26	36	48	60	72	92
	PSI[8]	32	30	52	48	47	55	50	59	57	61
	Type[4]	C	C	C	C	C	C	C	C	C	C
	Construction[5]	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
Connection Sizes (inches, NPT)	Process (to/from)	¾	¾	1¼	1¼	1¼	2	2	2	2	2½
	Condenser	½	¾	¾	¾	1	1¼	1¼	1½	1½	2½
	Make-Up	–	–	½	½	½	½	½	½	½	½
Water-Cooled Condenser Requirements (gpm)	From City[9]	3	4.5	8	14	16	23	32	39	45	60
	From Tower[10]	6	9	15	28	32	45	63	78	90	120
Full Load[12] Amperage	230/3/60	16	18	30	40	48	68.4	78	106	134	180
	460/3/60	8	9	15	20	24	34.2	39	53	67	90
	575/3/60	7	8	12	16	20	27.5	32	43	54	72
Tank Capacity (gallons)	Holding	7½	7½	25	25	25	65	65	65	65	65
	Auto Make-Up[13]	O	O	S	S	S	S	S	S	S	S
Dimensions (inches)	Height	30	30	40	40	40	57	57	57	57	57
	Width	37	37	34	34	34	34	34	34	34	34
	Depth	24	24	45	45	56	80	80	80	80	80
Weights (lbs.)	Shipping[14]	445	470	900	900	1,000	1,800	1,900	2,100	2,200	2,500

1. M1 (1/4-1.5 ton models) = units with reciprocating hermetic or fixed displacement scroll compressors.
   MG = Units with fixed displacement scroll compressors.
   MGD = models with digital scroll compressors.
2. Tons or kilowatts capacity at 12,000 BTU/hr/ton @ 50°F LWT, 95°F ambient and 115°F condensing for air cooled models; 85°F condensing water and 105°F condensing for water cooled models. Minimum recommended operating temperature when no glycol is used is 48°F.
3. R = hermetic reciprocating. SC = hermetic scroll.
   DSC = Copeland Digital Scroll™. TSC = Tandem Scroll.
4. P = positive displacement. C = centrifugal.
5. B = brass. SS = stainless steel.
6. F = fan. B = blower.
7. Static pressure in inches of water.
8. PSI = Pounds per square inch. Pump pressure rating at design flow rate 14.7 psi = 1 Bar
9. City water requirements in gallons per minute (GPM) based on 60°F water supply at 20 PSI differential with a clean condenser.
10. Tower water requirements gallons per minute (GPM) based on 85°F water supply at 20 PSI differential with a clean condenser.
11. Design ambient conditions. Loss of capacity and/or difficulty operating will occur at higher ambient.
12. Full load amps are higher than run load amps and must be used for sizing disconnects and supply wiring. Amps shown are approximate and for standard units. Custom configurations or options may change power requirement. Consult factory before installing.
13. S = standard. O = optional.
14. Approximate unit weight crated for shipment.
15. Selection of certain options may change dimensions, weight and amps required. Confirm with factory before starting construction.

WARRANTY

1st Year: Covering parts and labor

2nd Year: FREE preventative maintenance visit

(Please visit the Advantage web site and reference our Product Warranty forms W-700 & W-700E for details)

Since product innovation and improvement is our constant goal, all features and specifications are subject to change without notice or liability.

MODEL DESIGNATOR FOR MAXIMUM® SERIES PORTABLE CHILLERS

MG D – 10 A – RC

- **MG** — Maximum® M1 Series (standard on 1/4 to 1.5 ton models, optional on others); Maximum® MG Series (standard on 2 to 40 ton models, optional on others)
- **D** — Digital Scroll Compressor Included on select models. Models not so equipped will not show "D" in the model #.
- **10** — Nominal Tons Of Capacity
- **A** — Condenser Type: A: Air-Cooled, W: Water-Cooled
- **RC** — With Remote Condenser

www.AdvantageEngineering.com

ADVANTAGE®
MAKING WATER WORK™

ADVANTAGE ENGINEERING, INC.
525 East Stop 18 Road
Greenwood, IN 46142
Phone: 317.887.0729
www.AdvantageEngineering.com

Proudly Made In The USA

Appendix B

Operator Training AlwaysClean 150

AlwaysClean Operator Training

Introduction

CleanPlanet provides a better, more efficient method for acquiring chemicals and managing waste. We use a patented distillation technology to transform your solvent/chemical waste into reusable, virgin-quality chemicals.

CleanPlanet
A DIFFERENT KIND OF CHEMICAL COMPANY

Purpose of Training

- The purpose of this training session is to assure that every operator of the AlwaysClean System are fully trained in the safe operation of the system. All operators are required to go through this training, conducted by your CleanPlanet technician, prior to operating the system. The training should also be attended by facility maintenance staff so they are familiar with the system in the event of an emergency.

Overview of unit:

- This **computer-controlled** solvent recycler, will recycle many different types of solvents that have been contaminated by paints, pigments, inks, greases, oils, etc. Through the simple distillation process, the distiller separates the contaminants from the original solvent.
- The system is fully automated and controlled by its embedded computer. The unit also sends a **constant data feed to the cloud** and is monitored by our technicians and engineers.
- The system utilizes a distillation chamber surrounded by a reservoir containing thermal oil, heated by an electrical heating element. The solvent vapors produced in the distillation chamber move through the fan cooled condenser and back to their liquid state. The cooled, clean solvent is automatically transferred to a clean drum/tote/tank. The process does not alter the characteristics of the distilled solvent. **Consequently, the operation can be performed endlessly.**

Safety Requirements:

- Presence of flammable vapors and solvents
- No smoking or metal grinding nearby
- Keep away from open flames
- Wear an appropriate respirator
- Observe warnings at all times
- Read the Instruction Manual carefully
- Wear appropriate solvent-proof gloves
- Wear protective eyewear
- Use grounding straps on all containers

Safety Features

- **Certified** - This unit is designed and certified to be used in Hazardous locations.
- **Automatic Controls** - The time, temperature, fill, and drain are all controlled by the system software.
- **Vapor Management System** - The vapor management system limits VOC emissions during processing and draining.
- **Stop Button** - The Stop button is in place for manual shut off at any time. If the unit is in cycle and Stop is pressed the unit will shut off.
- **Safety Thermostat** - The unit is equipped with a secondary safety thermostat that will not allow it to overheat
- **Distillate Thermostat** - The unit has a thermostat that monitors the distillate temperature and will shut the unit off if it exceeds 50^{o}C
- **E-Stop** - Pressing the e-stop button will completely shut down the unit in an emergency.
- **Nitrocellulose Package** (optional) - The NITRO package is designed to shut the unit down if it starts to become too hot while processing waste containing Nitrocellulose. There will be a loud audible alarm followed by the unit automatically spraying water onto the heated waste. The water prevents the dangerous (explosive) effects of the over temperature situation.

Identifying Key Components

Control Panel

Located on the front of the unit.

- Includes:
  - Start / Stop Buttons
  - Keypad
  - Display Screen
  - Emergency Stop Button

Identifying Key Components

Status Light Tower

Located on the front left corner of the unit.

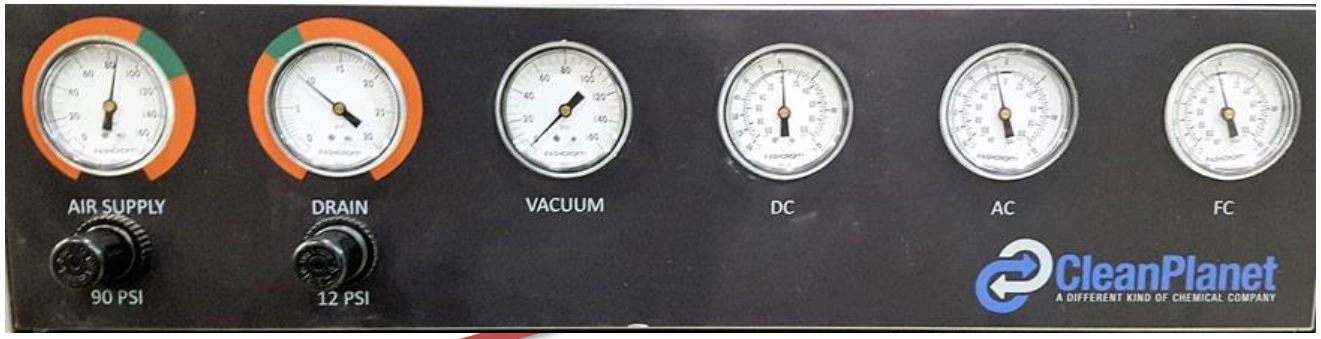
- **Green** = Processing, no action required
- **Yellow** = Processing but action required to avoid down time
- **Red** = Idle, action required

Identifying Key Components

Analog Gauges

Located on the front of the unit.

- Analog readings including:
  - Main Air Supply
  - Drain Air Pressure
  - Vacuum
  - DC Pressure
  - AC Pressure
  - DC Pressure



Identifying Key Components

Still Bottoms

- Hoses
- Quick Connects
- Float VMS (Vapor Management System)

Identifying Key Components

Hose Straps

- Used to hold the hoses while changing still bottom drums

Identifying Key Components

Feed In

- Hose
- Quick connects
- Wands
- Ball valves
- Drums / Tote / Tank

Clean Out

- Hose
- Quick connect
- Ball valve
- Float assembly
- Float assembly wire
- Drums / Tote / Tank

Identifying Key Components

Identifying Key Components

Safety Stanchions

- Stanchions
- Chains
- Caution Sign

Tablet

- **Green:** The unit is operating normally and no user interaction is required to enable processing.
- **Yellow:** The unit is operating normally but user interaction is required to prevent an imminent delay in processing (e.g. one of two feed drums is empty)
- **Red:** The unit is no longer processing. User interaction is required to enable further processing.

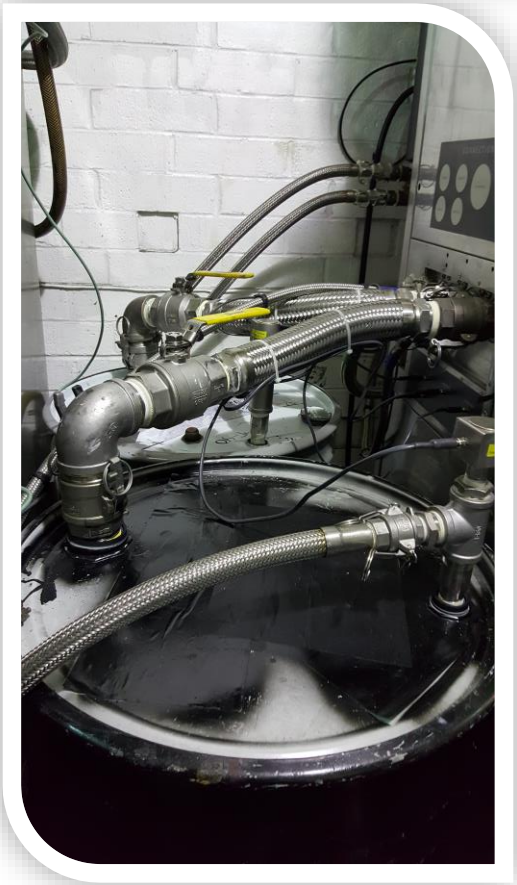
Notifications

- The Athena system provides user-configurable alerts that communicate operating information to the user via SMS Text message or Email.

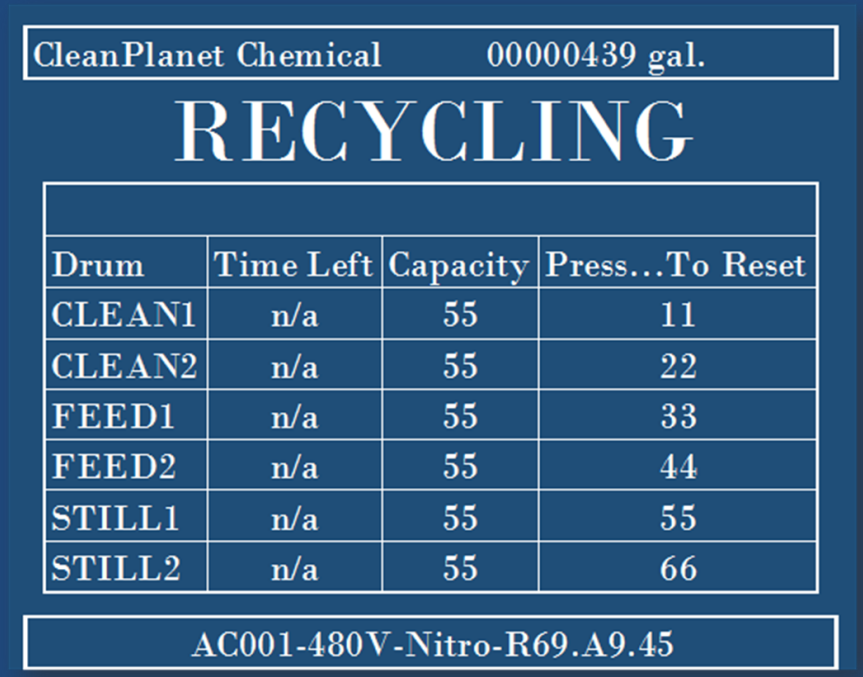
- The user enters their availability to receive messages by day of week and time of day, and then subscribes to a specific Unit or Units at their facility. The user also determines the length of time that the Athena system will wait prior to sending a notice (“Delay”) so that onsite operations personnel have some time to respond to visual cues provided by the system (e.g. light tower, unit display, tablet display) and sets the frequency of Reminder Notifications (“Repeat Every”) should action to clear a notification not occur in a certain amount of time.

Drum / Tote Setup

- Verify that there are 6 drums in place (or two totes and 2 drums).
  - Two still bottom disposal drums
  - Two clean solvent-out drums or one tote
  - Two feed drums or one tote
- Verify that the hoses and floats are connected to the correct drums
  - Still bottom disposal drums – medium hose and float switch
  - Clean solvent-out drums or tote – small hose and large float
  - Verify that all ball valves on the hoses are in the open position



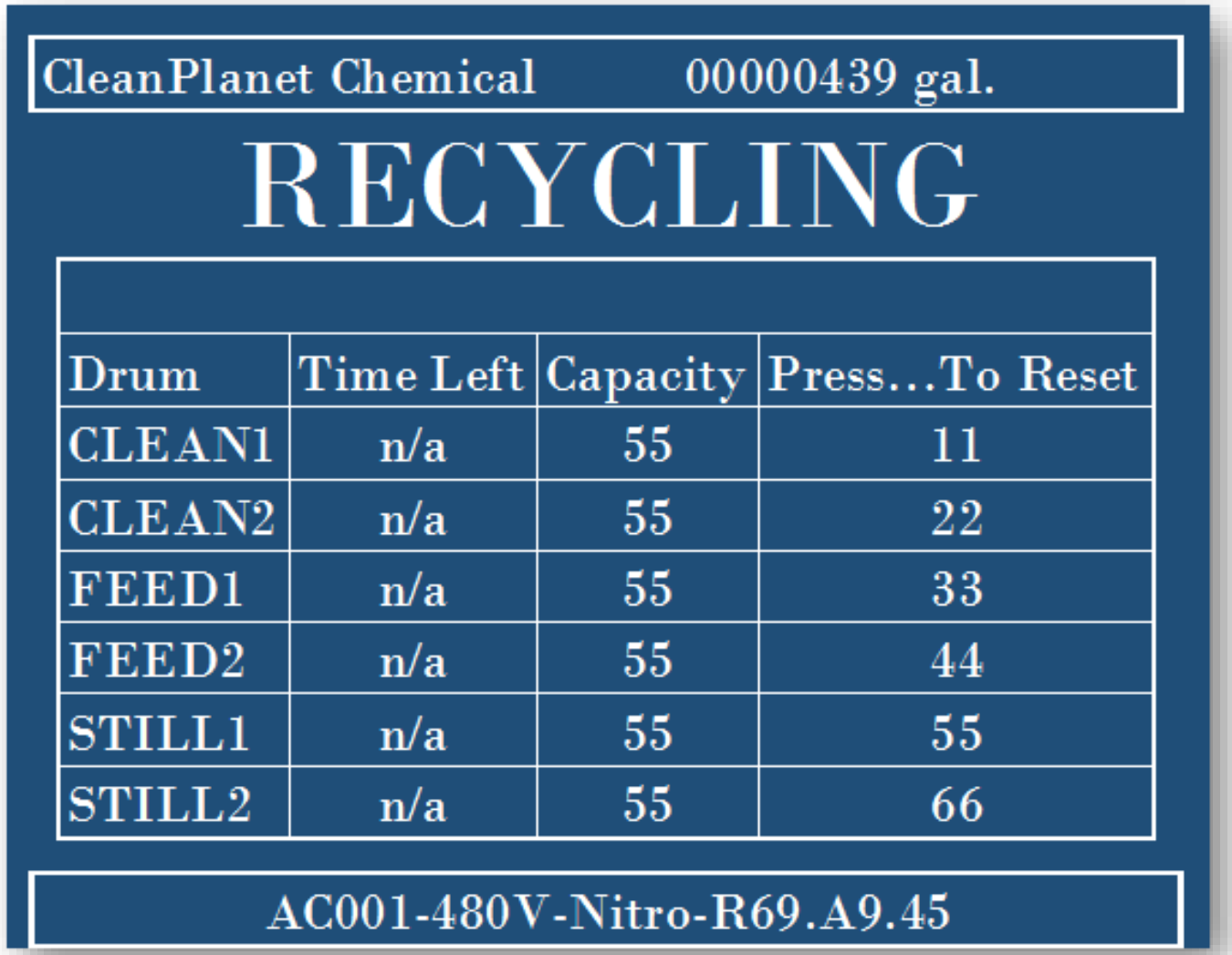
Starting the AlwaysClean:



- Place the feed wand into the feed drums, or totes, and open the ball valves.
- Place the clean wand into the clean drums, or totes, and open the ball valves.
- Connect the clean float onto the clean drum or tote lid. Connect the float wire to the AlwaysClean.
- Connect the drain fittings to the still bottoms drums, or totes, and open the ball valves.
- Connect the drain float and vapor management system to the still bottoms drums or totes.
- To begin the recycling process, press the START button. The unit will then start processing automatically.
- Verify that the GREEN light is illuminated on the status light tower indicating that the unit is processing normally.

Replacing Drums and Resetting the Drum Status

During normal operation, drums will need to be changed periodically. Feed drums are replaced once empty, while Clean and Still Bottom drums are replaced once full. The particular drum(s) requiring attention will change to red on the Recycling screen.



Removing, Replacing or Emptying the Clean Drums or Tote

CleanPlanet Chemical 00000439 gal.

RECYCLING

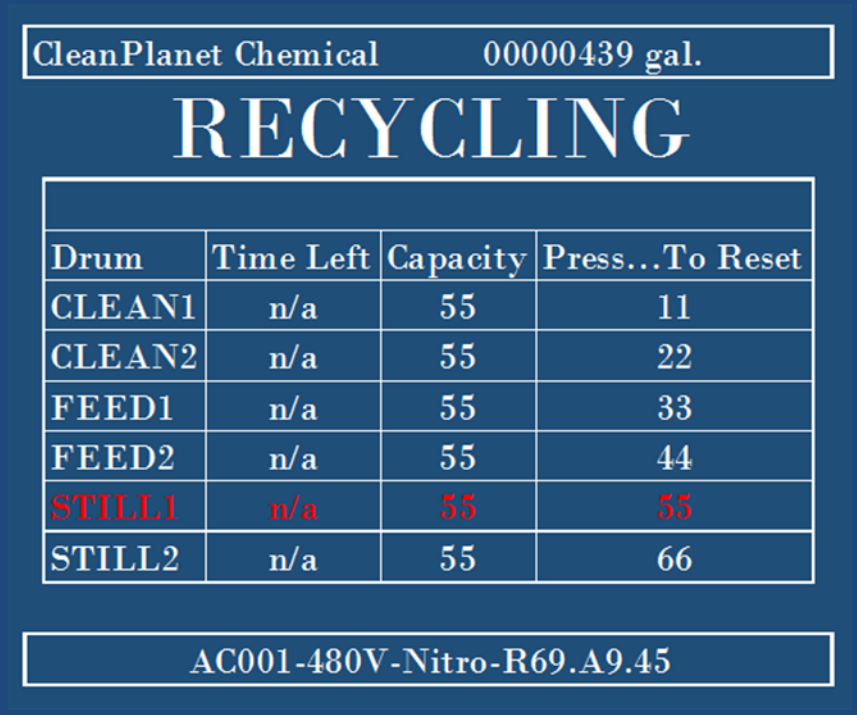
Drum	Time Left	Capacity	Press…To Reset
CLEAN1	n/a	55	11
CLEAN2	n/a	55	22
FEED1	n/a	55	33
FEED2	n/a	55	44
STILL1	n/a	55	55
STILL2	n/a	55	66

AC001-480V-Nitro-R69.A9.45

1. The YELLOW light will be illuminated on the status light tower indicating that clean #1 is full and needing changed out.
2. The unit will continue processing during the change out.
3. Disconnect the wire to the float switch connected to the clean tote/drum.
4. Remove the float from the tote/drum.
5. Close the ball valve on the clean hose.
6. **IF USING DRUMS:** Remove the hose by disconnecting the cam lock fitting, remove fitting from the drum, replace the bung caps on the drum and replace the full drum with an empty clean drum.
7. **IF USING TOTES:** Empty the tote by pumping out the clean solvent, or replacing the tote with an empty one.
8. Insert cam lock fitting back into the small bung hole, connect the clean hose to the drum/tote. Open the ball valve on the hose. Insert the float into the drum/tote lid and reconnect the float wire.
9. The system automatically resets once the change is complete and will reset the YELLOW status light back to GREEN.

Note: If both drums are full the light will be RED and the unit will go idle until one or both drums are replaced. The START button will need to be pressed to resume processing.

Removing, Replacing or Emptying the Still Bottom Drums or Tote:



(Caution! WASTE DRUMS ARE HOT)

1. The YELLOW light will be illuminated on the status light tower indicating that a still bottoms drum is full.
2. Approach the still bottoms drums with caution, contents can be hot!
3. If drum is hot, **DO NOT PROCEED** with following steps. Let drum cool until it reaches a safe temperature before continuing.
4. Remove the float wire from the float assembly.
5. Carefully remove the float assembly from the drum or tote. (Be careful not to damage the floats when removing the assembly).
6. Close the ball valve on the drain hoses.
7. Carefully remove the drain hose assembly from the drum or tote lid (use hose straps).
8. Install bung caps onto the drums or totes, remove and replace with **completely empty** container.
9. Reconnect all the fittings, open the ball valves, reinstall floats and connect float wires. **(always clean and inspect floats).**
10. If Still Bottom 1 was replaced press 55, or if Still Bottom 2 was replaced press 66.
11. The system automatically resets once the change is complete and will reset the YELLOW status light back to GREEN.

Removing, Replacing or Emptying the Still Bottom Drums or Tote:

(Caution! WASTE DRUMS ARE HOT)

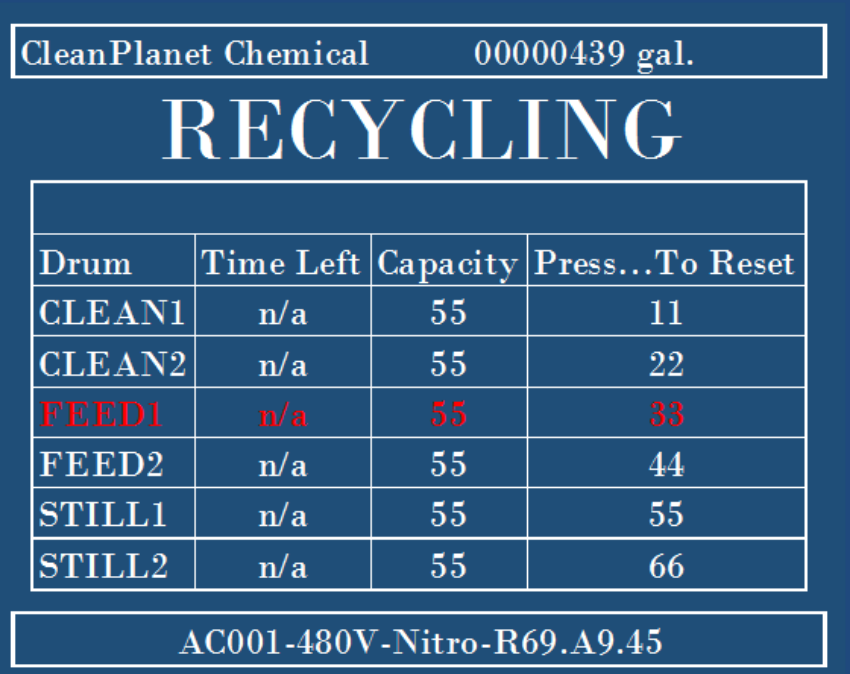
CleanPlanet Chemical 00000439 gal.

STILL BOTTOMS DRUMS FULL

PRESS START WHEN EMPTY AND RECONNECTED

AC001-480V-Nitro-R69.A9.45

Replacing or Refilling the Feed Drums or Tote



1. The YELLOW light will be illuminated on the status light tower indicating Feed #1 or Feed #2 Empty.
2. Close the ball valve on the suction wand, disconnect the hose from the wand and remove from the drum.
3. Remove the vent assembly from the drum.
4. Replace bung caps on the drum or tote, remove the empty container and replace it with a full one.
5. Insert the suction wand back into the drum or tote, reconnect the hose and open the ball valve.
6. Replace the vent assembly.
7. If Feed 1 was replaced press 33, or if Feed 2 was replaced press 44.
8. The system automatically resets once the change is complete and will reset the YELLOW status light back to GREEN.

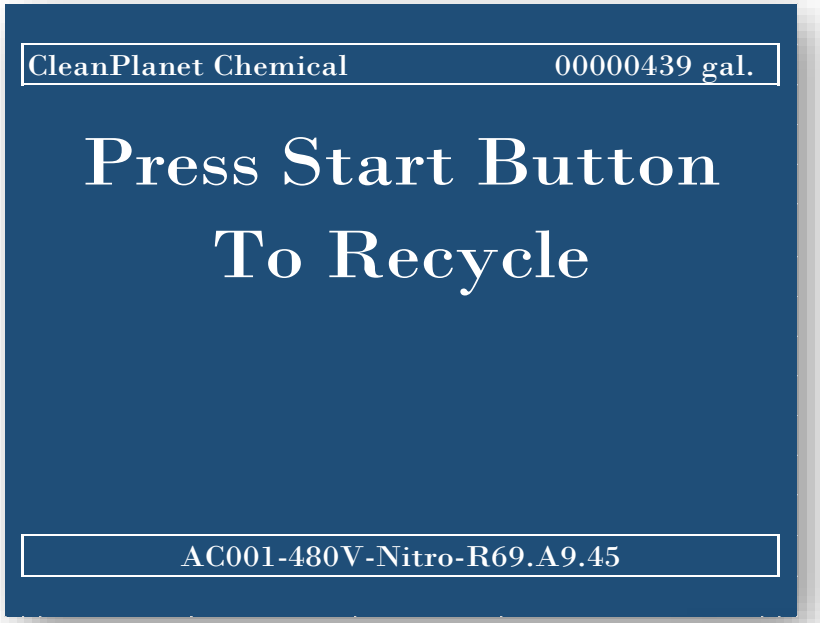
Replacing or Refilling the Feed Drums or Tote

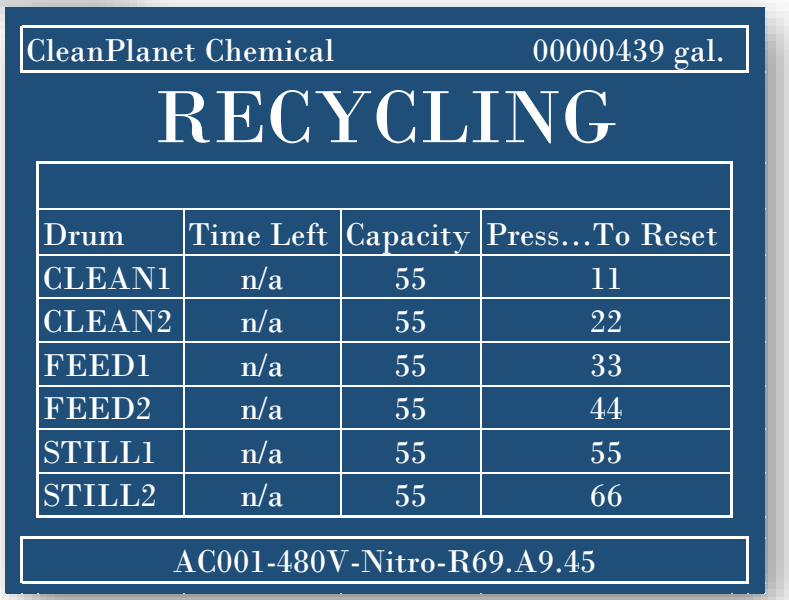
Emergency and Manual Stop Procedures

1. Press the STOP while unit is running to stop the unit. The fan and vacuum will continue to run so the solvent can safely cool.
2. The **RED** light on the status light tower will be illuminated.
3. If there is an emergency, Press the Emergency Stop Button. All unit functions will automatically stop. *There is a battery backup for key components on a NITRO unit that will keep the display lit.*

Restarting the Unit After a Power Loss

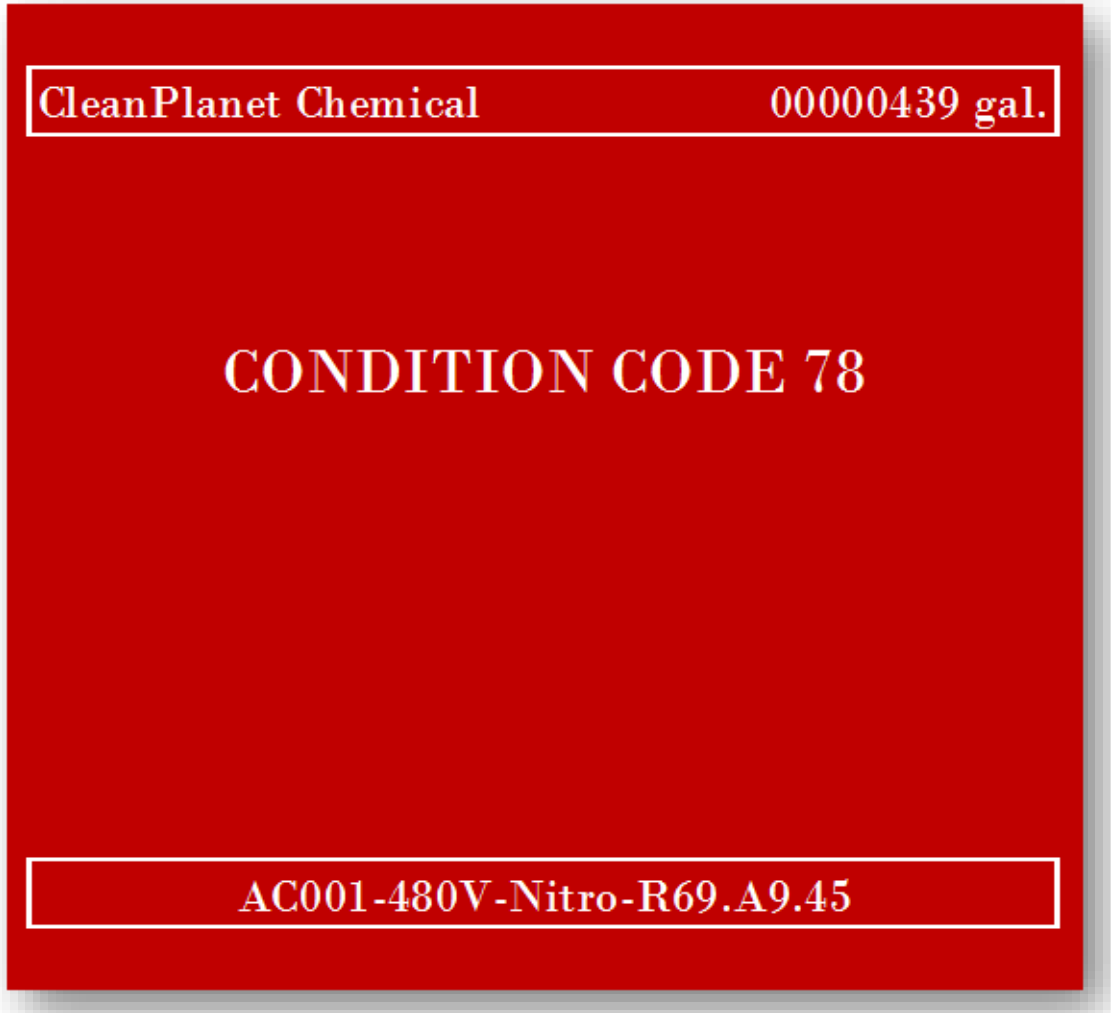
1. Apply power to the unit.
2. (Pairing) will be displayed on the screen for a moment while the unit pairs with the tablet.
3. (Clock Synchronizing With Tablet) will appear on the screen.
4. The unit screen will now display (Press Start Button To Recycle)





LCD Display Messages – Condition Codes

The safety devices will stop the unit in case one of the sensors detects a specific condition. The condition code will be displayed, and the corresponding Status Light will be illuminated on the light tower. The system CANNOT be re-started until the problem has been resolved. Please contact your service technician with the Condition Code that is being displayed.



AlwaysClean Extended* Shut-Down Instructions (*Greater than 2 days)

If the AlwaysClean will be idled for an extended period (greater than 2 days), the unit should be drained of concentrated waste material and refilled with cleaner solvent to prevent avoidable machine failure. Please follow the instructions below and confirm that the drain and refill are complete before shutting down.

- If you are shutting down power or air then 24 hours before shutdown:
- If you will not be shutting off power or air to the unit:

1. Stop the unit, press ** to get back to the START screen.
2. Press 7001#. The unit will show this screen:

3. After START is pressed, the unit cools down, drains the DC, and fills itself with clean solvent.
4. At the end of the 24 hour period, the power or air may now be disconnected.
5. The unit will remain in the state until your return.
6. Upon return, exchange Clean, Feed and Still-Bottom vessel(s) as needed and restart.

AlwaysClean Nitrocellulose Alarm Response Protocol

Actions to take when nitrocellulose alarm sounds

Evacuate Immediate Area (Leave the room or minimum 100-foot radius).

DO NOT DISCONNECT POWER, AIR OR WATER, E-STOP OR STOP UNIT, DO NOT APPROACH UNIT WHILE ALARM IS ON

1. Call CleanPlanet at 855-256-7568 and/or 803-920-3452. After Hours Emergency Only 855-688-4336.
2. The alarm will turn off after approximately 5 minutes
3. When the alarm has stopped and an additional 10 minutes have passed, the unit has concluded its response to the hazard. Follow internal procedures to confirm it is safe to re-enter the space
4. DO NOT OPERATE THE UNIT
5. Await directions from CleanPlanet Chemical
6. If the alarm sounds for more than 20 minutes, initiate action per facility emergency procedures. Continued alarming means the unit has concluded its response to the hazard and temperatures remain elevated.

DO NOT DISCONNECT POWER, AIR OR WATER, E-STOP OR STOP UNIT. TAKE EXTREME CAUTION APPROACHING THE UNIT

AlwaysClean Nitrocellulose Alarm Response Protocol

The Nitrocellulose Alarm indicates that internal machine temperatures are elevated and a water quench will be performed to maintain safe operating conditions.

How the unit responds:

1. The alarm will activate if the solvent temperature exceeds 105C/221F, OR the oil temperature exceeds 135C/275F, OR the pressure exceeds 5 psi AND the solvent temperature exceeds 75C/167F.
2. The water quench will occur if the temperatures remain above the alarm values for 2 minutes.
3. The alarm will shut off when the temperatures fall below the alarm values indicating temperatures are back within safety limits.
4. NOTE: Interrupting Power, Air, or Water to the unit by disconnecting utilities or stopping the unit will disable the Units' cooling and automated safety systems and increase the hazard.

Date: _____

Trainee: _____

Work Email: _____

Work Phone: _____

Company: _____

Unit: _____

TRAINEE

By: _____

Printed Name: _____

Title: _____

CLEANPLANET CHEMICAL TRAINER

By: _____

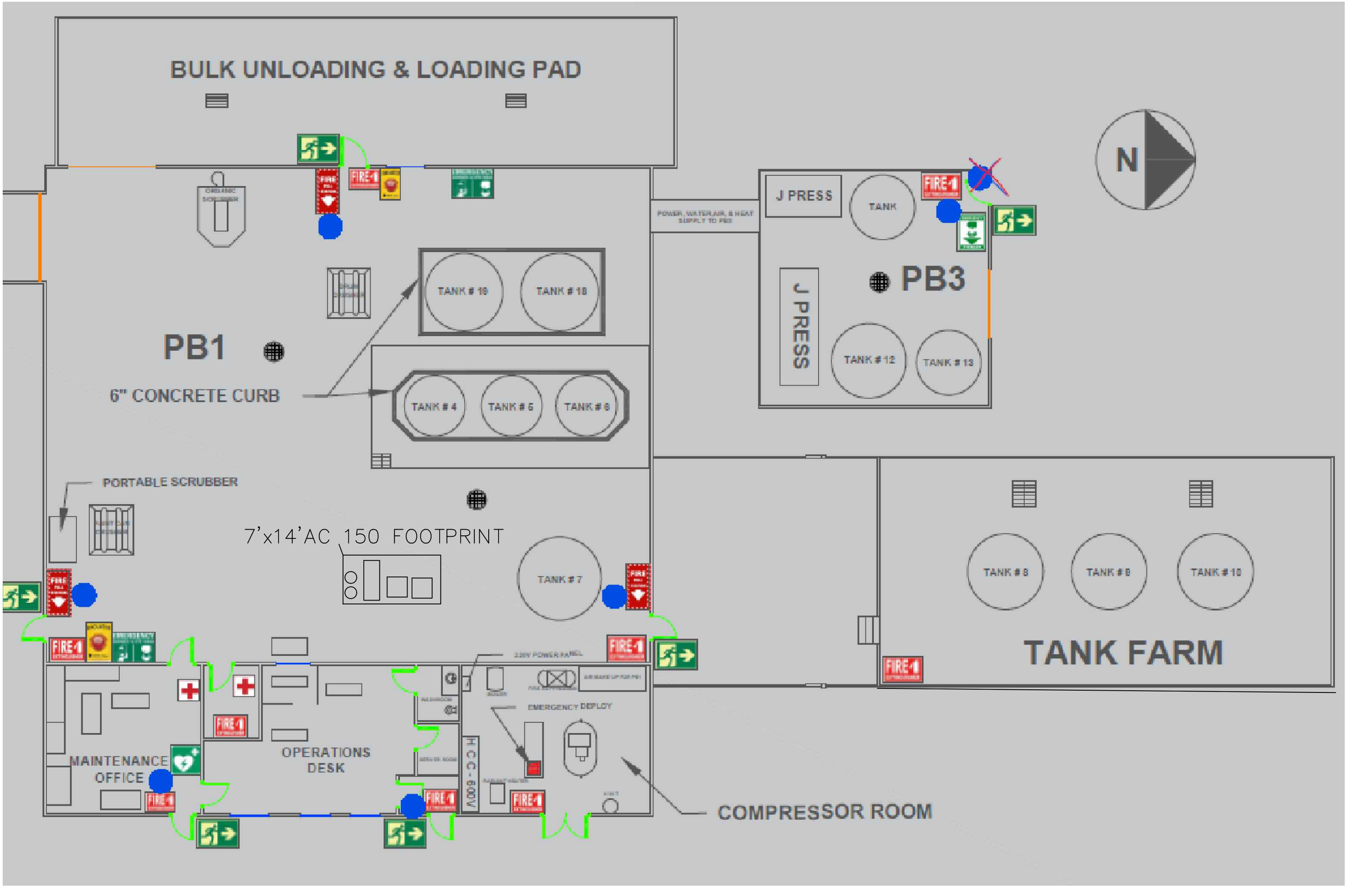
Printed Name: _____

Title: _____

Description	Initial
Introduction	
Purpose	
Overview of Unit	
Safety Requirements	
Safety Features	
Identifying Key Components	
Tablet Operation	
Athena	
Drum/Tote Setup	
Starting the Always Clean	
Replacing Drums and Resetting the Drum Status	
Removing, Replacing or Emptying the Clean Drums or Tote	
Removing, Replacing or Emptying the Still Bottom Drums or Tote	
Replacing or Refilling the Feed Drums or Tote	
Emergency and Manual Stop Procedures	
Restarting the Unit After a Shut Down	
LCD Display Messages – Condition Codes	
Extended* Shut-Down Instructions	
Nitrocellulose Alarm Response Protocol	
Error messages:	

Appendix C

Equipment Location in PB1


BULK UNLOADING & LOADING PAD
PB1
6" CONCRETE CURB
TANK # 19
TANK # 18
TANK # 4
TANK # 5
TANK # 6
POWER, WATER,AIR, & HEAT SUPPLY TO PB3
J PRESS
TANK
PB3
J PRESS
TANK # 12
TANK # 13
N
PORTABLE SCRUBBER
7'x14' AC 150 FOOTPRINT
TANK # 7
TANK # 8
TANK # 9
TANK # 10
TANK FARM
MAINTENANCE OFFICE
OPERATIONS DESK
220V POWER PANEL
EMERGENCY DEPLOY
H C C - 6000
COMPRESSOR ROOM