TheELAMGroup

Email: info@elamusa.com
Website: www.elamusa.com
Twitter: @elam_usa
Tel: 888-510-ELAM
Fax: 317-567-9022

Annual Report

Voluntary Cleanup Program ID: NW2009
Cleanup Site ID: 4175
Facility/Site ID: 4765174
Former Cherry Street Cleaners
2510 E Cherry St
Seattle, WA 98122

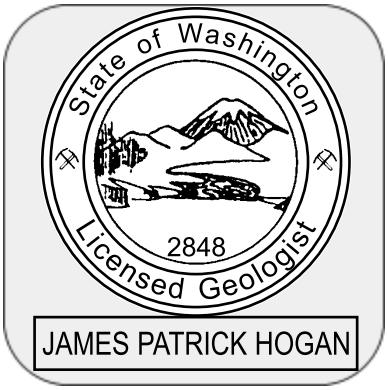
Prepared By

Chris Sloffer, CHMM

Reviewed By

James P. Hogan, RG #2848

May 5, 2023



Executive Summary

This *Annual Report* is a progress report prepared for the Washington Department of Ecology ("Ecology") to describe actions completed thus far in accordance with the Ecology-approved *Cleanup Action Plan (Revision 1)* report, dated 7/31/20 (and approved on 12/8/20) ("CAPrev1"), for the former Cherry Street Cleaners located at 2510 E Cherry St in Seattle, Washington. The reporting period for this report is between February 2022 and December 2022.[1]

As a part of the CAPrev1, an Ozone Injection Treatment System ("OITS") was installed in 2022 to address the following constituent of concern ("COC") impacts that were not addressed by shallow vadose zone remediation activities previously completed in June of 2021:

a. Soil gas located at depths deeper than 10 feet below ground surface ("bgs") and shallower than the top of the water table
b. Any lingering free-phase emulsified oil substrate ("EOS") not recoverable by mechanical means
c. Groundwater

Based on the remedial actions completed to date and the remedial actions specified in the Ecology-approved CAPrev1, the following is scheduled for 2023:

1. Continue OITS operation
2. Prepare an *Annual Report* documenting activities occurring during 2022
3. Conduct quarterly performance groundwater monitoring
4. Conduct EOS gauging and vacuum removal, if necessary
5. Continue annual VI sampling and inspections at 720 25th Ave and 2516/2518 E Cherry St
6. Prepare VIA reports for 720 25th Ave and 2516/2518 E Cherry St

[1] Please note that field activities that occurred during January 2022 were documented in the Commercial Building Vapor Intrusion Assessment at 2516 E Cherry St and Inspection of 2518 E Cherry St dated 4/1/22 and Annual Report dated 4/5/22.

Table of Contents

Tables

Figures

Appendices

1 Site History

This *Annual Report* is a progress report prepared for the Washington Department of Ecology ("Ecology") to describe actions completed thus far in accordance with the Ecology-approved *Cleanup Action Plan (Revision 1)* report, dated 7/31/20 (and approved on 12/8/20) ("CAPrev1"), for the former Cherry Street Cleaners located at 2510 E Cherry St in Seattle, Washington. The reporting period for this report is between February 2022 and December 2022.[2]

1.1 Facility and Property

The former Cherry Street Cleaners ("Facility") was located at 2510 E Cherry St, in Seattle, Washington ("Property"), as shown on Figure 1. The Facility and Property were owned by Ms. Vera Benton during the reporting period. During its operations, Cherry Street Cleaners used two dry cleaning machines ("DCMs") of unknown makes and model numbers. The first DCM was used from 1968 to 1998, and the second DCM was used from 1998 to 2007. Both DCMs used tetrachloroethene ("PCE"), which was released to the environment. Prior to 1968, the business operated as Accurate Cleaners, which used petroleum-based dry cleaning solvents instead of PCE.

The 4,000 square-foot commercial Property was previously developed with a single-story 2,440 square-foot building. The building was razed in July 2013 as a part of interim remedial measures. During the demolition, all utilities were disconnected and the pavement was removed. A 2,500-gallon heating oil tank ("HOT") remained at the Property, within the property boundary, but was later removed in June of 2021. Currently, the Property consists of a grass-covered lot surrounded by a chain-link fence. The Property is bound by the Islamic School of Seattle to the west and north, an alleyway to the east, and E Cherry St to the south. The locations of former features of the Facility and current features of the Property are shown on Figure 1.

[2] Please note that field activities that occurred during January 2022 were documented in the Commercial Building Vapor Intrusion Assessment at 2516 E Cherry St and Inspection of 2518 E Cherry St dated 4/1/22 (ELAM 2022b) and Annual Report dated 4/5/22 (ELAM 2022c).

1.2 Constituents of Concern

Due to the historical use of PCE, the constituents of concern ("COCs") in this matter are PCE and its daughter products trichloroethene ("TCE"), cis-1,2-dichloroethene ("c-DCE"), trans-1,2-dichloroethene ("t-DCE") and vinyl chloride ("VC"). Several activities associated with remedial investigations and cleanup actions of the COC impacts to soil, groundwater and soil gas have ensued since 2007. Details of the prior work are publicly available through Ecology's website and webpages dedicated to Cherry Street Cleaners.[3]

1.3 Regional Geology and Hydrogeology

The relief in the vicinity of the Site ranges between 280 and 285 feet above mean sea level ("amsl"). Based on a review of *The Geologic Map of Seattle* (USGS 2005), geology in the region of the site consists of Quaternary pre-Olympian landslide glacial deposits consisting of fine-grained silts and clays with interbedded sands, underlain by very dense fine-grained till deposits. The till generally ranges from gravelly, sandy silt to silty sand with varied quantities of clay and scattered cobbles and boulders (Galster and Laprade 1991).

Specific to the site, noncohesive sandy silt is generally encountered from the ground surface to approximately 5 to 10 feet below ground surface ("bgs") followed by discontinuous interbedded silt, silty sand and sandy silt lenses within a non-cohesive sand unit with some gravel to the total depth drilled of 60 feet bgs.

Groundwater exists under unconfined conditions at depths ranging from 20 to 30 feet bgs. Historically, the shape of the water table surface reflected an approximately 100-foot wide "valley" shape with a north-south trending axis located between the Facility and 26th Ave (ELAM 2019). The Facility is located on the west side of this valley shape and so groundwater generally flows eastward.

As described in a prior *Annual Report*, groundwater also flows east from the Facility in the deeper part of the aquifer, but the deeper portion does not terminate to the east like the shallow portion does (ELAM 2019). Consequently, there is no groundwater flow

[3] Ecology, 2023, *Cherry Street Cleaners*, https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=4175 (URL last verified 3/30/23).

termination point in this deeper portion (ELAM 2019). Lake Washington is the nearest surface water body to the east of the Facility, located approximately 1 mile away.

1.4 Site Remedial Investigation History

Site characterization began when PCE was discovered in soil and groundwater during an initial Facility characterization conducted by Adapt Engineering, Inc. ("Adapt") in June of 2007. The release was subsequently reported to Ecology and entered into the VCP. Since then, several phases of investigation have been conducted to delineate the extent of chlorinated volatile organic compounds ("cVOCs") in soil, groundwater and air. These prior reported investigations are summarized in the table below.

Year	Investigation Activity	Report Reference
2007	❑ Advanced soil boring B-1	ECC 2013
2008	❑ Advanced soil borings FB-1 through FB-10 ❑ Installed monitoring wells MW-1 through MW-10 and MW-10D	ECC 2013
2010	❑ Installed monitoring well MW-11 ❑ Installed additional SVE pilot study wells SVE-2 and VP-1 through VP-3	ECC 2013
2012	❑ Advanced soil borings SB-1 through SB-11 ❑ Installed monitoring wells MW-12 through MW-17 ❑ Conducted vapor intrusion assessments ("VIAs") at the following addresses: ❑ 2503 E Cherry St ❑ 2509 E Cherry St ❑ 2510 E Cherry St ❑ 2511 E Cherry St ❑ 2515 E Cherry St ❑ 2516 E Cherry St ❑ 2517 E Cherry St ❑ 2518 E Cherry St ❑ 720 25th Ave ❑ 711A 25th Ave	ECC 2013
2013	❑ Advanced soil boring SB-21 ❑ Installed monitoring wells MW-15D, MW-17D, MW-18, MW-18D, MW-19, MW-19D, and MW-20D ❑ Conducted VIA at 720 25th Ave	ECC 2014
2014	❑ Advanced soil borings SB-12 through SB-20 and SB-22 through SB-37 ❑ Installed monitoring wells MW-21D, MW-22D, and MW-23	ECC 2014
2017	❑ Conducted VIAs at the following addresses: ❑ 720 25th Ave ❑ 2516 E Cherry St ❑ 2518 E Cherry St	ELAM 2017a ELAM 2017b
2018	❑ Conducted VIAs at the following addresses: ❑ 720 25th Ave ❑ 2516 E Cherry St ❑ 2518 E Cherry St	ELAM 2018a ELAM 2018b

Year	Investigation Activity	Report Reference
2020	❑ Conducted VIAs at the following addresses: ❑ 720 25th Ave ❑ 2516 E Cherry St ❑ 2518 E Cherry St ❑ Advance soil borings for collection of soil to be used in a bench test of combining *in-situ* chemical oxidation/*in-situ* stabilization ("ISCO/ISS") remedy	ELAM 2020a ELAM 2020b ELAM 2020c
2021	❑ Conducted VIAs at the following addresses: ❑ 2516 E Cherry St ❑ 2518 E Cherry St ❑ Advanced confirmatory soil borings CB-1 through CB-12 (VOC analysis)	ELAM 2022b ELAM 2022c
2022	❑ Advanced confirmatory soil borings CB-1 through CB-12 (TCLP VOC analysis) ❑ Conducted VIAs at the following addresses: ❑ 720 25th Ave	ELAM 2022c ELAM 2022a

Ecology recognized that the RI was complete when they approved the CAPrev1 on 12/8/20 (ELAM 2020d, Ecology 2020). Accordingly, the site was delineated and is defined to encompass all of the areas of investigation identified above within which the COCs were identified ("Site").

1.5 Site Interim Remedial Measures and CAP Implementation History

Cleanup actions have included several interim remedial measures that were undertaken prior to the CAPrev1 having been approved. Such measures included pilot testing to evaluate the efficacy of air sparge ("AS") and soil vapor extraction ("SVE") technologies, injection of emulsified oil substrate ("EOS") to augment PCE bioremediation, and vacuum truck events to remove free-phase EOS that had sequestered PCE. In an effort to define a permanent remedy, both a Feasibility Study ("FS") and a Cleanup Action Plan ("CAP") were prepared for Ecology's review. After revision, *Feasibility Study (Revision 1)* ("FSrev1") and *Cleanup Action Plan (Revision 1)* ("CAPrev1") were submitted to Ecology on 7/31/20 (ELAM 2020c, d). Ecology approved the FSRev1 and CAPrev1 in its *Opinion on Proposed Cleanup* letter, dated 12/8/20 (Ecology 2020). A summary of the Ecology-approved CAPrev1 cleanup actions are listed below.

- ❏ Removal of HOT and dispose at a local scrap metal recycling facility (completed 2021)
- ❏ Grading of a maximum of 300 cubic yards of soil from the surface of the Facility for disposal (maximum depth: 2 feet below current grade) at a permitted facility (completed 2021)
- ❏ Application of a chemical oxidation solution, concurrently with a soil stabilization amendment, to soil located between 2 and 10 feet below current grade via mechanical soil mixing (completed 2021)
- ❏ Ozone Injection Treatment System ("OITS") installation (completed 2022) and operation (ongoing)

Implementation of the approved CAPrev1 began in 2021. All of the cleanup actions, including the interim remedial measures and approved CAP activities, are summarized in the following table.

Year	Remediation Activity	Report Reference
2008	❏ Completed AS/SVE pilot study testing using wells SVE-1 and MW-1D ❏ An AS/SVE system was not installed	ECC 2013
2010	❏ Completed an additional pilot study for SVE using SVE-2 and VP-1 through VP-3 ❏ Injected a total of 3,465 gallons of EOS into wells IW-1 through IW-28, MW-1, MW-2, MW-3, and MW-7 ❏ 2,310 gallons of EOS were injected into the wells within the Facility boundary ❏ 1,155 gallons of EOS were injected into the wells outside the Facility boundary	ECC 2013
2012	❏ Completed groundwater monitoring for four consecutive quarters in 2012 and 2013 as part of the EOS performance monitoring	ECC 2013
2013	❏ Demolished site building ❏ Used vacuum truck to remove 75 gallons of EOS from subsurface in Q4	ECC 2014
2014	❏ Used vacuum truck to remove 75 gallons of EOS in Q2 and 120 gallons of EOS in Q3	ECC 2014
2016	❏ Used vacuum truck to remove 25 gallons of EOS in Q4 ❏ 1st of four consecutive EOS performance monitoring events	ELAM 2019
2017	❏ Used vacuum truck to remove a total of 80 gallons of EOS during three events ❏ 2nd, 3rd and 4th of four consecutive EOS performance monitoring events	ELAM 2019
2018	❏ Used vacuum truck to remove 6 gallons of EOS in Q1	ELAM 2019

Year	Remediation Activity	Report Reference
2021	❑ Removal of 2,500-gallon Heating Oil Tank (“HOT”) ❑ Grading and offsite disposal of approximately 296 cubic yards (429 tons) of soil from the surface of the Property to a maximum depth of 2 feet bgs ❑ In-situ chemical oxidation (“ISCO”) via soil mixing approximately 985 cubic yards of soil with a Klozur SP® sodium persulfate reagent solution and a Portland cement binding agent between 2 and 10 feet bgs ❑ Restoration of the original surface grade with clean backfill and hydroseeded topsoil	ELAM 2022c
2022	❑ Ozone Injection Treatment System (“OITS”) installation and operation	This Report

2 OITS Installation

Installation of the OITS consisted of the following tasks.

- ❏ Underground Injection Control ("UIC") authorization
- ❏ Installation of injections wells
- ❏ Construction of gravel pad
- ❏ Installation of new power supply
- ❏ Delivery and final setup of OITS trailer

The following subsections further describe these items.

2.1 Permitting

Prior to initiating installation and operation of the OITS cleanup, The ELAM Group received the following documentation:

- ❏ UIC Site 36648 - Well Registration and Authorization with the Underground Injection Control ("UIC") Program - issued through Ecology on 6/27/22

A copy of the authorization letter is provided in Appendix A.

2.2 Injection Well Installation

During September of 2022, The ELAM Group retained Holt Drilling Services for the installation of 12 injection wells at the Facility using 4.25-inch diameter hollow stem auger ("HSA") drilling technology. Prior to drilling at each location, the HSAs were decontaminated with a pressure washer. Decontamination water and soil cuttings were containerized in 55-gallon drums and staged at the Facility until proper disposal could be arranged. The drums were removed from the Facility by Waste Management on 12/8/22.

Six pairs of nested injection wells were installed to allow for the injection of Ozone into the deep vadose zone soil (shallow injection wells) and saturated soil (deep injection wells). The wells are identified as INJ-1s, INJ-1d, INJ-2s, INJ-2d, INJ-3s, INJ-3d, INJ-4s,

INJ-4d, INJ-5s, INJ-5d, INJ-6s and INJ-6d. The locations of the injection well are shown on Figure 2.

The shallow well at each location consists of a 2-inch diameter, schedule 40 polyvinyl chloride ("PVC") well with 0.010-inch slotted screen from approximately 17 to 20 feet bgs and casing extending to near ground surface. The deep well at each location consists of a 2-inch diameter, schedule 40 PVC well with 0.010-inch slotted screen from approximately 32 to 35 feet bgs and casing extending to near ground surface. The annular space surrounding the well screen and casing consists of #5 washed quartz sand from the bottom of the borehole to approximately 2 feet above the screen and hydrated bentonite from the sand pack to approximately 1-foot bgs. Each well is finished at the ground surface with an 8-inch diameter, flush-mount vault secured in a concrete pad. Injection well construction logs are provided in Appendix B. Photographic documentation is provided in Appendix C, with photographs 1 and 2 being associated with injection well installation.

Following installation, each deep injection well was developed by pumping approximately 10 well volumes of water from the well. The submersible centrifugal pump was decontaminated and fitted with new, dedicated, disposal tubing prior to use in each well. Decon and purge water were containerized in 55-gallon drums and staged at the Facility until proper disposal could be arranged. The drums were removed from the Facility by Waste Management on 12/8/22.

Lastly, the location and elevations of injection wells were surveyed relative to existing Property features. The locations of the injection wells were survey by Terrane during the preparation of an ALTA/NSPS Land Title Survey. The ground surface and top-of-casing ("TOC") elevations were surveyed for elevation relative to the TOC elevation of monitoring well MW-2R by The ELAM Group using a self-leveling, rotating laser mounted on a tripod and a target receiver mounted on a measuring rod.

2.3 Gravel Pad Installation

During October of 2022, The ELAM Group retained Clearcreek Contractors to install an approximate 600 square feet by approximately 1 foot thick gravel pad on top of a geotextile fabric. Previously placed topsoil and underlying clean backfill material that was emplaced after the shallow remediation work in 2021 was removed for installation of the gravel pad and regraded elsewhere on the Property. The gravel pad was installed

to provide a stable surface for installation of the OITS trailer. The location of the gravel pad is shown on Figure 2. Photographic documentation is provided in Appendix C, with photographs 3 and 4 being associated with gravel pad installation.

2.4 New Electric Service Installation

During October of 2022, The ELAM Group retained SHJ Electric Co. to install a temporary electric service consisting of the following items:

- ❏ Temporary power pole with bracing per Seattle City Light ("SCL") specifications
- ❏ Single phase 100A 120/240V meter base and disconnect mounted on the temporary power pole

Following installation of the above items, SCL installed the service wire from a utility pole located near the alleyway entrance from Cherry St to the temporary power pole and installed the meter in the meter base. Following delivery of the OITS trailer, SHJ Electric Co. installed the service wire from the disconnect to the electrical service panel located within the OITS trailer. The service wire to the OITS trailer is located within above-grade, rigid, non-metallic, electrical conduit. The location of the temporary electric service is shown on Figure 2. Photographic documentation is provided in Appendix C, with photographs 3, 4, 5, 6, 7, 8 and 13 being associated with the new electric service installation.

2.5 Delivery and Final Setup of OITS Trailer

During November of 2022, the innards of the injection wells were constructed, the fabricated OITS trailer was emplaced and conveyance tubing was installed to connect the OITS to the injection wells.

2.5.1 Injection Well Construction

Prior to the delivery of the OITS trailer, the casing of each injection well was extended so that the TOC elevation was above grade, using a 2-inch diameter piece of schedule 40 PVC pipe connected to the casing with a Fernco coupling. Each injection point consists of the following items was inserted into each injection well:

- ❏ Schedule 80 PVC reducer bushing (2-inch diameter, slip by 0.75-inch diameter, slip)
- ❏ Schedule 80 PVC pipe (0.75-inch diameter)
- ❏ Schedule 80 PVC coupling (0.75-inch diameter, slip)
- ❏ Schedule 80 PVC adapter (0.75-inch diameter, slip to threaded)
- ❏ Viton K-packer assembly
    - ❏ Schedule 80 PVC reducer bushing (1-inch diameter, threaded by 0.75-inch diameter threaded)
    - ❏ Stainless steel (or Schedule 80 PVC) threaded coupling (1-inch diameter)
    - ❏ Stainless steel (or Schedule 80 PVC) pipe nipple (1-inch diameter by 4-inch length) with Viton K-packer (2-inch outer diameter by 1-inch inner diameter)
    - ❏ Schedule 80 PVC reducer bushing (1-inch diameter, threaded by 0.25-inch diameter, threaded) with 0.25-inch diameter stainless steel hose barb threaded into the top of the fitting
- ❏ Schedule 80 PVC pipe (0.25-inch diameter by 3 feet length, threaded)
- ❏ Schedule 80 PVC coupling (0.25-inch diameter, threaded)
- ❏ Stainless steel diffuser (0.25-inch diameter by 6 inch length, threaded)

Prior to final assembly of the Viton K-packer assembly, teflon tubing (0.25-inch ID by 0.375-inch OD) was inserted through the upper opening of the injection point and pressed onto the stainless steel hose barb. Upon completion of the Viton K-packer assembly, the injection point was placed into an injection well. Each injection point was constructed so that the bottom of the stainless steel diffuser was located approximately one foot from the bottom of the injection well and the Viton K-packer assembly was located within the well casing at an elevation above the top of the well screen. Each injection well nest was covered with an inverted, polypropylene storage tote secured to the ground with rebar stakes.

The location of the injection wells are shown on Figure 2. A diagram depicting the construction of a typical injection point is shown on Figure 3. Photographic documentation is provided in Appendix C, with photographs 9, 10, 11 and 12 being associated with injection point installation.

2.5.2 Conveyance Tubing Connections

Prior to the delivery of the OITS trailer, the teflon tubing at each injection well was connected to a Kynar ball valve with hose barb fittings. The second hose barb fitting was inserted into teflon tubing that runs within rigid, non-metallic, electrical conduit to a field-constructed junction box consisting of a polypropylene storage tote.

Following delivery of the OITS trailer, each teflon tubing end located within the junction box was connected to teflon tubing by Kynar fittings. The final tubing runs to the OITS trailer were installed within rigid, non-metallic, electrical conduit. Within the OITS trailer, the teflon tubing was connected to the sparge manifold with Kynar fittings.

The location of the conveyance tubing conduits are shown on Figure 2. Photographic documentation is provided in Appendix C, with photographs 13, 14, 15, 16, 17, 18 and 19 being associated with conveyance tubing installation.

2.5.3 OITS Trailer Placement

The OITS trailer was constructed by Oxidation Technologies, and consists of the following major components:

- ❏ Control System
- ❏ Air Compressor
- ❏ Air Drying Equipment
- ❏ Oxygen Concentrator
- ❏ Ozone Generator
- ❏ Sparge Manifold

On 11/7/22, the OITS trailer was delivered to the Facility, parked upon the gravel pad, elevated on concrete blocks and wheels removed for storage at an off-Facility location. On 11/8/22, the final electrical connection was completed and some of the final tubing connections were landed at the sparge manifold. Operation of the OITS began on the afternoon of 11/8/22 for training and leak detection/repair. All 12 injection wells became operational on 11/10/22. Lastly, aluminum skirting was installed around the base of the OITS trailer and a fence was erected around the trailer tongue on 11/10/22.

The location of the OITS trailer is shown on Figure 2. A copy of the ORT-6 Ozone Remediation Trailer Installation and Operation Manual is included as Appendix D.

Photographic documentation is provided in Appendix C, with photographs 7, 8, 13, 17, 19, 20, 21 and 22 being associated with OITS trailer installation.

2.6 OTIS Operational Overview

The OITS uses compressed air to feed dry air to an oxygen concentrator and to the sparge manifold. The oxygen concentrator provides oxygen to the ozone generator. Once created, ozone is fed to the sparge manifold and diluted with the dry feed air from the air compressor. The air and ozone mixture is then directed through the sparge manifold to each of the 12 injection wells via the conveyance piping on a sequential basis programmed in the OITS control system. Each labeled output valve in the manifold corresponds to a unique injection well per the table below.

Manifold Outlet Valve	Injection Well
A	INJ-1s
B	INJ-2s
C	INJ-3s
D	INJ-4s
E	INJ-5s
F	INJ-6s
G	INJ-1d
H	INJ-2d
I	INJ-3d
J	INJ-4d
K	INJ-5d
L	INJ-6d

The OITS programmable logic controller (“PLC”) continuously monitors the operation of the OITS, records relevant parameter data, sends out a screenshot of system readings near the end of each day, and alerts the system operator of alarm conditions. In addition, the PLC uses a system of 24 timers to cycle air/ozone delivery to each injection well by opening and closing the respective outlet solenoid valve specified above for a 30-minute delivery period. Between each 30-minute delivery period, a 2-minute delivery period is programmed between the existing and next sequential injection well to decrease stress on the system components. The full timer sequence is summarized in the following table.

Timer	Time (mins)	INJ1s	INJ2s	INJ3s	INJ4s	INJ5s	INJ6s	INJ1d	INJ2d	INJ3d	INJ4d	INJ5d	INJ6d
		Valve A	Valve B	Valve C	Valve D	Valve E	Valve F	Valve G	Valve H	Valve I	Valve J	Valve K	Valve L
1	30	Open											
2	2	Open	Open										
3	30		Open										
4	2		Open	Open									
5	30			Open									
6	2			Open	Open								
7	30				Open								
8	2				Open	Open							
9	30					Open							
10	2					Open	Open						
11	30						Open						
12	2						Open	Open					
13	30							Open					
14	2							Open	Open				
15	30								Open				
16	2								Open	Open			
17	30									Open			
18	2									Open	Open		
19	30										Open		
20	2										Open	Open	
21	30											Open	
22	2											Open	Open
23	30												Open
24	2	Open											Open

3 OITS Startup and Operation

Initial testing of the operational functionality of the OITS began on 11/8/22, with full operation on 11/10/22. Each of the reported average values fall within the ranges specified in the OITS design as follows:

- The OITS was fully operational for 47 of 52 days in 2022 (~90%)
  - The OITS was down on 12/7/22 for routine air compressor maintenance
  - The OITS was down between 12/28/22 and 12/31/22 due to malfunctions associated with the air compressor and electronic components located within the system control panel
- The average air pressure in the air compressor was approximately 114 pounds per square inch ("PSI") during 2022, which is above the low pressure alarm setpoint of 70 PSI
- The average oxygen pressure in the oxygen concentrator storage tank was approximately 64 PSI during 2022, which is above the low pressure alarm setpoint of 45 PSI
- The average oxygen purity was approximately 93% during 2022, which is above the low purity alarm setpoint of 70%
- The average current draw by the ozone generator was approximately 9.3 amps when the ozone generator was operational, which is above the low alarm setpoint of 2 amps and below the high alarm setpoint of 22 amps
- The average ozone concentration was approximately 97.3 grams per cubic meter ("g/m^3") when the ozone generator was operational
- The average rate of ozone production was approximately 6.3 pounds per day ("lbs/day") when the ozone generator was operational, which is above the designed 5.5 lbs/day
- Approximately 305 pounds of ozone were injected into the subsurface during 2022

Screenshots of system readings recorded near the end of each day are included in Appendix E and the data are summarized in Table 1. A chart depicting the screenshot data graphically is included in Appendix F. A chart depicting the ozone production rate and cumulative ozone mass produced during 2022 is included in Appendix G.

4 CAP Implementation Planning

The following checklist of activities specified in the Ecology-approved CAPrev1 is provided to demonstrate Cherry Street Cleaners' progress in implementing the same. The checklist also shows the planned activities for 2023 in accordance with the Ecology-approved CAPrev1 (ELAM 2020d).

Quarter & Year	CAPrev1 Scheduled Activities
Q2 2021	☑ ~~Obtain SDCI Grading Permit 6388215-GR~~ ☑ ~~Obtain SDOT Street Use Permit~~ ☑ ~~Request CID from Ecology~~ ☑ ~~Obtain CID from Ecology~~ ☑ ~~Install Project Information Sign within the Perimeter Fence~~ ☑ ~~Conduct EOS Gauging and Removal Event~~ ☑ ~~Provide Contacts on the Construction Notification List with a Remediation Construction Project Briefing (upon receipt of the required approvals/permits)~~ ☑ ~~Coordinate Tree Protection Requirements with Urban Forestry (at least 3 weeks prior to remediation construction activities)~~ ☑ ~~Verify/Update Construction Notification List and Submit to SDOT (at least 15 business days prior to remediation construction activities)~~ ☑ ~~Provide Contacts on the Construction Notification List with a Remediation Construction Project Memo (at least 10 business days prior to beginning of the remediation construction project)~~ ☑ ~~Provide Contacts on the Construction Notification List with a Remediation Construction Project Memo (monthly during the duration of the remediation construction project)~~ ☑ ~~Procure Temporary Sanitary Facility Service for Construction Workers~~
Q3 2021	☑ ~~Provide Contacts on the Construction Notification List with a Remediation Construction Project Memo (monthly during the duration of the remediation construction project)~~ ☑ ~~Remove Underground Storage Tank~~ ☑ ~~Cut Maximum of 300 Cubic Yards of Soil for Off-site Disposal in Accordance with CID obtained from Ecology~~ ☑ ~~Procure Supplies for Soil Mixing In-situ Chemical Oxidation ("ISCO") and In-situ Stabilization ("ISS") Remediation~~ ☑ ~~Implement Soil Mixing Remediation~~ ☑ ~~Install Topsoil Cap and Hydroseed~~ ☑ ~~Install Replacement Monitoring Wells: MW-2R and MW-3R~~

Quarter & Year	CAPrev1 Scheduled Activities
Q4 2021	☑ ~~Collect Baseline Groundwater Monitoring Samples~~ ☑ ~~Collected Confirmation Soil Samples~~ ☑ ~~Conduct EOS Gauging and Removal Event~~ ☑ ~~Conduct Winter Worst Case VIA for Twilight Exit & verify commercial use of Tana Market~~
Q1 2022	☑ ~~Collected TCLP soil samples~~ ☑ ~~Conduct Winter Worst Case VIA for ISS~~
Q2 2022	☑ ~~Prepare Annual Report for Submission to Ecology~~ ☑ ~~Apply for Permits required for OITS Install~~ ☑ ~~Obtain Permits required for OITS Install~~
Q3 2022	☑ ~~Order OITS~~
Q4 2022	☑ ~~Install New Power Supply~~ ☑ ~~Install Ozone Injection Wells~~ ☑ ~~Install OITS~~ ☑ ~~Initiate Operation of OITS~~
Q1 2023	☑ ~~Collect Groundwater Monitoring Samples~~ ☑ ~~Conduct OITS Operation and Maintenance ("O&M") Service and EOS Gauging~~ ☑ ~~Conduct Winter Worst Case VIA for ISS, and Verify Commercial Use of Twilight Exit & Tana Market~~
Q2 2023	☑ ~~Prepare Annual Report for Submission to Ecology~~ ☐ Prepare VIA Reports for ISS and Twilight Exit & Tana Market ☐ Collect Groundwater Monitoring Samples ☐ Conduct OITS O&M Service and EOS Gauging
Q3 2023	☐ Collect Groundwater Monitoring Samples ☐ Conduct OITS O&M Service and EOS Gauging
Q4 2023	☐ Collect Groundwater Monitoring Samples ☐ Conduct OITS O&M Service and EOS Gauging
Q1 2024	☐ Collect Groundwater Monitoring Samples ☐ Conduct OITS O&M Service and EOS Gauging ☐ Conduct Winter Worst Case VIA for ISS, and Verify Commercial Use of Twilight Exit & Tana Market ☐ Prepare Annual Report for Submission to Ecology

Quarter & Year	CAPrev1 Scheduled Activities
Q2 2024	☐ Collect Groundwater Monitoring Samples ☐ Conduct OITS O&M Service and EOS Gauging
Q3 2024	☐ Collect Groundwater Monitoring Samples ☐ Conduct OITS O&M Service and EOS Gauging
Q4 2024	☐ Collect Groundwater Monitoring Samples ☐ Conduct OITS O&M Service and EOS Gauging ☐ Terminate Operation of OITS
Q1 2025	☐ Collect Post-remedy Groundwater Monitoring Samples (Q1 of 4) ☐ Conduct Winter Worst Case VIA for ISS, and Verify Commercial Use of Twilight Exit & Tana Market ☐ Prepare Annual Report for Submission to Ecology
Q2 2025	☐ Collect Post-remedy Groundwater Monitoring Samples (Q2 of 4)
Q3 2025	☐ Collect Post-remedy Groundwater Monitoring Samples (Q3 of 4)
Q4 2025	☐ Collect Post-remedy Groundwater Monitoring Samples (Q4 of 4) ☐ Record Environmental Covenant, if needed ☐ Prepare Closure Request for Submission to Ecology
Q1 2026	☐ Receive No Further Action Status from Ecology ☐ Complete Final Site Restoration ☐ Prepare System & Well Decommissioning Report

5 Conclusions & Recommendations

This *Annual Report* is a progress report prepared for Ecology to describe actions completed thus far in accordance with the Ecology-approved CAPrev1 for the Facility. During the reporting period beginning in February of 2022 and ending in December of 2022, the OITS was permitted, the injection wells were installed and the OITS was fabricated, delivered and constructed, allowing for the OITS to operate per its design beginning in November of 2022. Based on the remedial actions completed to date and the remedial actions specified in the Ecology-approved CAPrev1, the following is scheduled for 2023:

1. Continue OITS operation
2. Prepare an *Annual Report* documenting activities occurring during 2022
3. Conduct quarterly performance groundwater monitoring
4. Conduct EOS gauging and vacuum removal, if necessary
5. Continue annual VI sampling and inspections at 720 25th Ave and 2516/2518 E Cherry St
6. Prepare VIA reports for 720 25th Ave and 2516/2518 E Cherry St

6 References

ECC Horizon, 2013, *2012-2013 Annual Report*, VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Custom Cleaners, PREPARED BY: ECC Horizon, 6/28/13, https://apps.ecology.wa.gov/gsp/CleanupSiteDocuments.aspx?csid=4175 (URL last verified 2/15/22).

ECC Horizon, 2014, *Remediation Investigation*, VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Custom Cleaners, PREPARED BY: ECC Horizon, 9/4/14, https://apps.ecology.wa.gov/gsp/CleanupSiteDocuments.aspx?csid=4175 (URL last verified 2/15/22).

Ecology, 1995, *Guidance on Sampling and Data Analysis Methods*, Washington State Department of Ecology Toxics Cleanup Program, Publication No. 94-49, Ecology: https://fortress.wa.gov/ecy/publications/documents/9449.pdf (URL last verified 2/15/22).

Ecology, 2004, *Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies*, Washington State Department of Ecology, Publication No. 04-03-030, revised December 2016 Ecology: https://apps.ecology.wa.gov/publications/documents/0403030.pdf (URL last verified (2/15/22).

Ecology, 2014a, *Opinion Pursuant to WAC 173-340-515(5) on the Vapor Intrusion Investigation,* Washington State Department of Ecology Toxics Cleanup Program, 11/17/14, https://apps.ecology.wa.gov/gsp/DocViewer.ashx?did=43350 (URL last verified 2/15/22).

Ecology, 2014b, *Opinion Pursuant to WAC 173-340-515(5) on the Remedial Investigation,* Washington State Department of Ecology Toxics Cleanup Program, 12/1/14, https://apps.ecology.wa.gov/gsp/DocViewer.ashx?did=43349 (URL last verified 2/15/22).

Ecology, 2014c, *Opinion Pursuant to WAC 173-340-515(5) on the Vapor Intrusion Investigation,* Washington State Department of Ecology Toxics Cleanup Program, 3/6/14, https://apps.ecology.wa.gov/gsp/DocViewer.ashx?did=26319 (URL last verified 2/15/22).

Ecology, 2018, *Standard Operating Procedure EAP099, Version 1.0, Purging and Sampling Monitoring Wells for General Chemistry Parameters*, April 2018, Publication No. 18-03-214, Ecology: https://fortress.wa.gov/ecy/publications/documents/1803214.pdf (URL last verified 2/15/22).

Ecology, 2020, *Opinion on Proposed Cleanup,* Washington State Department of Ecology Toxics Cleanup Program, 12/8/20.

Ecology, 2021, *Contained-In Determination for F002 Contaminated Soils at the Former Cherry Cleaners Property,* Washington State Department of Ecology Toxics Cleanup Program, 5/13/21.

ELAM, 2017a, *Vapor Intrusion Assessment Report - 720 E. 25th Ave, Seattle, WA*, VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Cleaners, PREPARED BY: The ELAM Group, 12/13/17 https://fortress.wa.gov/ecy/gsp/DocViewer.ashx?did=69343 (URL last verified 2/15/22).

ELAM, 2017b, *Vapor Intrusion Assessment Report - 2516 & 2518 E. Cherry St, Seattle, WA*, VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Cleaners, PREPARED BY: The ELAM Group, 12/13/17, https://fortress.wa.gov/ecy/gsp/DocViewer.ashx?did=69108 (URL last verified 2/15/22).

ELAM, 2018a, *Vapor Intrusion Assessment Report - 720 E. 25th Ave, Seattle, WA*, VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Cleaners, PREPARED BY: The ELAM Group, 11/7/18, https://fortress.wa.gov/ecy/gsp/DocViewer.ashx?did=78541 (URL last verified 2/15/22).

ELAM, 2018b, *Vapor Intrusion Assessment Report - 2516 & 2518 E. Cherry St, Seattle, WA*, VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Cleaners, PREPARED BY: The ELAM Group, 11/7/18, https://fortress.wa.gov/ecy/gsp/DocViewer.ashx?did=78542 (URL last verified 2/15/22).

ELAM, 2019, *Annual Report - Former Cherry Street Cleaners*, VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Cleaners, PREPARED BY: The ELAM Group, 6/30/19, https://apps.ecology.wa.gov/gsp/DocViewer.ashx?did=84463 (URL last verified 2/15/22).

ELAM, 2020a, *Vapor Intrusion Assessment Report* - 720 E. 25th Ave, Seattle, WA , VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Cleaners, PREPARED BY: The ELAM Group, 4/29/20.

ELAM, 2020b, *Vapor Intrusion Assessment Report* - Commercial Building Vapor Intrusion Assessment at 2516 E. Cherry St. and Inspection of 2518 E. Cherry St., VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Cleaners, PREPARED BY: The ELAM Group, 4/27/20.

ELAM, 2020c, *Feasibility Study (Revision 1)* - Former Cherry Street Cleaners., VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Cleaners, PREPARED BY: The ELAM Group, 7/31/20, https://apps.ecology.wa.gov/gsp/DocViewer.ashx?did=93362 (URL last verified 2/15/22).

ELAM, 2020d, *Cleanup Action Plan (Revision 1)* - Former Cherry Street Cleaners., VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Cleaners, PREPARED BY: The ELAM Group, 7/31/20, https://apps.ecology.wa.gov/gsp/DocViewer.ashx?did=93519 (URL last verified 2/15/22).

ELAM, 2022a, *Vapor Intrusion Assessment Report - 720 25th Ave, Seattle, WA*, VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Cleaners, PREPARED BY: The ELAM Group, 4/1/22, https://apps.ecology.wa.gov/cleanupsearch/document/111127 (URL last verified 3/30/23).

ELAM, 2022b, *Commercial Building Vapor Intrusion Assessment at 2516 E Cherry St and Inspection of 2518 E Cherry St*, VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Cleaners, PREPARED BY: The ELAM Group, 4/1/22, https://apps.ecology.wa.gov/cleanupsearch/document/111130 (URL last verified 3/30/23).

ELAM, 2022c, *Annual Report - Former Cherry Street Cleaners*, VCP ID: NW2009, Cleanup Site ID: 4175, Former Cherry Cleaners PREPARED BY: The ELAM Group, 4/5/22.

Galster, R.W. & LAPRADE, W. T., 1991, *Geology of Seattle, Washington, United States of America.* Environmental & Engineering Geoscience. xxviii. 235-302.

10.2113/gseegeosci.xxviii.3.235 https://www.researchgate.net/publication/285893866_Geology_of_Seattle_Washington_United_States_of_America (URL last verified 2/15/22).

United States Geological Survey, 2005, *Open File Report 2005-1252*, April 2005, https://pubs.usgs.gov/of/2005/1252/of2005-1252.pdf (URL last verified 2/15/22).

Tables

Table 1. Summary of OITS Daily Operation Data

Former Cherry Cleaners
2510 E. Cherry Street, Seattle, WA 98122
VCP ID: NW2009; Cleanup Site ID: 4175: Facility/Site ID: 476174

Date	Rear Trailer Temp (degF)	Front Trailer Temp (degF)	Air Pressure (PSI)	O2 Pressure (PSI)	O2 Purity (%)	O3 Generator (Amps)	O3 Concentration (g/m3)	Well Pressure (PSI)	Notes
11/8/22	50.8	57.4	123.1	60.7	93.0	9.4	5.7	7.0	Initiate Operation
11/9/22	50.0	56.8	114.7	63.5	93.0	9.3	94.3	7.4	
11/10/22									File Missing
11/11/22	50.1	57.5	115.4	61.6	93.0	9.3	86.8	6.7	
11/12/22	51.7	57.5	113.5	61.4	93.0	9.4	86.5	6.6	
11/13/22	52.0	57.8	116.8	62.9	93.0	9.4	89.3	7.1	
11/14/22	55.4	58.4	124.4	63.9	93.0	9.2	90.5	7.2	
11/15/22	52.6	57.7	121.9	62.7	93.0	9.3	86.5	6.7	
11/16/22	53.5	57.3	117.5	62.4	93.0	9.3	87.9	6.5	
11/17/22	52.4	56.9	114.1	63.3	93.0	9.3	91.4	7.1	
11/18/22	50.0	55.9	116.0	63.7	93.0	9.2	91.3	7.4	
11/19/22	51.2	56.2	120.9	62.9	93.0	9.4	89.2	6.6	
11/20/22	50.1	57.6	121.5	64.1	93.0	9.4	92.4	6.3	
11/21/22	52.4	59.5	117.7	64.4	93.0	9.2	93.9	6.7	
11/22/22	51.4	58.7	114.4	64.3	93.0	9.3	95.0	7.1	
11/23/22	50.1	58.7	115.7	64.2	93.0	9.4	94.5	6.2	
11/24/22	54.9	61.6	120.1	64.3	93.0	9.3	94.2	6.0	
11/25/22	51.0	57.5	122.0	65.0	93.0	9.3	96.3	6.6	
11/26/22	51.3	58.2	117.0	64.6	93.0	9.3	97.2	7.0	
11/27/22	51.2	57.9	113.4	63.6	93.0	9.3	96.5	6.2	
11/28/22	49.4	55.3	115.1	64.2	93.0	9.3	96.8	6.2	
11/29/22	49.6	56.4	118.3	65.2	93.0	9.4	98.9	6.6	
11/30/22									File Missing
12/1/22	52.1	56.1	118.3	65.2	93.0	9.3	99.0	6.2	
12/2/22	52.5	57.1	114.1	65.1	93.0	9.4	98.8	6.1	
12/3/22	50.3	55.7	114.9	65.2	93.0	9.4	99.5	6.6	
12/4/22									File Missing
12/5/22	53.1	58.2	122.8	65.4	93.0	9.2	99.4	6.1	
12/6/22									File Missing
12/7/22	53.3	46.3	124.8	62.8	93.0	0.1	0.6	5.6	Cease System Operation - Ingersoll Rand air compressor service
12/8/22	52.0	58.6	111.6	66.4	93.0	9.2	100.3	6.7	Restart System Operation
12/9/22	53.8	58.9	108.1	65.5	93.0	9.4	101.6	6.0	
12/10/22	52.3	58.9	115.1	65.6	93.0	9.3	102.1	5.7	
12/11/22	50.3	58.3	114.2	66.1	93.0	9.1	102.0	6.3	
12/12/22	50.5	58.2	119.5	66.4	93.0	9.3	101.3	6.5	
12/13/22	50.4	58.4	114.8	66.4	93.0	9.2	101.6	6.0	
12/14/22	49.5	57.2	109.6	66.6	93.0	9.5	101.8	5.8	
12/15/22	54.2	57.3	112.3	66.8	93.0	9.3	102.2	6.4	
12/16/22	54.4	57.5	102.7	66.8	93.0	9.1	102.5	6.8	
12/17/22									File Missing
12/18/22	50.1	56.2	114.2	66.7	93.0	9.3	103.2	5.8	
12/19/22	51.3	57.0	109.6	67.0	93.0	9.3	102.7	6.5	

Table 1. Summary of OITS Daily Operation Data

Former Cherry Cleaners
2510 E. Cherry Street, Seattle, WA 98122
VCP ID: NW2009; Cleanup Site ID: 4175: Facility/Site ID: 476174

Date	Rear Trailer Temp (degF)	Front Trailer Temp (degF)	Air Pressure (PSI)	O2 Pressure (PSI)	O2 Purity (%)	O3 Generator (Amps)	O3 Concentration (g/m3)	Well Pressure (PSI)	Notes
12/20/22	49.6	55.4	118.5	66.8	93.0	9.4	103.3	6.7	
12/21/22	49.5	49.8	103.5	67.0	93.0	9.2	104.6	6.3	
12/22/22	50.4	53.2	115.4	67.0	93.0	9.2	103.8	6.0	
12/23/22	53.7	57.7	115.3	67.1	93.0	9.1	103.2	6.4	
12/24/22	56.9	63.6	109.7	67.1	93.0	9.1	100.9	6.6	
12/25/22	56.9	64.7	111.2	66.3	93.0	9.2	100.6	5.7	
12/26/22	52.6	61.0	113.3	65.6	93.0	9.2	102.8	5.7	
12/27/22									File Missing
12/28/22									File Missing - Received multipe air pressure alarms
12/29/22	47.4	48.4	62.9	50.5	93.0	0.1	2.0	0.0	Ceased System Operation
12/30/22	50.2	48.8	117.7	60.0	93.0	0.1	4.1	4.0	Site vist to troubleshoot : Found air compressor generates insufficient volume, run with sparge air only
12/31/22	50.9	47.8	105.4	57.8	93.0	0.1	2.3	5.0	

Figures

TheELAMGroup

LEGEND

- Monitoring Well
- Soil Boring
- Injection Well
- Soil Vapor Extraction Well
- Vapor Monitoring Point
- Abandoned Injection Well
- Abandoned Soil Vapor Extraction Well
- Abandoned Vapor Monitoring Point
- Underground Sanitary Sewer Line
- Underground Water Line
- Underground Natural Gas Line
- Overhead Electric Line
- Utility Pole
- Tree
- Former Building Location
- Vapor Intrusion Assessment Location

State of Washington 2848 Licensed Geologist

JAMES PATRICK HOGAN

0 30 60

Figure No:	1
Title:	Site Plan
Scale:	1" = 30'
Project No:	WAKS2510C18.8
Report:	Annual Report
Drawn by:	The ELAM Group
Date:	04/05/2023

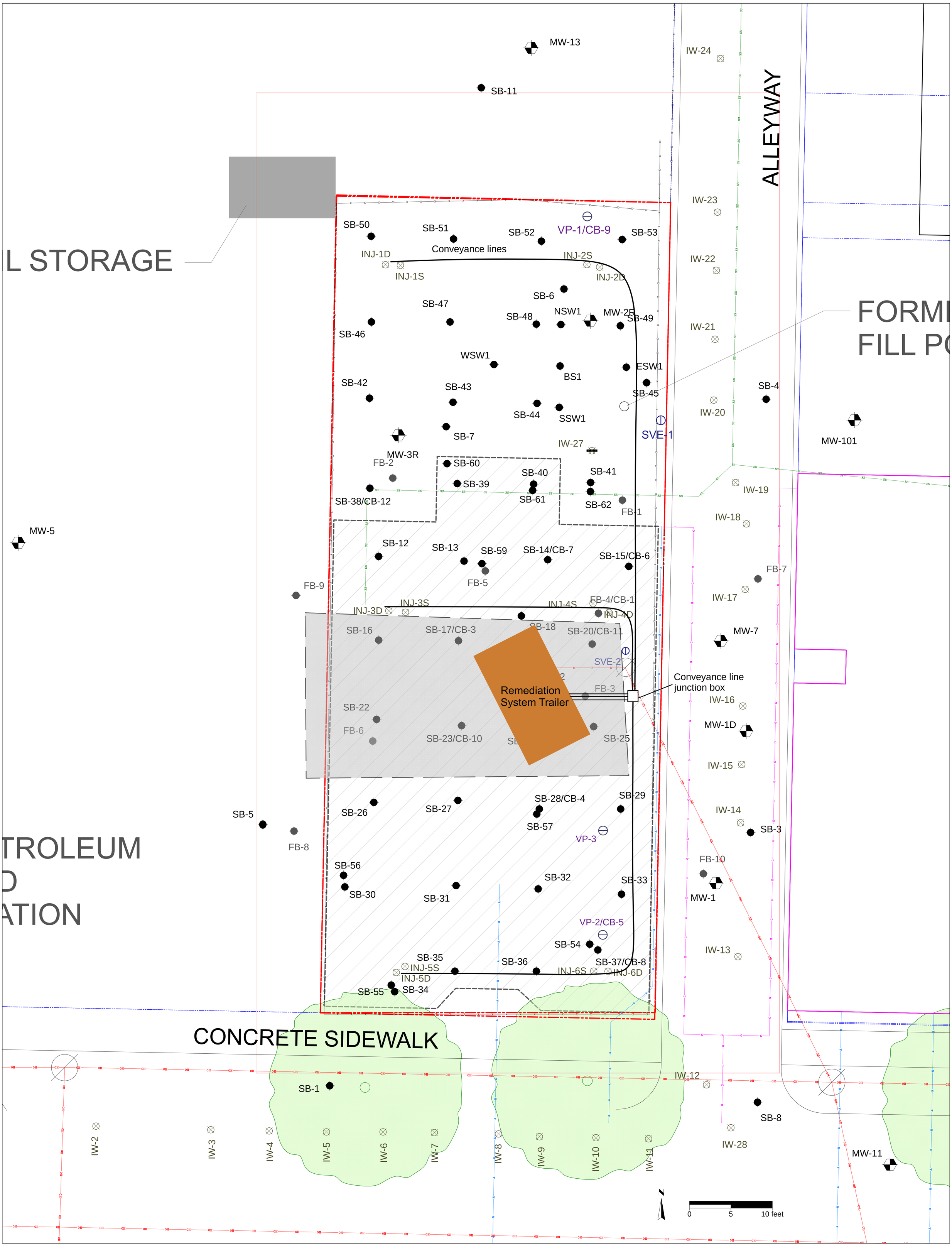


Figure No: 2	
Title: Facility Plan	
Scale: 1 in = 5 ft	
Project No: WAKS2510C18.8	
Report: Annual Report	
Drawn by: The ELAM Group	
Date: 04/5/2023	

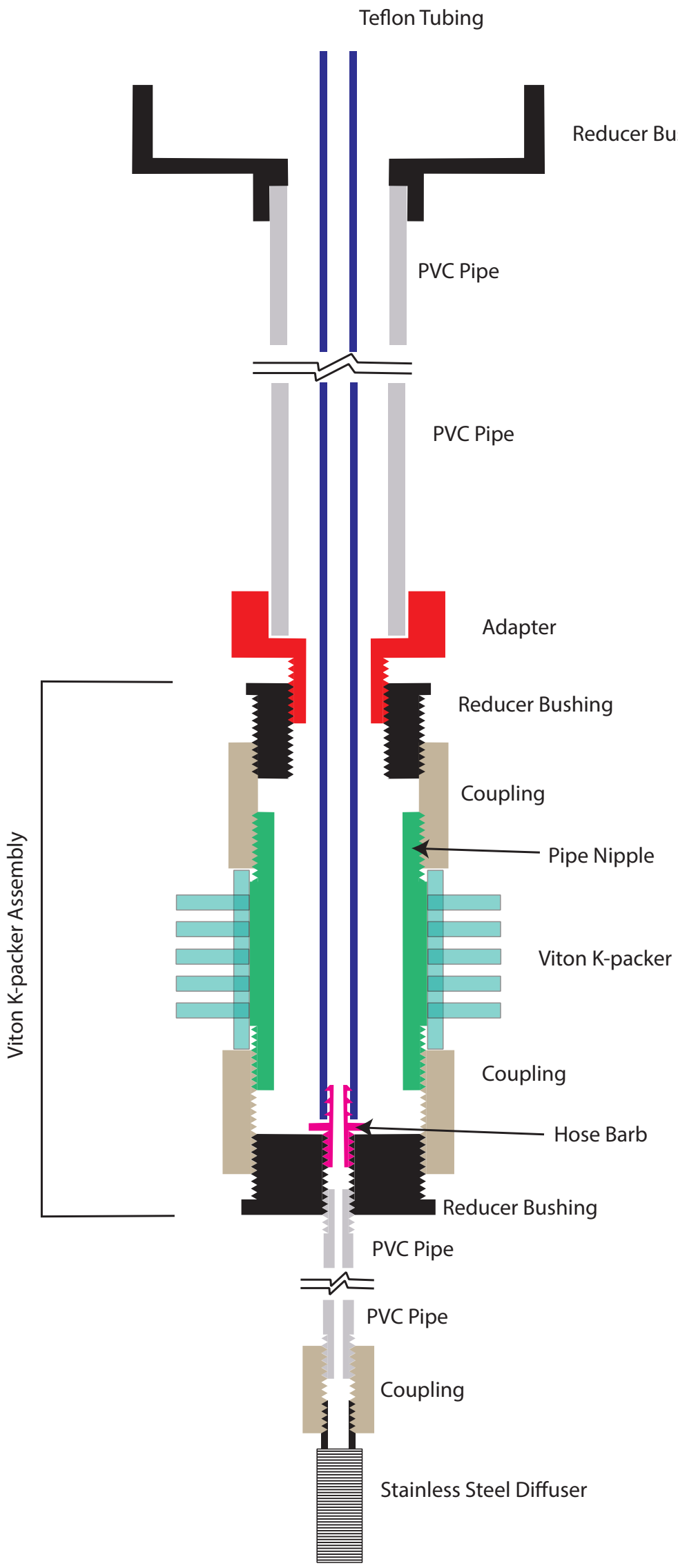
LEGEND

- Monitoring Well
- Vapor Point
- Abandoned Vapor Point
- Soil Boring
- Injection Well
- Abandoned Injection Well
- Soil Vapor Extraction Well
- Abandoned Soil Vapor Extraction Well
- Tree
- Former Building Location
- Vapor Intrusion Assessment Location
- Underground Sanitary Sewer Line
- Underground Water Line
- Underground Natural Gas Line
- Overhead Electric Line
- Utility Pole
- Gravel Pad

Notes:

State of Washington
2848
Licensed Geologist
JAMES PATRICK HOGAN

The ELAM Group



TheELAMGroup

State of Washington
2848
Licensed Geologist
JAMES PATRICK HOGAN

Figure No: 3
Title: Injection Point Diagram
Scale: Not to Scale
Project No: WAKS2510C18.8
Report: Annual Report
Drawn by: The ELAM Group
Date: 4/5/23

Appendix A

Underground Injection Control ("UIC") Program Authorization Letter

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

June 27, 2022

Vera Benton
Cherry Street Cleaners
PO Box 145
Grand Coulee, WA 98133

RE: UIC Site 36648 – Well Registration and Authorization with the Underground Injection Control (UIC) Program, Cherry Street Cleaners (Site), 2510 E Cherry St, Seattle, WA

Vera Benton:

Ecology's UIC Program has reviewed your UIC registration application for the above-mentioned Site. Based on the information provided in the registration and the additional information provided per Ecology's request, the UIC wells are **Conditionally Rule-Authorized** and a State Waste Discharge Permit is not required to operate the wells under WAC 17-218 authorities.

The UIC registration number is 36648. The Site is also undergoing remedial cleanup activities that may be evaluated by Ecology's Voluntary Cleanup Program (VCP) to determine if the substantive requirements of the Model Toxics Control Act (MTCA) have been met; the VCP Site Number is NW2009.

The proposed cleanup action involves the injection of ozone using an ozone injection treatment system (OITS). The process involves injections into the subsurface at 12 driven injection points to address constituents of concern (COCs), perchloroethylene (PCE), trichloroethylene (TCE), cis-dichloroethylene (cDCE) and vinyl chloride (VC) in the deep portion of the vadose zone extending from 10 feet below grade to the top of the water table at approximately 27 feet below grade. Additionally, the OITS will be installed to address any lingering free-phase emulsified oil substrate (EOS) in groundwater. The cleanup action will inject a four percent ozone solution into each well. The consultant shall monitor for all COCs plus required field parameters for migration and safety. If any COC or field parameter value is identified outside

the expected criteria, the injection operation must cease and be reported to the Ecology VCP Site Manager.

The injected compounds are intended to improve groundwater quality. There are inherent environmental risks associated with injecting compounds into groundwater. It is incumbent upon the owner and their representative to carefully characterize, manage, and monitor the site surface and subsurface conditions to minimize risk and prevent unforeseen degradation of groundwater quality and other environmental risks. Mobilized metals or other substances, injected chemicals, or hazardous bi-products, are not allowed to migrate beyond the site property boundary/monitoring wells listed above.

Conditional Rule Authorization - Conditions of Use

Ecology will continue to conditionally rule-authorize the Site UIC registration for as long as the following conditions of use continue to be met by the owner/operator. The two UIC Program requirements for rule authorization are:

1. Registration of UIC wells (prior to use), and

2. The UIC well must meet the nonendangerment standard (WAC 173-218-080).

In addition, the other Site-specific UIC Program requirements for conditionally-rule authorization include:

- The groundwater analytical results from the monitoring well must meet the applicable MTCA groundwater cleanup levels.
- A one-time injection of a 3,600-liter mixture of a four-percent ozone solution into each well. Onsite groundwater is not approved for use to mix with the remediation products for injection into the subsurface;
- The injections should not cause a further degradation to groundwater quality criteria at the down-gradient monitoring points per the state or federal applicable criteria. If such groundwater degradation occurs the injection activities shall cease and Ecology shall be notified no later than 24-hours from the degradation discovery.
- Notification to Ecology's UIC Program of any change in UIC well status is a required element to this registration.
- The start date is planned for early July 2022.

The Ecology Toxics Cleanup Program VCP Site Cleanup Manager will have final authority to determine if the cleanup actions described in your UIC registration have met the substantive requirement of the MTCA.

The Site will be conditionally rule-authorized for as long as the Groundwater Quality Standards continue to be met and the above items have been completed. Failure to capture any of the

performance data listed above or violate the applicable cleanup standards may result in a denial or termination of a UIC registration.

The owner is responsible to retain all plans, modeling, monitoring results, interim, and final reports. Upon Ecology request, the owner shall provide these documents to the UIC Program

At any time, Ecology may require you to apply for and obtain a Waste Discharge Permit for the continued use of these compounds. You may obtain a formal approval for this project through the Ecology's State Waste Discharge Permit Program or the Toxics Cleanup Program.

Under the presumptive approach, Ecology presumes the BMPs listed in your registration application and associated documents will be protective of Site ground water quality and Ecology will presume the non-endangerment requirements of WAC 173-218-080 have been met. If any relevant information provided or represented in this UIC registration is false, misleading, or otherwise misrepresented Ecology shall have cause for modification or termination of this registration.

Please contact Eugene Radcliff at UICwells@ecy.wa.gov if you have any questions. You can find additional information on the UIC Program can at our website:

> https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Underground-injection-control-program

Sincerely,

Eugene Radcliff, LG, LHG
Statewide UIC Program Coordinator
Water Quality Program

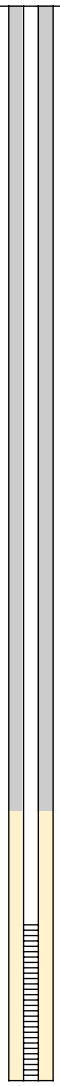
Cc:

Chris Sloffer, The Elam Group, chris.sloffer@elamusa.com
Chris Maurer, Department of Ecology (TCP), cmau461@ECY.WA.GOV
Department of Ecology - Internal UIC Database
Department of Ecology - UIC Resource Mailbox

Appendix B

Injection Well Construction Logs

VCP NO:	**NW2009**			*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122		
PROJECT MANAGER:	Chris Maurer			*X, Y COORDINATES:*	10T_552633.26m_E_5273010.12m_N		
LOGGED BY:	Jonathon Deeter	*DATE:*	9/19/22	*WEATHER:*	Sunny, 70 degrees F		*LOCATION ID*
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:*	5/4/23	*EQUIP, MODEL, CAL., BG.:*			**INJ-1s**
CONTRACTOR:	Holt Services			*EQUIP, MODEL, CAL., BG.:*			*SHEET*
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			*EQUIP, MODEL, CAL., BG.:*			**1 OF 1**
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			*WATER:*			*DRILLING START/FINISH*
SAMPLING METHOD:	Not Applicable			*TIME:*			
BOREHOLE DIAMETER:	8"			*DATE:*		*TIME:* 1215	*TIME:* 1245
TYPE OF DRILL FLUIDS:	Not Applicable			*DEPTH:*		*DATE* 09/19/22	*DATE:* 09/19/22

ELEVATION (bmd)	DEPTH (ft.)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
279.15	0									Blind drill to 20' below grade surface				
	1													
	2													
	3													
	4													
274.15	5													
	6													
	7													
	8													
	9													
269.15	10													
	11													
	12													
	13													
	14													
264.15	15													
	16													
	17													
	18													
	19													
259.15	20													

CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	20	*GROUND SURFACE:*	279.15	259.11	0'-20'					
WELL CASING:	2"	PVC	17	*WELL CASING:*	279.11	262.11	0'-17'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	262.11	259.11	17'-20'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	Quartz sand	5	*SAND FILTER PACK:*	264.11	259.11	15'-20'					
BENTONITE SEAL:	2"	Bentonite chips	14	*BENTONITE SEAL:*	278.61	264.61	1'-15'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	279.15	278.65	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	279.15	278.65	0'-1'					

VCP NO:	**NW2009**			SITE ADDRESS:	2510 E. Cherry Street, Seattle, WA 98122		
PROJECT MANAGER:	Chris Maurer			X, Y COORDINATES:	10T_552633.26m_E_5273010.12m_N		
LOGGED BY:	Jonathon Deeter	DATE:	9/19/22	WEATHER:	Sunny, 70 degrees F		LOCATION ID
CHECKED BY & LPG NO:	James P. Hogan, #2848	DATE:	5/4/23	EQUIP, MODEL, CAL., BG.:			**INJ-1d**
CONTRACTOR:	Holt Services			EQUIP, MODEL, CAL., BG.:			SHEET
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			EQUIP, MODEL, CAL., BG.:			**1 OF 2**
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			WATER:	TOC	TOC	DRILLING START/FINISH
SAMPLING METHOD:	Not Applicable			TIME:	-	845	
BOREHOLE DIAMETER:	8"			DATE:	9/19/22	9/20/22	TIME: 940 / TIME: 1050
TYPE OF DRILL FLUIDS:	Not Applicable			DEPTH:	26.25'	26.21'	DATE 9/19/22 / DATE: 9/19/22

ELEVATION (bmd)	DEPTH (ft.)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
279.12	0									Blind drill to 35' below grade surface				
	1													
	2													
	3													
	4													
274.12	5													
	6													
	7													
	8													
	9													
269.12	10													
	11													
	12													
	13													
	14													
264.12	15													
	16													
	17													
	18													
	19													
259.12	20													

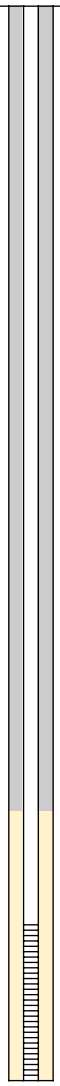
CONSTRUCTION INFO	DIA.	COMPOSITION/TYPE	LENGTH	SURVEY INFORMATION	TOP	BOTTOM	DEPTH(S)	LAB SAMPLE ID	DATE	TIME	S/G/A	PRES
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	35	GROUND SURFACE:	279.12	243.72	0'-35'					
WELL CASING:	2"	PVC	32	WELL CASING:	278.72	246.72	0'-32'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	WELL SCREEN:	246.72	243.72	32'-35'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	JOINTS B/T CASINGS:								
SAND FILTER PACK:	2"	#5 quartz sand	5	SAND FILTER PACK:	248.72	243.72	30'-35'					
BENTONITE SEAL:	2"	bentonite chips	30	BENTONITE SEAL:	278.22	248.22	1'-30'					
SURFACE SEAL:	12"	Concrete	0.5	SURFACE SEAL:	279.12	278.62	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	PROTECTIVE CASING:	279.12	278.62	0'-1'					

VCP NO:	**NW2009**			*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122		
PROJECT MANAGER:	Chris Maurer			*X, Y COORDINATES:*	10T_552633.26m_E_5273010.12m_N		
LOGGED BY:	Jonathon Deeter	*DATE:*	9/19/22	*WEATHER:*	Sunny, 70 degrees F		*LOCATION ID*
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:*	5/4/23	*EQUIP, MODEL, CAL., BG.:*			**INJ-1d**
CONTRACTOR:	Holt Services			*EQUIP, MODEL, CAL., BG.:*			*SHEET*
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			*EQUIP, MODEL, CAL., BG.:*			**2 OF 2**
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			*WATER:*	TOC	TOC	*DRILLING START/FINISH*
SAMPLING METHOD:	Not Applicable			*TIME:*	-	845	
BOREHOLE DIAMETER:	8"			*DATE:*	9/19/22	9/20/22	*TIME:* 940 *TIME:* 1050
TYPE OF DRILL FLUIDS:	Not Applicable			*DEPTH:*	26.25'	26.21'	*DATE* 9/19/22 *DATE:* 9/19/22

ELEVATION (bmd)	DEPTH (ft)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
259.12	20									Blind drill to 35' below grade surface				
	21													
	22													
	23													
	24													
254.12	25													
	26													
	27													
	28													
	29													
249.12	30													
	31													
	32													
	33													
	34													
244.12	35													
	36													
	37													
	38													
	39													
239.12	40													

CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	35	*GROUND SURFACE:*	279.12	243.72	0'-35'					
WELL CASING:	2"	PVC	32	*WELL CASING:*	278.72	246.72	0'-32'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	246.72	243.72	32'-35'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	#5 quartz sand	5	*SAND FILTER PACK:*	248.72	243.72	30'-35'					
BENTONITE SEAL:	2"	bentonite chips	30	*BENTONITE SEAL:*	278.22	248.22	1'-30'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	279.12	278.62	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	279.12	278.62	0'-1'					

VCP NO:	**NW2009**			*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122		
PROJECT MANAGER:	Chris Maurer			*X, Y COORDINATES:*	10T_552642.28m_E_5273010.20m_N		
LOGGED BY:	Jonathon Deeter	*DATE:*	9/19/22	*WEATHER:*	Sunny, 71 degrees F		*LOCATION ID*
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:*	5/4/23	*EQUIP, MODEL, CAL., BG.:*			**INJ-2s**
CONTRACTOR:	Holt Services			*EQUIP, MODEL, CAL., BG.:*			*SHEET*
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			*EQUIP, MODEL, CAL., BG.:*			**1 OF 1**
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			*WATER:*			*DRILLING START/FINISH*
SAMPLING METHOD:	Not Applicable			*TIME:*			
BOREHOLE DIAMETER:	8"			*DATE:*		*TIME:* 1356	*TIME:* 1430
TYPE OF DRILL FLUIDS:	Not Applicable			*DEPTH:*		*DATE* 09/19/22	*DATE:* 09/19/22

ELEVATION (bmd)	DEPTH (ft.)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
279.11	0									Blind drill to 20' below grade surface				
	1													
	2													
	3													
	4													
274.11	5													
	6													
	7													
	8													
	9													
269.11	10													
	11													
	12													
	13													
	14													
264.11	15													
	16													
	17													
	18													
	19													
259.11	20													

CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	20	*GROUND SURFACE:*	279.11	258.93	0'-20'					
WELL CASING:	2"	PVC	17	*WELL CASING:*	278.93	261.93	0'-17'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	261.93	258.93	17'-20'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	quartz sand	5	*SAND FILTER PACK:*	263.93	258.93	15'-20'					
BENTONITE SEAL:	2"	bentonite chips	14	*BENTONITE SEAL:*	278.43	264.43	1'-15'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	279.11	278.61	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	279.11	278.61	0'-1'					

VCP NO:	**NW2009**			*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122				
PROJECT MANAGER:	Chris Maurer			*X, Y COORDINATES:*	10T_552642.28m_E_5273010.20m_N				
LOGGED BY:	Jonathon Deeter	*DATE:*	9/20/22	*WEATHER:*	Sunny, 69 degrees F			*LOCATION ID*	
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:*	5/4/23	*EQUIP, MODEL, CAL., BG.:*				**INJ-2d**	
CONTRACTOR:	Holt Services			*EQUIP, MODEL, CAL., BG.:*				*SHEET*	
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			*EQUIP, MODEL, CAL., BG.:*				**1 OF 2**	
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			*WATER:*	TOC	TOC		*DRILLING START/FINISH*	
SAMPLING METHOD:	Not Applicable			*TIME:*	-	845			
BOREHOLE DIAMETER:	8"			*DATE:*	9/20/22	9/21/22		*TIME:* 850	*TIME:* 930
TYPE OF DRILL FLUIDS:	Not Applicable			*DEPTH:*	26.03'	26.01'		*DATE* 9/20/22	*DATE:* 9/20/22

ELEVATION (bmd)	DEPTH (ft.)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
279.15	0									Blind drill to 35' below grade surface				
	1													
	2													
	3													
	4													
274.15	5													
	6													
	7													
	8													
	9													
269.15	10													
	11													
	12													
	13													
	14													
264.15	15													
	16													
	17													
	18													
	19													
259.15	20													

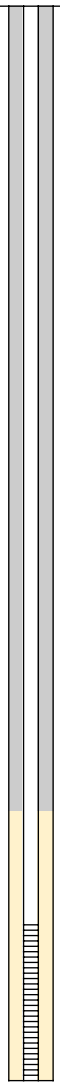
CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	35	*GROUND SURFACE:*	279.15	243.47	0'-35'					
WELL CASING:	2"	PVC	32	*WELL CASING:*	278.47	246.47	0'-32'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	246.47	243.47	32'-35'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	#5 quartz sand	5	*SAND FILTER PACK:*	248.47	243.47	30'-35'					
BENTONITE SEAL:	2"	bentonite chips	30	*BENTONITE SEAL:*	277.97	247.97	1'-30'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	279.15	278.65	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	279.15	278.65	0'-1'					

VCP NO:	**NW2009**		*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122			TheELAMGroup
PROJECT MANAGER:	Chris Maurer		*X, Y COORDINATES:*	10T_552642.28m_E_5273010.20m_N			*LOCATION ID*
LOGGED BY:	Jonathon Deeter *DATE:* 9/20/22		*WEATHER:*	Sunny, 69 degrees F			**INJ-2d**
CHECKED BY & LPG NO:	James P. Hogan, #2848 *DATE:* 5/4/23		*EQUIP, MODEL, CAL., BG.:*				*SHEET*
CONTRACTOR:	Holt Services		*EQUIP, MODEL, CAL., BG.:*				**2 OF 2**
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290		*EQUIP, MODEL, CAL., BG.:*				
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58		*WATER:*	TOC	TOC		*DRILLING START/FINISH*
SAMPLING METHOD:	Not Applicable		*TIME:*	-	845		
BOREHOLE DIAMETER:	8"		*DATE:*	9/20/22	9/21/22		*TIME:* 850 *TIME:* 930
TYPE OF DRILL FLUIDS:	Not Applicable		*DEPTH:*	26.03'	26.01'		*DATE* 9/20/22 *DATE:* 9/20/22

ELEVATION (bmd)	DEPTH (ft)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
259.15	20									Blind drill to 35' below grade surface				
	21													
	22													
	23													
	24													
254.15	25													
	26													
	27													
	28													
	29													
249.15	30													
	31													
	32													
	33													
	34													
244.15	35													
	36													
	37													
	38													
	39													
239.15	40													

CONSTRUCTION INFO	DIA.	COMPOSITION/TYPE	LENGTH	SURVEY INFORMATION	TOP	BOTTOM	DEPTH(S)	LAB SAMPLE ID	DATE	TIME	S/G/A	PRES
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	35	*GROUND SURFACE:*	279.15	243.47	0'-35'					
WELL CASING:	2"	PVC	32	*WELL CASING:*	278.47	246.47	0'-32'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	246.47	243.47	32'-35'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	#5 quartz sand	5	*SAND FILTER PACK:*	248.47	243.47	30'-35'					
BENTONITE SEAL:	2"	bentonite chips	30	*BENTONITE SEAL:*	277.97	247.97	1'-30'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	279.15	278.65	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	279.15	278.65	0'-1'					

VCP NO:	**NW2009**			*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122		
PROJECT MANAGER:	Chris Maurer			*X, Y COORDINATES:*	10T_552633.39m_E_5272995.68m_N		
LOGGED BY:	Jonathon Deeter	*DATE:*	9/21/23	*WEATHER:*	Sunny, 71 degrees F		*LOCATION ID*
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:*	5/4/23	*EQUIP, MODEL, CAL., BG.:*			**INJ-3s**
CONTRACTOR:	Holt Services			*EQUIP, MODEL, CAL., BG.:*			*SHEET*
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			*EQUIP, MODEL, CAL., BG.:*			**1 OF 1**
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			*WATER:*		*DRILLING START/FINISH*	
SAMPLING METHOD:	Not Applicable			*TIME:*			
BOREHOLE DIAMETER:	8"			*DATE:*		*TIME:* 1020	*TIME:* 1046
TYPE OF DRILL FLUIDS:	Not Applicable			*DEPTH:*		*DATE* 09/21/22	*DATE:* 09/21/22

ELEVATION (bmd)	DEPTH (ft.)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
280.97	0									Blind drill to 20' below grade surface				
	1													
	2													
	3													
	4													
275.97	5													
	6													
	7													
	8													
	9													
270.97	10													
	11													
	12													
	13													
	14													
265.97	15													
	16													
	17													
	18													
	19													
260.97	20													

CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	20	*GROUND SURFACE:*	280.97	260.60	0'-20'					
WELL CASING:	2"	PVC	17	*WELL CASING:*	280.60	263.60	0'-17'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	263.60	260.60	17'-20'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	#5 quartz sand	5	*SAND FILTER PACK:*	265.60	260.60	15'-20'					
BENTONITE SEAL:	2"	bentonite chips	14	*BENTONITE SEAL:*	280.10	266.10	1'-15'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	280.97	280.47	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	280.97	280.47	0'-1'					

VCP NO:	**NW2009**			*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122				
PROJECT MANAGER:	Chris Maurer			*X, Y COORDINATES:*	10T_552633.39m_E_5272995.68m_N				
LOGGED BY:	Jonathon Deeter	*DATE:*	9/21/22	*WEATHER:*	Sunny, 59 degrees F			*LOCATION ID*	
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:*	5/4/23	*EQUIP, MODEL, CAL., BG.:*				**INJ-3d**	
CONTRACTOR:	Holt Services			*EQUIP, MODEL, CAL., BG.:*				*SHEET*	
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			*EQUIP, MODEL, CAL., BG.:*				**1 OF 2**	
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			*WATER:*	TOC	TOC		*DRILLING START/FINISH*	
SAMPLING METHOD:	Not Applicable			*TIME:*	-	1029			
BOREHOLE DIAMETER:	8"			*DATE:*	9/21/22	9/22/22		*TIME:* 840	*TIME:* 955
TYPE OF DRILL FLUIDS:	Not Applicable			*DEPTH:*	27.94'	27.92		*DATE* 9/21/22	*DATE:* 9/21/22

ELEVATION (bmd)	DEPTH (ft.)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
280.82	0									Blind drill to 35' below grade surface				
	1													
	2													
	3													
	4													
275.82	5													
	6													
	7													
	8													
	9													
270.82	10													
	11													
	12													
	13													
	14													
265.82	15													
	16													
	17													
	18													
	19													
260.82	20													

CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	35	*GROUND SURFACE:*	280.82	245.38	0'-35'					
WELL CASING:	2"	PVC	32	*WELL CASING:*	280.38	248.38	0'-32'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	248.38	245.38	32'-35'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	#5 quartz sand	5	*SAND FILTER PACK:*	250.38	245.38	30'-35'					
BENTONITE SEAL:	2"	bentonite chips	30	*BENTONITE SEAL:*	279.88	249.88	1'-30'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	280.82	280.32	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	280.82	280.32	0'-1'					

VCP NO:	**NW2009**			*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122		
PROJECT MANAGER:	Chris Maurer			*X, Y COORDINATES:*	10T_552633.39m_E_5272995.68m_N		
LOGGED BY:	Jonathon Deeter	*DATE:*	9/21/22	*WEATHER:*	Sunny, 59 degrees F		*LOCATION ID*
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:*	5/4/23	*EQUIP, MODEL, CAL., BG.:*			**INJ-3d**
CONTRACTOR:	Holt Services			*EQUIP, MODEL, CAL., BG.:*			*SHEET*
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			*EQUIP, MODEL, CAL., BG.:*			**2 OF 2**
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			*WATER:*	TOC	TOC	*DRILLING START/FINISH*
SAMPLING METHOD:	Not Applicable			*TIME:*	-	1029	
BOREHOLE DIAMETER:	8"			*DATE:*	9/21/22	9/22/22	*TIME:* 840 *TIME:* 955
TYPE OF DRILL FLUIDS:	Not Applicable			*DEPTH:*	27.94'	27.92	*DATE* 9/21/22 *DATE:* 9/21/22

ELEVATION (bmd)	DEPTH (ft)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
260.82	20									Blind drill to 35' below grade surface				
	21													
	22													
	23													
	24													
255.82	25													
	26													
	27													
	28													
	29													
250.82	30													
	31													
	32													
	33													
	34													
245.82	35													
	36													
	37													
	38													
	39													
240.82	40													

CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	35	*GROUND SURFACE:*	280.82	245.38	0'-35'					
WELL CASING:	2"	PVC	32	*WELL CASING:*	280.38	248.38	0'-32'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	248.38	245.38	32'-35'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	#5 quartz sand	5	*SAND FILTER PACK:*	250.38	245.38	30'-35'					
BENTONITE SEAL:	2"	bentonite chips	30	*BENTONITE SEAL:*	279.88	249.88	1'-30'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	280.82	280.32	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	280.82	280.32	0'-1'					

VCP NO:	**NW2009**			*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122		
PROJECT MANAGER:	Chris Maurer			*X, Y COORDINATES:*	10T_552642.11m_E_5272995.76m_N		
LOGGED BY:	Jonathon Deeter	*DATE:*	9/20/22	*WEATHER:*	Sunny, 78 degrees F		*LOCATION ID*
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:*	5/4/23	*EQUIP, MODEL, CAL., BG.:*			**INJ-4s**
CONTRACTOR:	Holt Services			*EQUIP, MODEL, CAL., BG.:*			*SHEET*
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			*EQUIP, MODEL, CAL., BG.:*			**1 OF 1**
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			*WATER:*		*DRILLING START/FINISH*	
SAMPLING METHOD:	Not Applicable			*TIME:*			
BOREHOLE DIAMETER:	8"			*DATE:*		*TIME:* 1330	*TIME:* 1358
TYPE OF DRILL FLUIDS:	Not Applicable			*DEPTH:*		*DATE* 09/20/22	*DATE:* 09/20/22

ELEVATION (bmd)	DEPTH (ft.)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
280.64	0									Blind drill to 20' below grade surface				
	1													
	2													
	3													
	4													
275.64	5													
	6													
	7													
	8													
	9													
270.64	10													
	11													
	12													
	13													
	14													
265.64	15													
	16													
	17													
	18													
	19													
260.64	20													

CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	20	*GROUND SURFACE:*	280.64	260.60	0'-20'					
WELL CASING:	2"	PVC	17	*WELL CASING:*	280.33	263.33	0'-17'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	263.33	260.33	17'-20'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	#5 quartz sand	5	*SAND FILTER PACK:*	265.33	260.33	15'-20'					
BENTONITE SEAL:	2"	bentonite chips	14	*BENTONITE SEAL:*	279.83	265.83	1'-15'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	280.64	280.14	0'-5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	280.64	280.14	0'-1'					

VCP NO:	**NW2009**			*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122				
PROJECT MANAGER:	Chris Maurer			*X, Y COORDINATES:*	10T_552642.11m_E_5272995.76m_N				
LOGGED BY:	Jonathon Deeter	*DATE:*	9/20/22	*WEATHER:*	Sunny, 71 degrees F				
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:*	5/4/23	*EQUIP, MODEL, CAL., BG.:*					
CONTRACTOR:	Holt Services			*EQUIP, MODEL, CAL., BG.:*					
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			*EQUIP, MODEL, CAL., BG.:*					
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			*WATER:*	TOC	TOC			
SAMPLING METHOD:	Not Applicable			*TIME:*	-	945			
BOREHOLE DIAMETER:	8"			*DATE:*	9/20/22	9/21/22			
TYPE OF DRILL FLUIDS:	Not Applicable			*DEPTH:*	27.81'	27.80			

LOCATION ID: **INJ-4d**

SHEET: **1 OF 2**

DRILLING START/FINISH

TIME:	1125	*TIME:*	1250
DATE	9/20/22	*DATE:*	9/20/22

ELEVATION (bmd)	DEPTH (ft.)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
280.51	0									Blind drill to 35' below grade surface				
	1													
	2													
	3													
	4													
275.51	5													
	6													
	7													
	8													
	9													
270.51	10													
	11													
	12													
	13													
	14													
265.51	15													
	16													
	17													
	18													
	19													
260.51	20													

CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	35	*GROUND SURFACE:*	280.51	246.01	0'-35'					
WELL CASING:	2"	PVC	31.2	*WELL CASING:*	280.21	249.01	0'-31.2'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	249.01	246.01	31.2'-34.2'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	#5 quartz sand	5	*SAND FILTER PACK:*	251.01	246.01	29.2'-34.2'					
BENTONITE SEAL:	2"	bentonite chips	30	*BENTONITE SEAL:*	279.71	249.71	1'-29.2'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	280.51	280.01	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	280.51	280.01	0'-1'					

VCP NO:	**NW2009**			*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122		
PROJECT MANAGER:	Chris Maurer			*X, Y COORDINATES:*	10T_552642.11m_E_5272995.76m_N		
LOGGED BY:	Jonathon Deeter	*DATE:*	9/20/22	*WEATHER:*	Sunny, 71 degrees F		*LOCATION ID*
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:*	5/4/23	*EQUIP, MODEL, CAL., BG.:*			**INJ-4d**
CONTRACTOR:	Holt Services			*EQUIP, MODEL, CAL., BG.:*			*SHEET*
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			*EQUIP, MODEL, CAL., BG.:*			**2 OF 2**
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			*WATER:*	TOC	TOC	
SAMPLING METHOD:	Not Applicable			*TIME:*	-	945	
BOREHOLE DIAMETER:	8"			*DATE:*	9/20/22	9/21/22	
TYPE OF DRILL FLUIDS:	Not Applicable			*DEPTH:*	27.81'	27.80	

DRILLING START/FINISH

TIME:	1125	*TIME:*	1250
DATE	9/20/22	*DATE:*	9/20/22

ELEVATION (bmd)	DEPTH (ft)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
260.51	20									Blind drill to 35' below grade surface				
	21													
	22													
	23													
	24													
255.51	25													
	26													
	27													
	28													
	29													
250.51	30													
	31													
	32													
	33													
	34													
245.51	35													
	36													
	37													
	38													
	39													
240.51	40													

CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	35	*GROUND SURFACE:*	280.51	246.01	0'-35'					
WELL CASING:	2"	PVC	31.2	*WELL CASING:*	280.21	249.01	0'-31.2'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	249.01	246.01	31.2'-34.2'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	#5 quartz sand	5	*SAND FILTER PACK:*	251.01	246.01	29.2'-34.2'					
BENTONITE SEAL:	2"	bentonite chips	30	*BENTONITE SEAL:*	279.71	249.71	1'-29.2'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	280.51	280.01	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	280.51	280.01	0'-1'					

VCP NO:	**NW2009**			*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122		
PROJECT MANAGER:	Chris Maurer			*X, Y COORDINATES:*	10T_552633.51m_E_5272982.34.34m_N		
LOGGED BY:	Jonathon Deeter	*DATE:*	9/21/22	*WEATHER:*	Sunny, 77 degrees F		*LOCATION ID*
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:*	5/4/23	*EQUIP, MODEL, CAL., BG.:*			**INJ-5s**
CONTRACTOR:	Holt Services			*EQUIP, MODEL, CAL., BG.:*			*SHEET*
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			*EQUIP, MODEL, CAL., BG.:*			**1 OF 1**
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			*WATER:*			*DRILLING START/FINISH*
SAMPLING METHOD:	Not Applicable			*TIME:*			
BOREHOLE DIAMETER:	8"			*DATE:*		*TIME:* 1420	*TIME:* 1500
TYPE OF DRILL FLUIDS:	Not Applicable			*DEPTH:*		*DATE* 09/21/22	*DATE:* 09/21/22

ELEVATION (bmd)	DEPTH (ft.)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
281.25	0									Blind drill to 20' below grade surface				
	1													
	2													
	3													
	4													
276.25	5													
	6													
	7													
	8													
	9													
271.25	10													
	11													
	12													
	13													
	14													
266.25	15													
	16													
	17													
	18													
	19													
261.25	20													

CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	20	*GROUND SURFACE:*	281.25	260.89	0'-20'					
WELL CASING:	2"	PVC	17	*WELL CASING:*	280.89	263.89	0'-17'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	263.89	260.89	17'-20'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	#5 quartz sand	5	*SAND FILTER PACK:*	265.89	260.89	15'-20'					
BENTONITE SEAL:	2"	bentonite chips	14	*BENTONITE SEAL:*	280.39	266.39	1'-15'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	281.25	280.75	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	281.25	280.75	0'-1'					

VCP NO:	**NW2009**			*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122				
PROJECT MANAGER:	Chris Maurer			*X, Y COORDINATES:*	10T_552633.51m_E_5272982.34.34m_N				
LOGGED BY:	Jonathon Deeter	*DATE:*	9/21/22	*WEATHER:*	Sunny, 59 degrees F				
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:*	5/4/23	*EQUIP, MODEL, CAL., BG.:*					
CONTRACTOR:	Holt Services			*EQUIP, MODEL, CAL., BG.:*					
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			*EQUIP, MODEL, CAL., BG.:*					
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			*WATER:*	TOC	TOC			
SAMPLING METHOD:	Not Applicable			*TIME:*	-	820			
BOREHOLE DIAMETER:	8"			*DATE:*	9/21/22	9/23/22			
TYPE OF DRILL FLUIDS:	Not Applicable			*DEPTH:*	28.51	28.49			

LOCATION ID: **INJ-5d**

SHEET: **1 OF 2**

DRILLING START/FINISH

TIME:	1310	*TIME:*	1410
DATE	9/21/22	*DATE:*	9/21/22

ELEVATION (bmd)	DEPTH (ft.)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
281.24	0									Blind drill to 35' below grade surface				
	1													
	2													
	3													
	4													
276.24	5													
	6													
	7													
	8													
	9													
271.24	10													
	11													
	12													
	13													
	14													
266.24	15													
	16													
	17													
	18													
	19													
261.24	20													

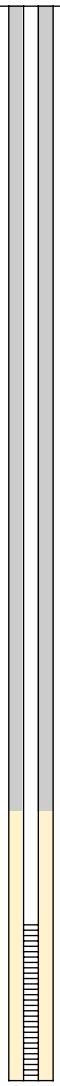
CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	35	*GROUND SURFACE:*	281.24	246.02	0'-35'					
WELL CASING:	2"	PVC	32	*WELL CASING:*	281.02	249.02	0'-32'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	249.02	246.02	32'-35'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	#5 quartz sand	5	*SAND FILTER PACK:*	251.02	246.02	30'-35'					
BENTONITE SEAL:	2"	bentonite chips	30	*BENTONITE SEAL:*	280.52	250.52	1'-30'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	281.24	280.74	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	281.24	280.74	0'-1'					

VCP NO:	**NW2009**		SITE ADDRESS:	2510 E. Cherry Street, Seattle, WA 98122			TheELAMGroup
PROJECT MANAGER:	Chris Maurer		X, Y COORDINATES:	10T_552633.51m_E_5272982.34.34m_N			LOCATION ID
LOGGED BY:	Jonathon Deeter	DATE: 9/21/22	WEATHER:	Sunny, 59 degrees F			**INJ-5d**
CHECKED BY & LPG NO:	James P. Hogan, #2848	DATE: 5/4/23	EQUIP, MODEL, CAL., BG.:				SHEET
CONTRACTOR:	Holt Services		EQUIP, MODEL, CAL., BG.:				**2 OF 2**
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290		EQUIP, MODEL, CAL., BG.:				
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58		WATER:	TOC	TOC		DRILLING START/FINISH
SAMPLING METHOD:	Not Applicable		TIME:	-	820		
BOREHOLE DIAMETER:	8"		DATE:	9/21/22	9/23/22		TIME: 1310 / TIME: 1410
TYPE OF DRILL FLUIDS:	Not Applicable		DEPTH:	28.51	28.49		DATE 9/21/22 / DATE: 9/21/22

ELEVATION (bmd)	DEPTH (ft)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
261.24	20									Blind drill to 35' below grade surface				
	21													
	22													
	23													
	24													
256.24	25													
	26													
	27													
	28													
	29													
251.24	30													
	31													
	32													
	33													
	34													
246.24	35													
	36													
	37													
	38													
	39													
241.24	40													

CONSTRUCTION INFO	DIA.	COMPOSITION/TYPE	LENGTH	SURVEY INFORMATION	TOP	BOTTOM	DEPTH(S)	LAB SAMPLE ID	DATE	TIME	S/G/A	PRES
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	35	GROUND SURFACE:	281.24	246.02	0'-35'					
WELL CASING:	2"	PVC	32	WELL CASING:	281.02	249.02	0'-32'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	WELL SCREEN:	249.02	246.02	32'-35'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	JOINTS B/T CASINGS:								
SAND FILTER PACK:	2"	#5 quartz sand	5	SAND FILTER PACK:	251.02	246.02	30'-35'					
BENTONITE SEAL:	2"	bentonite chips	30	BENTONITE SEAL:	280.52	250.52	1'-30'					
SURFACE SEAL:	12"	Concrete	0.5	SURFACE SEAL:	281.24	280.74	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	PROTECTIVE CASING:	281.24	280.74	0'-1'					

VCP NO:	**NW2009**			*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122		
PROJECT MANAGER:	Chris Maurer			*X, Y COORDINATES:*	10T_552642.53m_E_5272982.42.42m_N		
LOGGED BY:	Jonathon Deeter	*DATE:*	9/22/22	*WEATHER:*	Sunny, 73 degrees F		*LOCATION ID*
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:*	5/4/23	*EQUIP, MODEL, CAL., BG.:*			**INJ-6s**
CONTRACTOR:	Holt Services			*EQUIP, MODEL, CAL., BG.:*			*SHEET*
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			*EQUIP, MODEL, CAL., BG.:*			**1 OF 1**
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			*WATER:*			*DRILLING START/FINISH*
SAMPLING METHOD:	Not Applicable			*TIME:*			
BOREHOLE DIAMETER:	8"			*DATE:*		*TIME:* 1300	*TIME:* 1332
TYPE OF DRILL FLUIDS:	Not Applicable			*DEPTH:*		*DATE* 09/22/22	*DATE:* 09/22/22

ELEVATION (bmd)	DEPTH (ft.)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
281.08	0									Blind drill to 20' below grade surface				
	1													
	2													
	3													
	4													
276.08	5													
	6													
	7													
	8													
	9													
271.08	10													
	11													
	12													
	13													
	14													
266.08	15													
	16													
	17													
	18													
	19													
261.08	20													

CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	20	*GROUND SURFACE:*	281.08	260.78	0'-20'					
WELL CASING:	2"	PVC	17	*WELL CASING:*	280.78	263.78	0'-17'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	263.78	260.78	17'-20'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	#5 quartz sand	5	*SAND FILTER PACK:*	265.78	260.78	15'-20'					
BENTONITE SEAL:	2"	bentonite chips	14	*BENTONITE SEAL:*	280.28	266.28	1'-15'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	281.08	280.58	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	281.08	280.58	0'-1'					

VCP NO:	**NW2009**		*SITE ADDRESS:*	2510 E. Cherry Street, Seattle, WA 98122			TheELAMGroup
PROJECT MANAGER:	Chris Maurer		*X, Y COORDINATES:*	10T_552642.53m_E_5272982.42.42m_N			
LOGGED BY:	Jonathon Deeter	*DATE:* 9/22/22	*WEATHER:*	Sunny, 73 degrees F			*LOCATION ID*
CHECKED BY & LPG NO:	James P. Hogan, #2848	*DATE:* 5/4/23	*EQUIP, MODEL, CAL., BG.:*				**INJ-6d**
CONTRACTOR:	Holt Services		*EQUIP, MODEL, CAL., BG.:*				*SHEET*
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290		*EQUIP, MODEL, CAL., BG.:*				**1 OF 2**
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58		*WATER:*	TOC	TOC		*DRILLING START/FINISH*
SAMPLING METHOD:	Not Applicable		*TIME:*	–	1030		
BOREHOLE DIAMETER:	8"		*DATE:*	9/22/22	9/23/22		*TIME:* 1030 *TIME:* 1230
TYPE OF DRILL FLUIDS:	Not Applicable		*DEPTH:*	28.59'	28.52'		*DATE* 9/22/22 *DATE:* 9/22/22

ELEVATION (bmd)	DEPTH (ft.)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
281.04	0									Blind drill to 35' below grade surface				
	1													
	2													
	3													
	4													
276.04	5													
	6													
	7													
	8													
	9													
271.04	10													
	11													
	12													
	13													
	14													
266.04	15													
	16													
	17													
	18													
	19													
261.04	20													

CONSTRUCTION INFO	*DIA.*	*COMPOSITION/TYPE*	*LENGTH*	*SURVEY INFORMATION*	*TOP*	*BOTTOM*	*DEPTH(S)*	*LAB SAMPLE ID*	*DATE*	*TIME*	*S/G/A*	*PRES*
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	35	*GROUND SURFACE:*	281.04	245.78	0'-35'					
WELL CASING:	2"	PVC	32	*WELL CASING:*	280.78	248.78	0'-32'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	*WELL SCREEN:*	248.78	245.78	32'-35'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	*JOINTS B/T CASINGS:*								
SAND FILTER PACK:	2"	#5 quartz sand	5	*SAND FILTER PACK:*	250.78	245.78	30'-35'					
BENTONITE SEAL:	2"	bentonite chips	30	*BENTONITE SEAL:*	280.28	250.28	1'-30'					
SURFACE SEAL:	12"	Concrete	0.5	*SURFACE SEAL:*	281.04	280.54	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	*PROTECTIVE CASING:*	281.04	280.54	0'-1'					

VCP NO:	**NW2009**			SITE ADDRESS:	2510 E. Cherry Street, Seattle, WA 98122		
PROJECT MANAGER:	Chris Maurer			X, Y COORDINATES:	10T_552642.53m_E_5272982.42.42m_N		
LOGGED BY:	Jonathon Deeter	DATE:	9/22/22	WEATHER:	Sunny, 73 degrees F		
CHECKED BY & LPG NO:	James P. Hogan, #2848	DATE:	5/4/23	EQUIP, MODEL, CAL., BG.:			
CONTRACTOR:	Holt Services			EQUIP, MODEL, CAL., BG.:			
DRILLER NAME & LICENSE NO:	Rayon Darling; #3290			EQUIP, MODEL, CAL., BG.:			
DRILL METHOD/EQUIPMENT:	HSA/Truck-mounted MobileB58			WATER:	TOC	TOC	
SAMPLING METHOD:	Not Applicable			TIME:	-	1030	
BOREHOLE DIAMETER:	8"			DATE:	9/22/22	9/23/22	
TYPE OF DRILL FLUIDS:	Not Applicable			DEPTH:	28.59'	28.52'	

TheELAMGroup

LOCATION ID
INJ-6d

SHEET
2 OF 2

DRILLING START/FINISH

TIME:	1030	TIME:	1230
DATE	9/22/22	DATE:	9/22/22

ELEVATION (bmd)	DEPTH (ft)	BLOW COUNTS (6"/12"/6")	DRIVE	RECOVERY	Sample No.	PID (ppm)	LOG SAMPLE	LAB SAMPLE	SOIL GRAPH	DESCRIPTION	BOREHOLE CONSTRUCTION	AIR MONITORING TIME	AIR MONITORING FID	AIR MONITORING LEL
261.04	20									Blind drill to 35' below grade surface				
	21													
	22													
	23													
	24													
256.04	25													
	26													
	27													
	28													
	29													
251.04	30													
	31													
	32													
	33													
	34													
246.04	35													
	36													
	37													
	38													
	39													
241.04	40													

CONSTRUCTION INFO	DIA.	COMPOSITION/TYPE	LENGTH	SURVEY INFORMATION	TOP	BOTTOM	DEPTH(S)	LAB SAMPLE ID	DATE	TIME	S/G/A	PRES
BOREHOLE/GROUND SURFACE:	8"	Monitoring well	35	GROUND SURFACE:	281.04	245.78	0'-35'					
WELL CASING:	2"	PVC	32	WELL CASING:	280.78	248.78	0'-32'					
WELL SCREEN (incl. slot size):	2"	PVC, 010 slot size	3	WELL SCREEN:	248.78	245.78	32'-35'					
JOINTS BT CASING SEGMENTS:	2"	PVC	10	JOINTS B/T CASINGS:								
SAND FILTER PACK:	2"	#5 quartz sand	5	SAND FILTER PACK:	250.78	245.78	30'-35'					
BENTONITE SEAL:	2"	bentonite chips	30	BENTONITE SEAL:	280.28	250.28	1'-30'					
SURFACE SEAL:	12"	Concrete	0.5	SURFACE SEAL:	281.04	280.54	0'-0.5'					
PROTECTIVE CASING:	8"	Flush-Mount	1	PROTECTIVE CASING:	281.04	280.54	0'-1'					

KEY	
	CLEAN GRAVELS
	GRAVELS WITH FINES
	CLEAN SANDS
	SANDS WITH FINES
	SILTS & CLAYS WITH LITTLE OR NO PLASTICITY
	SILTS & CLAYS WITH MODERATE TO HIGH PLASTICITY
	CEMENT/BENTONITE SLURRY
	PEAT, COAL
	CONCRETE, ASPHALT

Appendix C

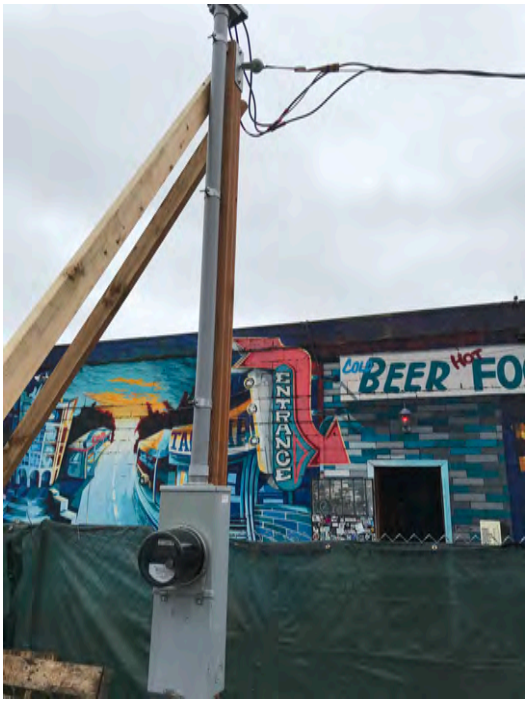
Photographic Documentation

Photograph 1 **Date: 09/20/22**	Eastern view of hollow stem auger drilling at the location of Injection Well INJ-2s

Photograph 2 **Date: 09/21/22**	Eastern view of Injection Wells INJ-3d and INJ-3s in the foreground, and Injection Wells INJ-4s and INJ-4d and drilling waste storage in the background

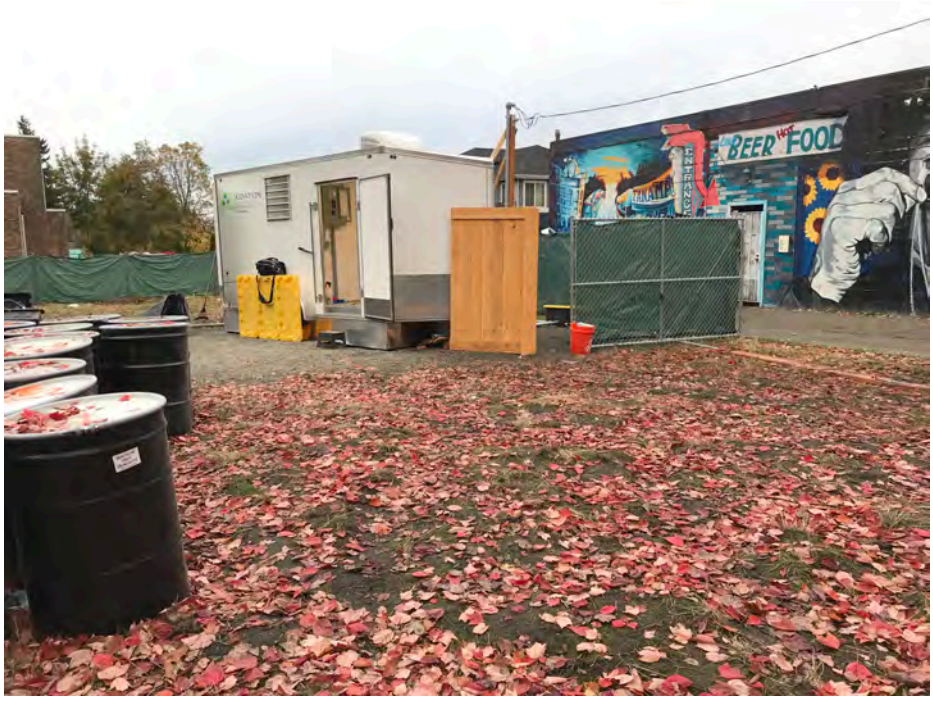
Photograph 3 **Date: 10/12/22**	Eastern view of gravel pad and temporary power pole with bracing per Seattle City Light specifications

Photograph 4 **Date: 10/12/22**	Northern view of gravel pad and temporary power pole with bracing per Seattle City Light specifications



Photograph 5 **Date: 11/04/22**	Northeastern view of temporary power pole with bracing per Seattle City Light specifications

Photograph 6 **Date: 11/04/22**	Southeastern view of temporary power pole with bracing per Seattle City Light specifications



Photograph 7 **Date: 11/11/22**	Northeastern view of drilling waste storage, gravel pad, remediation system trailer and temporary power pole with bracing per Seattle City Light specifications

Photograph 8 **Date: 11/11/22**	Northeastern view of gravel pad, remediation system trailer and temporary power pole with bracing per Seattle City Light specifications

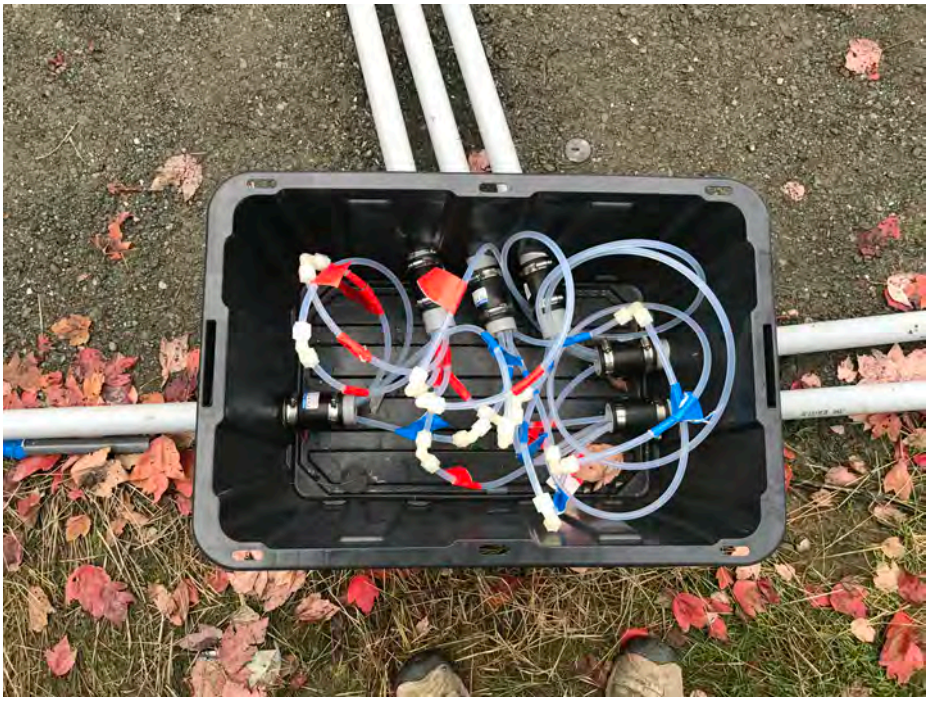
Photograph 9 **Date: 11/05/22**	View of Injection Stinger, including the stainless steel diffuser, 3 feet length of 0.25-inch diameter schedule 80 PVC pipe and Viton K-packer assembly

Photograph 10 **Date: 11/05/22**	Closer view of the stainless steel diffuser

Photograph 11 **Date: 11/05/22**	Closer view of the Viton K-packer assembly

Photograph 12 **Date: 11/05/22**	Closer view of the Viton K-packer assembly

Photograph 13 **Date: 11/11/22**	Northwestern view of gravel pad, remediation system trailer, temporary power pole with bracing per Seattle City Light specifications, electrical conduit, conveyance line conduit and junction box, and injection well nests INJ-4s/4d near the trailer and INJ-1s/1d in the background



Photograph 14 **Date: 11/11/22**	View of conveyance line conduit and junction box

Photograph 15 **Date: 11/11/22**	View of conveyance line conduit and electrical conduit

Photograph 16 **Date: 11/11/22**	Eastern view of Injection Wells INJ-1d and INJ-1s in the foreground, Injection Wells INJ-2s and INJ-2d in the background and conveyance line conduit

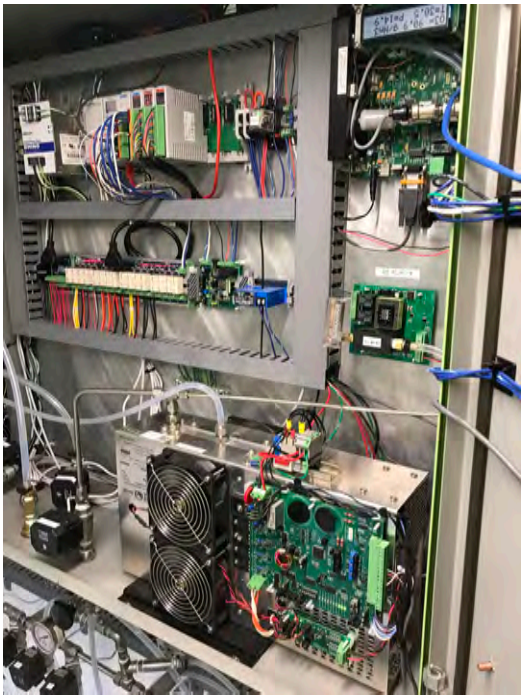
Photograph 17 **Date: 11/11/22**	Southeastern view of gravel pad, remediation system trailer, temporary power pole with bracing per Seattle City Light specifications, conveyance line conduit and junction box, injection well nests INJ-4s/4d and INJ 3s/3d and drilling waste storage

Photograph 18 **Date: 11/11/22**	View of conveyance line conduit and injection wells INJ-2d and INJ-2s

Photograph 19 **Date: 11/11/22**	Southwestern view of gravel pad, remediation system trailer, temporary power pole with bracing per Seattle City Light specifications, conveyance line conduit and junction box, injection well nests INJ-4s/4d and INJ 3s/3d and drilling waste storage

Photograph 20 **Date: 11/11/22**	View of the exterior of the remediation system control panel

Photograph 21 **Date: 11/11/22**	View of the exterior of the remediation system control panel



Photograph 22 **Date: 11/11/22**	View of the interior of the remediation system control panel

Appendix D

Ozone Remediation Trailer Installation and Operation Manual

ORT-6

Ozone Remediation Trailer

Installation and Operation Manual

Table of Contents

Refer to the manual of the Ozone Generating System first, to assure proper location of all ozone equipment.

Ozone is a powerful oxidizing agent. Observe strict operating procedures when using ozone equipment.

Ensure that the Ozone Trailer is in an open area. The Ozone Remediation System is designed to operate in outdoors but must have ample ventilation area for cooling.

Note: If the operator has asthma, he/she must not enter ozonated airspace. Ozone can induce an asthma attack.

Carefully review and familiarize yourself with the following important safety information statements concerning the use of ozone with the Ozone Remediation System.

Warning Ozone is an extremely aggressive and powerful oxidizer. The Occupational Safety and Health Administration (OSHA) 8-hour exposure limit is 0.10-PPM. The OSHA 15-minute exposure limit for ozone is 0.3 PPM. Above 0.3 PPM, there is the risk of damage to respiratory tissues.

Warning People who have no sense of smell should not operate this equipment.

Warning Never attempt to verify ozone production by directly breathing or smelling the ozone outlet or the ozone-tubing outlet.

Warning The Ozone Remediation System uses stainless steel or Teflon tubing to transfer the ozone to the desired locations. In the event the tubing is damaged in any way it should be replaced immediately to prevent dangerous ozone leaks**.**

Warning Make sure all ozone tubing connections between the Ozone Trailer and any external locations are secure, and in good working condition. Failure to do so could result in the discharge of ozone into an undesired space.

Introduction

The Remediation Trailer is an Ozone Remediation System designed to work as a stand-alone unit with all necessary equipment and automation for ozone production and sparging built into one convenient platform. The system consists of six major components:

- Air Compressor
- Air Drying Equipment
- Oxygen Concentrator
- Ozone Generator(s)
- Well Output Manifold(s)
- Control System

Theory of Operation

The Air Compressor produces approximately 28 CFM of compressed air at 100 PSI, which is then dried to a dewpoint of 32°F and stored in a Compressed Air Storage Tank. The compressed air is utilized for the process in two ways:

- A portion of dry air (about 10 CFM) is available for Sparge Air which is combined with the ozone flow at the Air/Ozone Manifold for sparging.

- About 15 CFM of dry air is consumed by the Oxygen Concentrator for oxygen production.

The Oxygen Concentrator provides 55 SCFH (26 SLPM) of oxygen flow at 45 PSI, at approximately 93% purity. Oxygen flows through the Ozone Generator which produces 5.5 lb/day (103 g/hr) total ozone at full production.

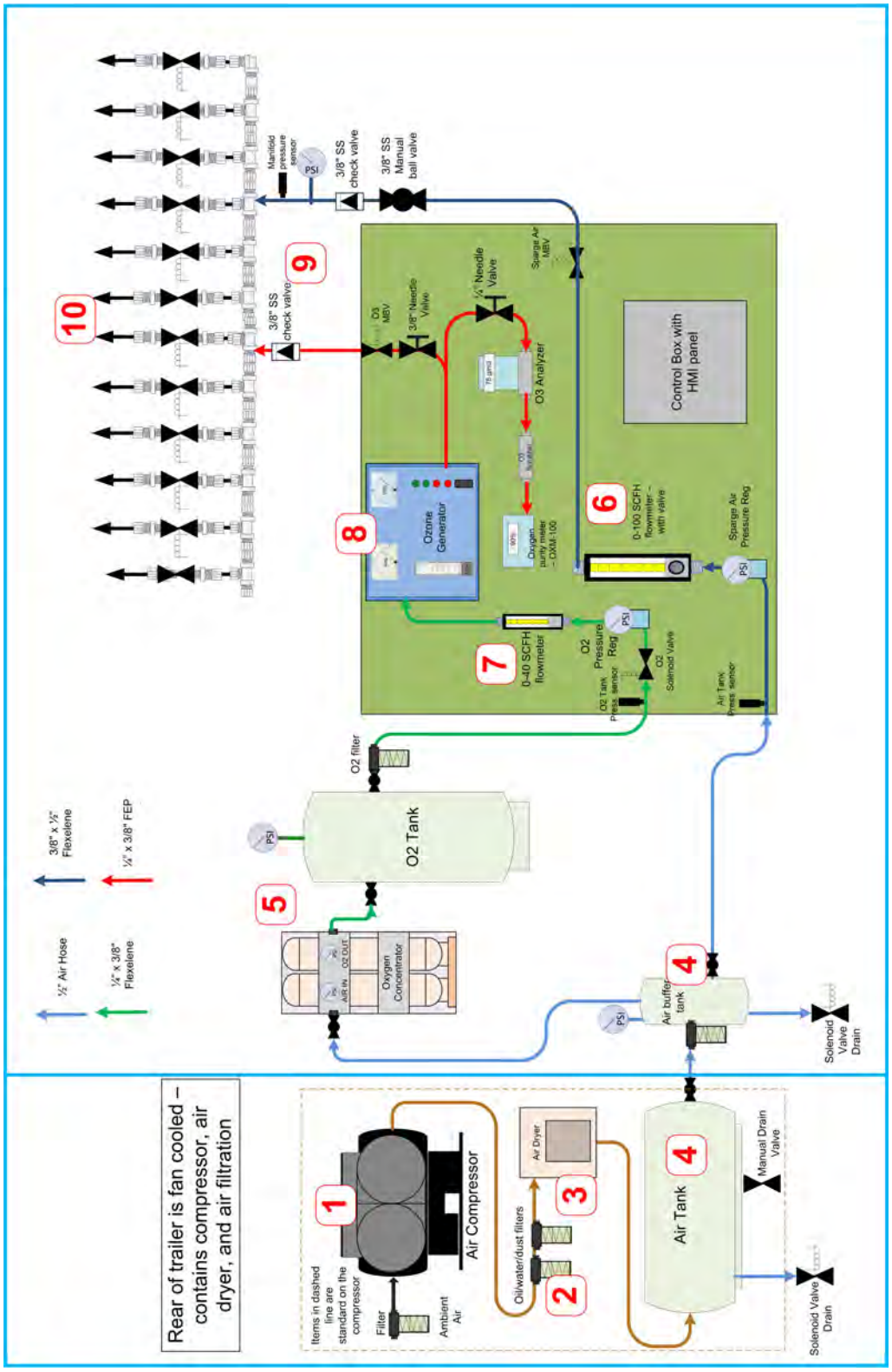
The flow of ozone from the Ozone Generators is delivered to the Air/Ozone Manifold where it combines with the Sparge Air. The mixture is then directed via a timer-controlled solenoid valve to each well.

On select systems, each flowmeter assembly includes a variable area flowmeter, pressure gauge, and check valve; in order to provide back-flow prevention while permitting the user to accurately monitor the individual well sparging operation. The air/ ozone sparging line from each flowmeter assembly then leads to an individual well output connection on the outside of the Trailer.

Monitoring devices and sensors are integrated into the control system to protect the equipment in the event of any failures or extreme environmental conditions, and to alert operators of any unexpected operation.

OZONE SYSTEM Diagrams & Information

Component Illustration



Component Illustration Description

(Some items are not pictured because they are mounted externally, or may not be present on your machine because they are optional equipment)

1. **Air Compressor:** The Air Compressor provides 36 CFM of compressed air at 100 PSI. The compressed air is utilized for oxygen production and sparging purposes.

2. **Coalescing Filters:** The filters remove help to remove moisture, oil, or contaminants that may be present in the compressed air supply.

3. **Refrigerant Air Dryer:** The Refrigerant Air Dryer cools the compressed air exiting the Compressor, thereby causing the water to be condensed from the air and drying the air to approximately 30°F dewpoint.

4. **Air Receiver Tanks**: Compressed air enters the receiver tank at 90-125 PSI, dried to approximately 30°F dewpoint. An automatic drain, at the bottom of the tank, releases any condensate water. The **Air Buffer Tank** serves as a supply of surge air post-filter so that there is always enough air capacity when the Oxygen Concentrator requires a surge of air, in spite of the filter restriction.

5. **Oxygen Concentrator & Storage Tank:** The concentrator removes all nitrogen (and some other contaminants) from the compressed air using Pressure Swing Absorption (PSA), providing oxygen of at least 90% purity while maintaining 45-65 PSI oxygen pressure in the Oxygen Tank. [See Manufacturer's AS-B Manual for O&M details.] The filter at the tank outlet removes any dust residual from the O2 supply feeding the ozone generator.

6. **Sparge Air Valve, Pressure Regulator, and Flowmeter:** Controlled automatically by the control system, the valve opens to allow Sparge Air flow to the Air/Ozone Manifold. Pressure regulator on front panel allows pressure/flow adjustment to suit pressure requirements for the site conditions.

7. **Oxygen Valve, Pressure Regulator, and Flowmeter:** Valve opens automatically to allow oxygen flow through the ozone generator. The pressure regulator on front panel allows adjustment of pressure feeding through Ozone Generators in order to suit pressure requirements for the site conditions. The needle valve downstream of the ozone generator allows for control of the oxygen /ozone flow.

8. **Ozone Generator:** The system utilizes a 140g/hr air-cooled ozone generator, which is located in the control cabinet in the Front Trailer compartment which provides a clean, climate controlled environment. The Ozone Generator is capable of producing 5.5 lb/day (103 g/hr) with the 55 CFH oxygen supply that is available.

9. **Air/Ozone Manifold:** Both Sparge Air and Ozone enter the manifold, each at a controlled flow. Each is equipped with a Check Valve in order to help prevent backflow of air into the ozone line, or ozone into the air line.

10. **Output Valves:** Exiting the manifold are 12 solenoid valves which are controlled by a timer (built into the control system, user-programmable via the HMI control) which permits air/ozone flow to each of the sparge wells (via flowmeters if installed).

Installation

Location & Placement

The Ozone Remediation system is designed to be located on a site outdoors and is designed for almost any climate. Rear section of the trailer is ventilated to exhaust heat from the air compressor and dryer, while the front compartment is climate-controlled to protect critical components and cool the air dryer & ozone generator. The control system has built-in safety measures to prevent equipment damage in the event of extreme conditions.

The Trailer should be located in such a way as to allow full opening of the rear and front doors.

The area around the Trailer should allow for adequate air movement for cooling purposes, especially where air intake and exhaust vents are located.

Electrical Connections

POWER REQUIREMENTS - Maximum continuous load is 68A nameplate, but it will typically run under 60 amps continuous.

MAIN SUPPLY POWER CONNECTIONS - The trailer has its own electrical panel with 100A main breaker (240V single-phase, with neutral required). This is located inside the trailer, passenger side near the back door. The main power wiring can be routed under the trailer and up through the floor under the panel (physical protection as needed). There are also GFCI-protected outlets for convenience, located inside front & back of the trailer.

CONTROLS CONNECTIONS - Inside the Main Control Panel are terminals to allow the use of an external emergency-stop connection. Reference wiring diagram at the end of this manual for further info.

HMI Functions & Operation

Overview

The HMI panel allows access to all automatic functions of the Ozone Remediation System. All of the system components operate automatically, while the HMI panel displays the current status of each part of the system. Various setpoints (to adjust running parameters and alarm parameters) can be adjusted by the operator during shutdown or during operation. The HMI panel also allows manual operation of some of the components.

OVERVIEW Screen - Provides a readout of all system operating conditions as the system runs through normal start-up, shutdown, and alarm sequences. This screen allows the operator to monitor all conditions in one convenient display.

TIMERS Screen – There are 24 timers that can each be set for a length of time, and can each be programmed to operate one or more of the 12 valves. Access individual timer settings via this screen.

ACCUMULATED TIME Screen – Displays OPEN time for each valve (well). Time counted whenever the valve is open and sparging, and within that time it the OZONE-ON time is counted separately. This informs the operator of run-time even when there are alarm conditions preventing ozone production and sparging only with air and oxygen

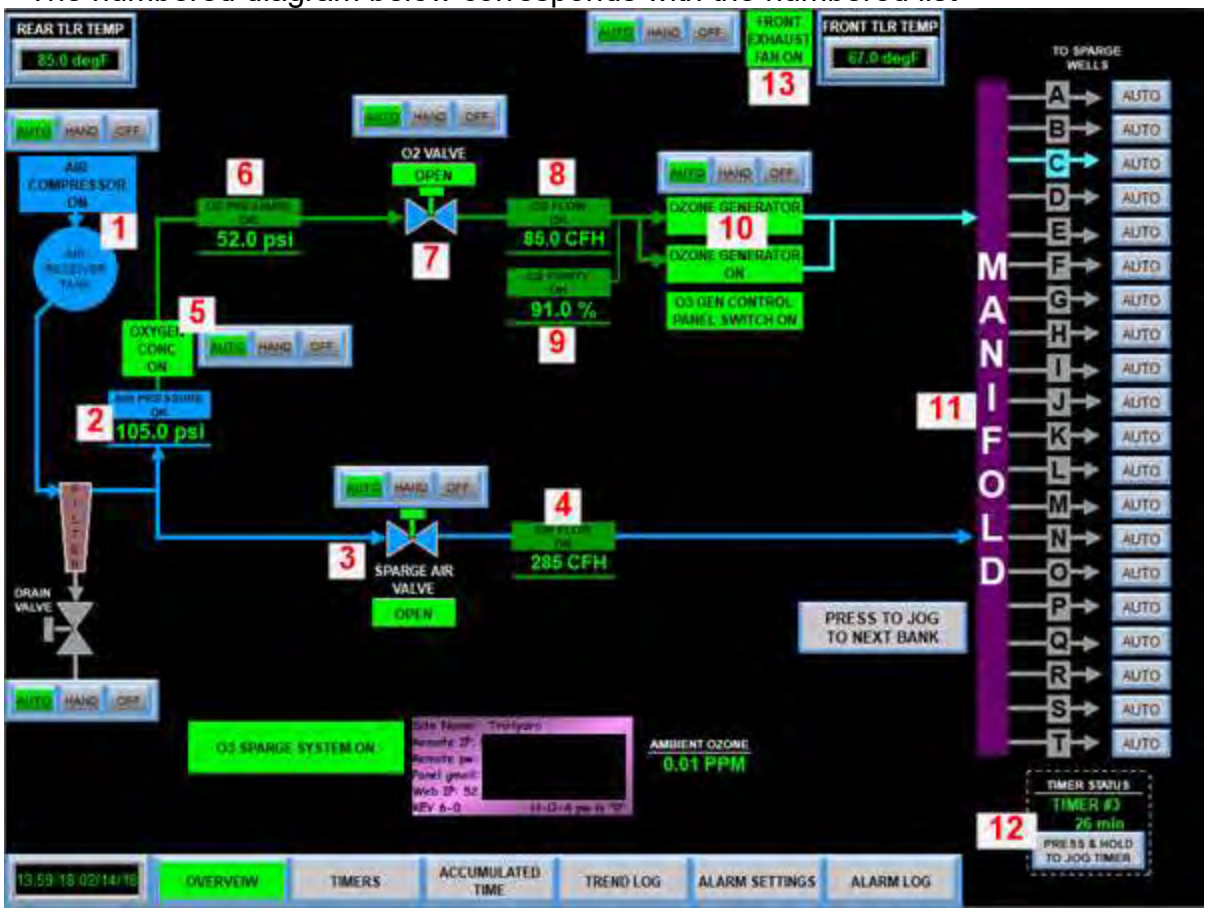
TREND LOG Screen - Provides charts of historical data for the Sparge system including air & O2 pressures, flows, and ambient conditions.

PARAMETERS (ALARM SETTINGS) Screen - Permits viewing and adjustment of alarm setpoints and analog sensor ranges. Normally these values are factory set and no operator adjustment is required.

ALARM LOG Screen – Displays current & previous alarms. Previous alarms will be listed with time-stamp to indicate when it happened, and when it “deactivated”. Current alarms will be highlighted RED and will not show a “deactivated” time.

OVERVIEW Screen

The numbered diagram below corresponds with the numbered list



1. **AIR COMPRESSOR** – Current status of Air Compressor (ON, OFF, or OVER-RIDE). When the system is shut down, the compressor(s) may continue running to maintain air tank pressure. Each compressor has an E-Stop button to shut it down permanently.

2. **AIR STORAGE TANK** – Air pressure in the Air Storage Tank, and displays an alarm condition.

   Air Pressure OK – Air pressure is within the parameters:

   Air Pressure ALARM – Air pressure is below the required pressure (time-de-layed alarm)

3. **AIR VALVE –** Status of Air Valve (ON, OFF, or OVERRIDE).

4. **AIR FLOW –** Sparge air flow to manifold, and then out to the wells.

5. **OXYGEN CONCENTRATOR –** Status of Oxygen Concentrator (ON, OFF or OVERRIDE).

6. **O2 STORAGE TANK PRESSURE –** Current Oxygen Storage Tank pressure and displays alarm condition.

   O2 PRESSURE OK - Oxygen Storage Tank pressure is within the parameters:

   O2 PRESSURE LOW – Oxygen Storage Tank pressure is below the required pressure:

7. **O2 VALVE -** Status of oxygen valve (ON, OFF, or OVERRIDE).

8. **O2 FLOW –** Flow of oxygen through the ozone generator and then manifold, and then out to the wells.

9. **O2 PURITY –** Purity of oxygen produced by the concentrator. This value may vary with oxygen pressure, but a general downward trend (over the course of days/weeks) may indicate maintenance required.

10. **OZONE GENERATOR –** Status of Ozone Generator (ON, OFF, or OVERRIDE).

11. **AIR/OZONE MIXING MANIFOLD –** Status of valves exiting manifold out to wells – which valve is open (valve A, valve B, etc.), whether a manual override is enacted, or if all valves are closed.

12. **TIMER Status –** Displays which timer is running, and current minutes for that timer.

TIMERS Screen

This screen has buttons to access each of the Matrix Timer settings screens. As space allows, it may also contain the accumulated time for each valve output – details for this function are described in the next section of this document.

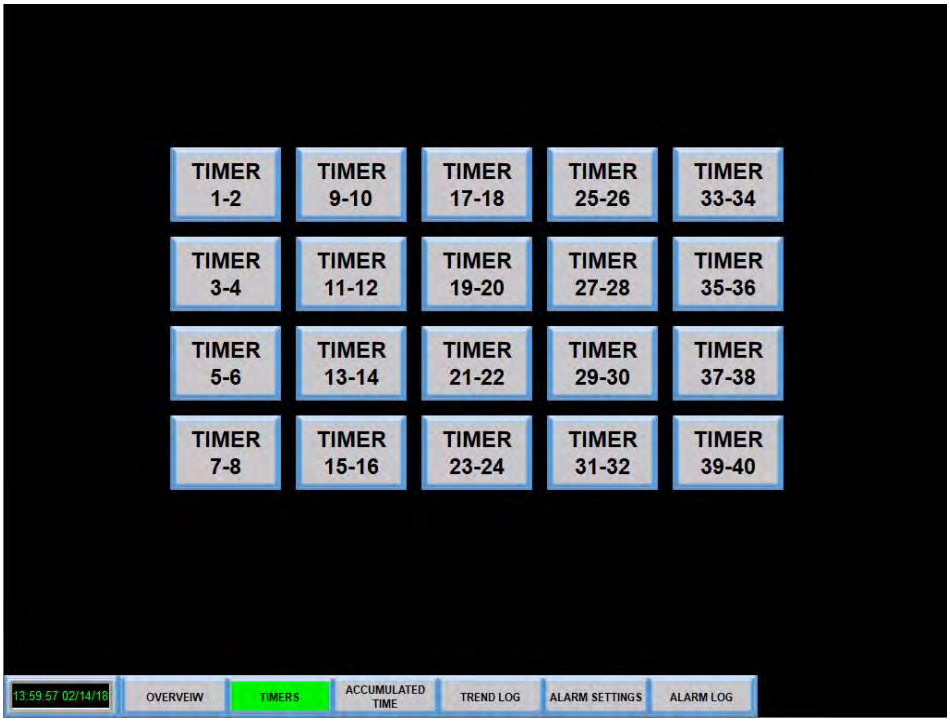
Matrix Timer Theory of Operation

The timer's primary purpose is to control the valves on the manifold, opening the valves according to user-programmable settings. There are 24 separate timers which run in sequence, each with its' own time setting. There are 12 valves, each of which can be set to open with any of the 20 timers. In this way the system is incredibly flexible in terms of which sparge points run together, and for what lengths of time.

The matrix timer is running whenever other system parameters call for sparging flow (normal sparging, system purging, etc.). Whenever the matrix timer is running, the valves which are set to "Y" for the current step will be ON. (See description on the next page).

Think of the matrix timer as a series of "steps". Each step timer is a row across the screen. The step timers run in a continuous sequential cycle whenever sparging needs to occur.

From this screen you can select which timer to access in order to adjust settings. (There are two timers on each of 12 screens)



Adjusting the Timer Settings

In the upper-left corner of all timer screens is an indicator common to all timer screens. It shows which timer is currently running, also contains a button which allows you to advance the system to the next timer in the cycle. This does not adjust any settings, it only jogs the timer forward.

In the lower-left corner are buttons which allow you to access previous/next timer screen for easy access.

Each step timer can be set to its' own amount of time. To adjust the timer setting, touch the **PRESET** to reveal a numeric entry keypad, where you can enter desired minutes setting.

Each timer can be set to turn **ON** any of the valves. To activate a valve, touch the **Y/N** button for that valve. Whenever that timer is **ON**, all valves with **Y** will be **OPEN**.

Immediately above the **Y/N** button is an indicator to show which valves are **currently ON/OFF**. This is only an *indicator* of current status with whichever timer is currently running (does not show "settings" rather it shows actual operation at the moment).

In this example of **TIMERS 3-4** screen:

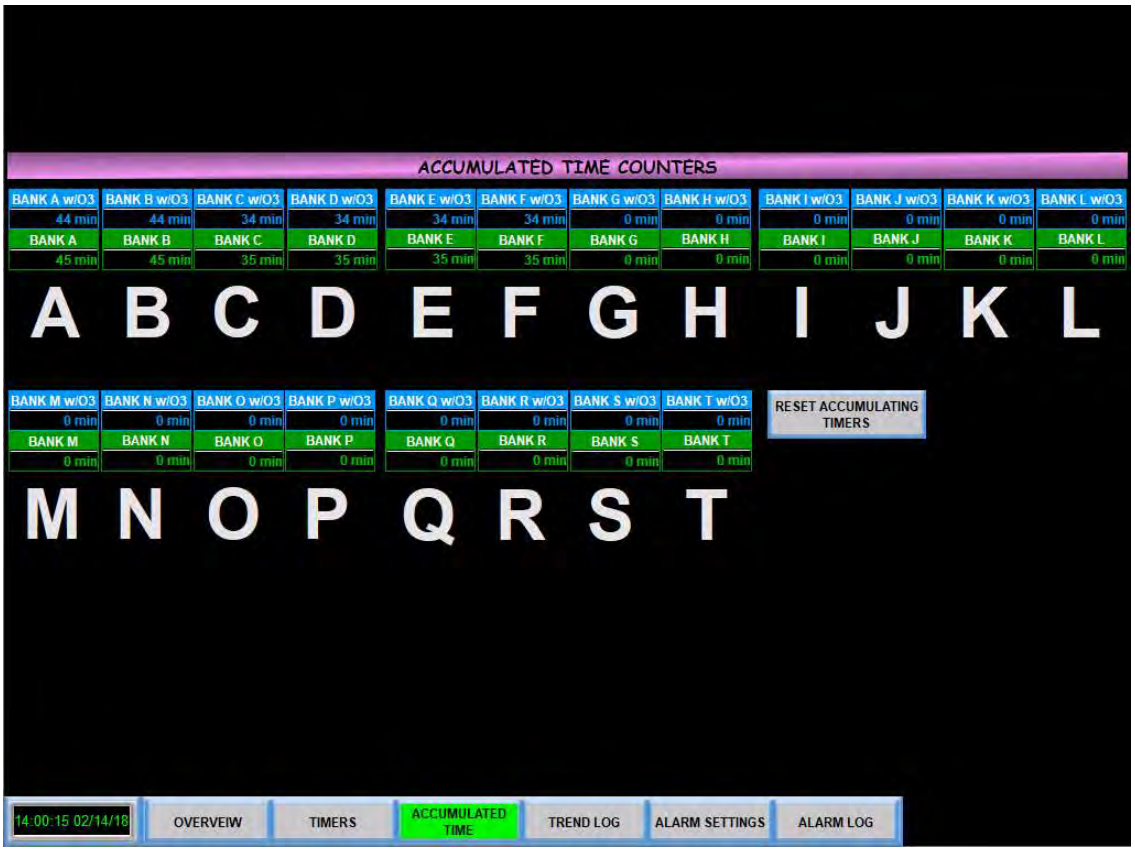
- **Timer #1** is currently running and has counted up to **13 minutes**.
- The green **A-ON** indicator shows that **valve A** is currently **open**.
- **Timer #3** is set to run for **25 minutes**, and **only valve B** will be open during timer #3
- **Timer #4** is set to run **5 minutes**, and **valve B and C** will both be open during timer #4.

ACCUMULATED TIME Screen

This screen displays OPEN time for each valve (well). Time is counted whenever the valve is open and sparging, and within that time it the OZONE-ON time is counted separately. This informs the operator of run-time even when there are alarm conditions preventing ozone production and sparging only with air.

The accumulator data is logged in the form a *.csv file which is updated hourly, additionally a captured *.jpg image of the screen is updated every 15 minutes. The logged data is written to a user-installed USB memory device.

The values can be RESET by pressing the RESET ACCUMULATING TIMERS button. This pulls up a confirmation where you can chose to either reset ALL timers, or individual timers.



Remote Monitoring and Control via the Internet

The HMI panel is accessible via the internet if configured properly as described in the "Installation" section of this manual. The steps for use of this feature are as follows:

A. Web Browser Interface

This can be used to view screenshots, download logged data, or download the Remote Access app using a standard web browser (Firefox, Chrome, etc.)

1. In a web browser, enter IP address provided by Oxidation Technologies.
2. This will take you to the "Home" page of the HMI panel. The following links are in yellow font:
   - **File List** shows a list of the most recent logged files. Right-click and select "Save As" in order to download the file. The file is in *.csv format, and when opened using a spreadsheet program (such as Excel) the data may be easily viewed.
   - **Screen List** shows a list of screen images (for viewing only, not control). When you select a screen, a snapshot of that screen at that moment will appear (it is not "live"). Hit F5 to update.
   - **Remote Access** page has an app that can be downloaded, and then used for full remote control the machine. See "Remote Access" instructions for specifics.
3. Download logged data
   - In the web browser, add /USB/Log/ to the address, so it looks like this http://111.222.333.444:98765/USB/Log/ and then log-in if necessary. You will find a list of files which can be opened in your browser for viewing, and then data can be copied & pasted into a spreadsheet.
   - Data can also be downloaded via FTP by typing ftp://111.222.333.444:98765 into a web browser, or more conveniently using FileZilla (free) or similar software.
4. Default login (for all functions)
   - Username: HMI1
   - Password: 1234
   - Some sites are pre-configured by Oxidation Technologies and may have different login/pw – contact us for details.
   - The username and password can be modified upon request – contact us for a program update if needed.

B. Remote Access App

The "Remote Access" feature allows full control of the HMI panel functions on your computer via the Internet, as though you are actually at the panel. The feature requires that a small application be run on your computer. The application can be downloaded from the HMI panel via the internet.

NOTE: The "Remote Access" feature allows the machine to be controlled from off-site as though standing at the machine. This means that if personnel are on-site working on equipment, they need to be made aware of the possibility that an off-site user could interfere with their work. One way of preventing control from off-site while working on equipment is to physically disconnect the Ethernet cord from the HMI panel temporarily.

1. Follow the "**Web Browser Interface"** instructions (above) in order to locate the Remote Access page.
2. To download the link, click "**2. With Firewall/Router Connection...**"
3. Your computer will ask if you want to RUN or SAVE a file. Select "SAVE", and store the file in a location on your computer where you can access it in the future. The application file you saved will be named similar to this, although it may contain different numbers:

   RemoteHMI_IP=[52.37.25.8_11102].exe

4. The name of the file must contain the IP address of the panel. If it does not, you must "rename" the file using Windows Explorer. In the following example, the file is renamed to connect to a panel at the IP address 11.22.333.444 via port 20303

   EA-CON_IP=[11.22.333.444_20303].exe

5. Once the name is correct, run the application by right-clicking and selecting "Run". The program will open and connect to the screen. Enter the username & password.
6. The program window will display the current view on the HMI panel. Use your mouse pointer to control the HMI panel as though you are at the machine.
7. Once this configuration is complete you can access the panel directly in the future by simply running the app.

NOTE: The panel allows two remote users to be connected simultaneously. If more users are required, contact Oxidation Technologies.

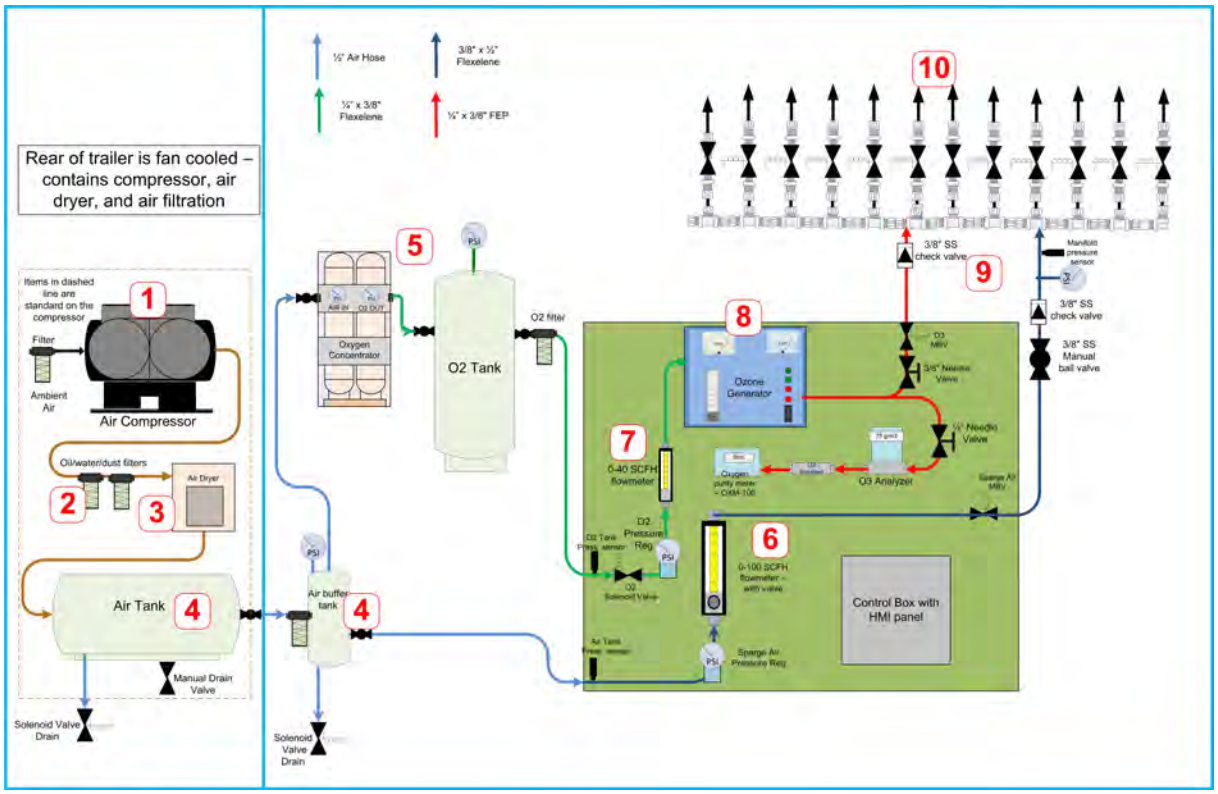
Operating Procedures

Overview

After the system is properly configured, start-up and shutdown of the system is very simple from an operator standpoint, and very little operator intervention is required. The operator turns the SYSTEM switch to RUN, and from there the operation is completely automatic.

The automated control system will function to operate the entire Ozone Remediation Trailer and protect system components from such things as low air pressure, low oxygen pressure, high temperature, and ozone leaks. The sensors within the Ozone Trailer protect the system components and monitor the operating environment (provided that none of the components are manually overridden).

The schematic below shows how there are essentially three sections to the system. Two of the sections – "Air & Oxygen Preparation" and "Sparge Well Delivery", basically operate in sequence with each other. If the Air & Oxygen Preparation is fully operational and no alarms exist then the Sparge Well Delivery can start. The third section involves "Ozone Generation". When the first two sections are fully operational, the third can operate by beginning ozone production.



Operator Startup

NOTE: If start-up does not occur as expected, refer to the "Configuration" or "Alarms & Troubleshooting" sections in this manual.

- Ensure all manual ball valves are open for air, oxygen, and ozone flow.
- Ensure the control switches on Oxygen Concentrator control panel are set to "ON", "AUTO" or "CONTINUOUS".

- The OVERVIEW SCREEN should be visible on the HMI Control Panel.
- Turn SYSTEM switch (on the Main Control Panel) to ON, and/or close external contacts.
- After a short delay, the Air Compressor(s) should start. Observe the AIR STORAGE TANK pressure; it should quickly increase to at least 90 PSI.
- Ensure that the AIR DRYER DEW POINT LEVEL remains in the safe level. The dewpoint indicator should NEVER be HIGH after the system starts.
- Oxygen Concentrator should start. Observe the O2 STORAGE TANK pressure; it should increase to at least 20 PSI after a few minutes. It may take 15 minutes or longer for oxygen pressure to increase the normal running pressure of at least 45 PSI.
- After adequate air and oxygen pressure are established, the Sparge Air Valve will open. The appropriate well-output valve will also open, controlled by the timer. (if no valves are programmed, system will default to valve "A")
- "Break-through" pressure for each well will be higher than normal running pressure, as a result the flow may be lower than expected for a few minutes. The flow should increase to expected levels (as indicated by each flowmeter assembly). Ensure that flow is indicated on both the AIR and OXYGEN flowmeters. As a starting point, set both flows for half of the flowmeter range.
- After a delay of a few minutes (exact time delay depends on start-up conditions), the Ozone Generator will start.

- While the Ozone Generator is running, Ozone Concentration and Ozone Production are dependent on oxygen flow, oxygen pressure, and the setting of the Ozone Generators' variable output. Power feedback (measured in amps) on the HMI screen displays ozone generator power to verify ozone production.

Operator Shutdown

- Turn the SYSTEM switch to OFF.
- Allow the system to run through the automatic shutdown sequence.
- When the panel indicates SYSTEM OFF, the shutdown sequence is complete.

Alarms and Troubleshooting

Alarms affecting system operation

REAR TLR TEMP HIGH Alarm

Maximum Rear Trailer Temperature is 95°F, as required for safe equipment operation. The air temperature sensor, located on the rear of the Trailer near the compressor intake, monitors the temperature.

Setpoint: 99°F

Hysteresis: 3°F

Alarm Delay: 10 seconds

Alarm Reset Delay: 0 seconds

Alarm Condition: Temperature is above the setpoint. The system will shut down until the temperature drops below 950°F.

Possible Causes for Alarm Condition:

- Rear trailer air intake grilles clogged.
- Hot air leaking from compressor enclosure or exhaust.
- Outdoor temperature is excessive.

- REAR TRAILER RH HIGH Alarm

  Maximum (ambient) Rear Trailer Humidity is 95%, to prevent moisture damage to several system components. The humidity sensor, located on the rear of the Trailer near the rear control box, monitors the humidity.

  Setpoint: 95% RH

  Hysteresis: 5% RH

  Alarm Delay: 1 minute

  Alarm Reset Delay: 0 seconds

  Alarm Condition: Relative Humidity is above the setpoint. The Ozone System will shut down until the humidity drops below 90%.

  Possible Causes for Alarm Condition:

  - Humid weather – rainy, foggy, or misting conditions.
  - Standing water in or near the Trailer.

FRONT TLR TEMP HIGH Alarm

Maximum Front Trailer Temperature is 95°F, as required for safe equipment operation. The air temperature sensor, located on the wall next to the Main Control Panel, monitors the temperature.

Setpoint: 85°F

Hysteresis: 10°F

Alarm Delay: 10 seconds

Alarm Reset Delay: 0 seconds

Alarm Condition: Temperature is above the setpoint. The Ozone Generators will shut down and the Front Trailer Fan will run until the temperature drops below 75°F.

Possible Causes for Alarm Condition:

- Front door of trailer is open and the air conditioner is unable to maintain temperature.
- Recent ozone leak resulting in Front Trailer Fan running and allowing warm outside air in.
- Outdoor temperature is excessive.
- Air conditioner evaporator coil is frozen or there is an air conditioner failure.

AIR STORAGE TANK PRESSURE LOW Alarm

Minimum pressure is 90 PSI, as required for Oxygen Concentrator operation. The air pressure sensor, located on the Air Storage Tank below the Air Compressor, monitors this pressure.

Setpoint: 90 PSI

Hysteresis: 10 PSI

Alarm Delay: 99 seconds

Alarm Reset Delay: 0.01 seconds

Alarm Condition: Air Storage Tank Pressure is below the setpoint. The Oxygen Concentrator will shut down until pressure reaches 100 PSI (90 setpoint +10 hysteresis) for at least 0.01 seconds.

Possible Causes for Alarm Condition:

- Manual ball valve is closed.
- Air filter requires maintenance.
- Air leak.
- Oxygen Concentrator consuming excessive air due to oxygen flow setpoint is too high – decrease setpoint.
- Oxygen Concentrator consuming excessive air due to low oxygen pressure – allow oxygen pressure to increase by temporarily lowering oxygen flow.
- Oxygen Concentrator consuming excessive air due to Oxygen Concentrator failure.

OXYGEN PRESSURE LOW Alarm

Minimum Oxygen Pressure is 40 PSI, as required to prevent oxygen concentrator damage. The oxygen pressure sensor, located immediately prior to the OXYGEN PRESSURE REGULATOR, monitors this pressure.

Setpoint: 40 PSI

Hysteresis: 2 PSI

Alarm Delay: 0 seconds

Alarm Reset Delay: 0 seconds

Alarm Condition: Oxygen Pressure is below the setpoint. The Ozone Generators will shut down until pressure reaches 42 PSI.

Possible Causes for Alarm Condition:

- Manual ball valve closed.
- Oxygen Concentrator local switch is OFF.
- Oxygen flow is set too high, concentrator cannot maintain pressure.
- Inadequate air supply to Oxygen Concentrator – low air pressure, closed valve, or other air problem.
- Oxygen leak.

OZONE LEAK Alarm

Ozone Sensor located in the front Trailer compartment indicates ozone level in the front of the Trailer and alerts the Control System of excessive ozone levels.

Setpoint: 0.30 PPM Ozone

Hysteresis: 0.15 PPM Ozone

Alarm Delay: 0 seconds

Alarm Reset Delay: 5 seconds.

Alarm Condition: Excessive ozone levels exist in the front Trailer compartment. The Ozone Generators will shut down and the Front and Rear Trailer Exhaust Fans will run until the ozone level is lowered to less than 0.15 PPM.

Possible Causes for Alarm Condition:

- Excessive ozone levels **outside** the Trailer may have drifted into the front Trailer compartment.
- Ozone Leak inside the front of the Trailer. To diagnose, start with process of elimination. Between each test, allow the ozone level in the front of the Trailer to drop below the alarm level, then:

  - To eliminate possible internal Ozone Generator leak: Turn off *one* Ozone Generator using the switch located on the Ozone Generator, and allow the system to run and determine if the ozone leak still exists. Do this with all generators.

  - Determine if the leak is limited to one particular valve: Record current timer settings and then set each timer to 999 minutes in order to eliminate possible automatic switching. Manually cycle through one valve at a time, allowing each valve to run for at least 10 minutes *with ozone production.* (Set timers back to previous settings when finiTrailer).

  - If a leak occurs with *any* valve running, the leak is in between Ozone Generators and solenoid valves (on Air/Ozone Mixing Manifold).

  - Determine if the leak is limited to one particular Flowmeter Assembly:

- While counting number of turns to close (so that settings can be returned to normal after testing), close all flowmeter needle valves, except one.

- Allow the system to run (ensure that the appropriate valve is open), opening one needle valve at a time every 5-10 minutes until the leaking flowmeter is found.

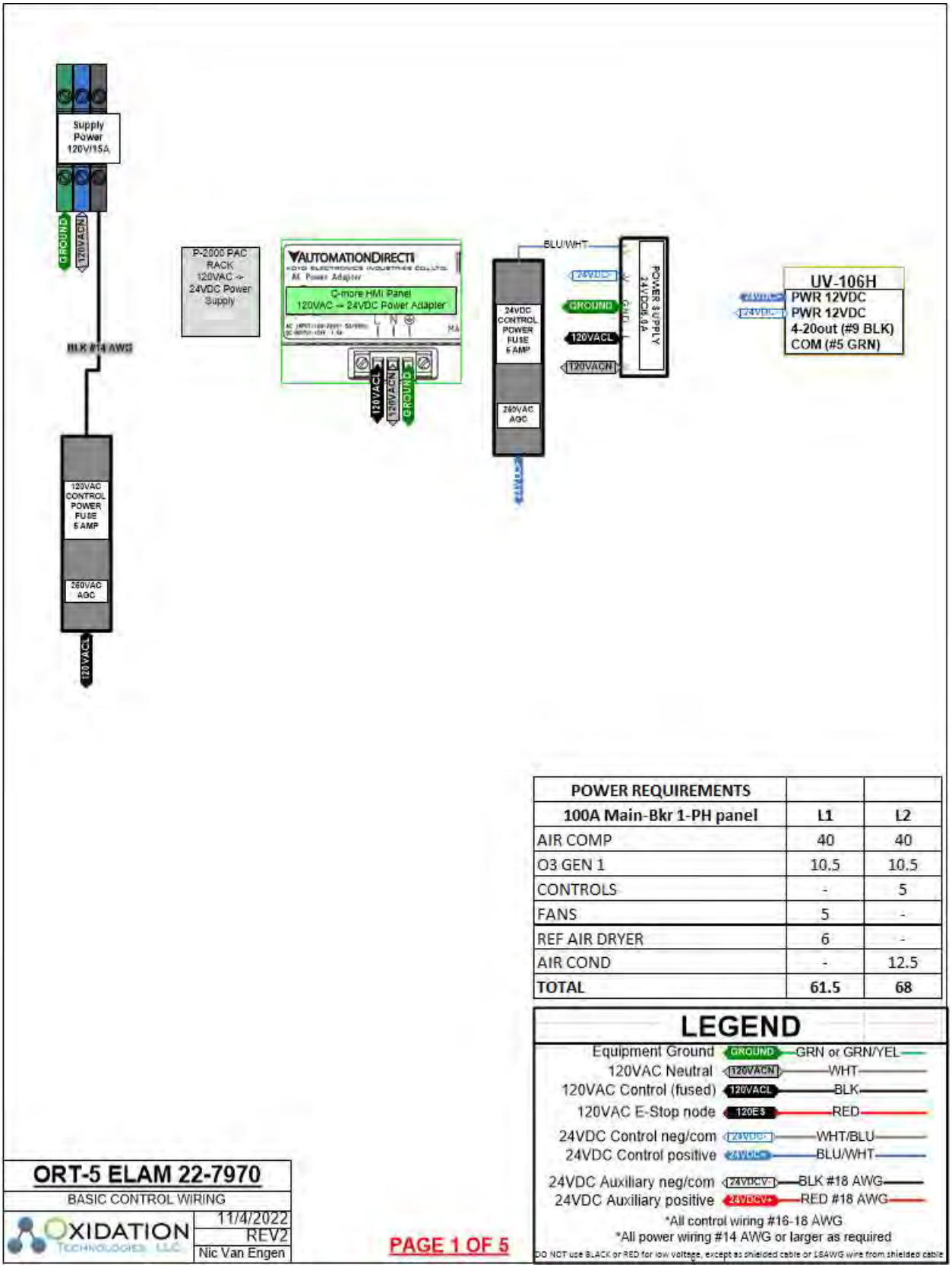
- If a leak occurs with numerous flowmeters, the leak precedes flowmeter needle valves.

- If the leak is related to one Flowmeter Assembly, then the leak is between needle valve and bulkhead connection at the Trailer wall.

  - If a particular Flowmeter Assembly is not found to be leaking, use soapy water to check all connections from the solenoid valve to the Flowmeter and from the Flowmeter to each ozone out connection.

  - If process of elimination does not locate the leak, a **hand-held Ozone Sensor** may be useful in pinpointing the area of the leak. When using an Ozone Sensor to find a leak, bear in mind that the response time of the sensor and small amounts of air movement around the leak may affect readings. Also, ozone can be “absorbed” by clothing and other objects, which will affect readings as well.

Electrical Control Wiring Schematic



POWER REQUIREMENTS		
100A Main-Bkr 1-PH panel	**L1**	**L2**
AIR COMP	40	40
O3 GEN 1	10.5	10.5
CONTROLS	-	5
FANS	5	-
REF AIR DRYER	6	-
AIR COND	-	12.5
TOTAL	**61.5**	**68**

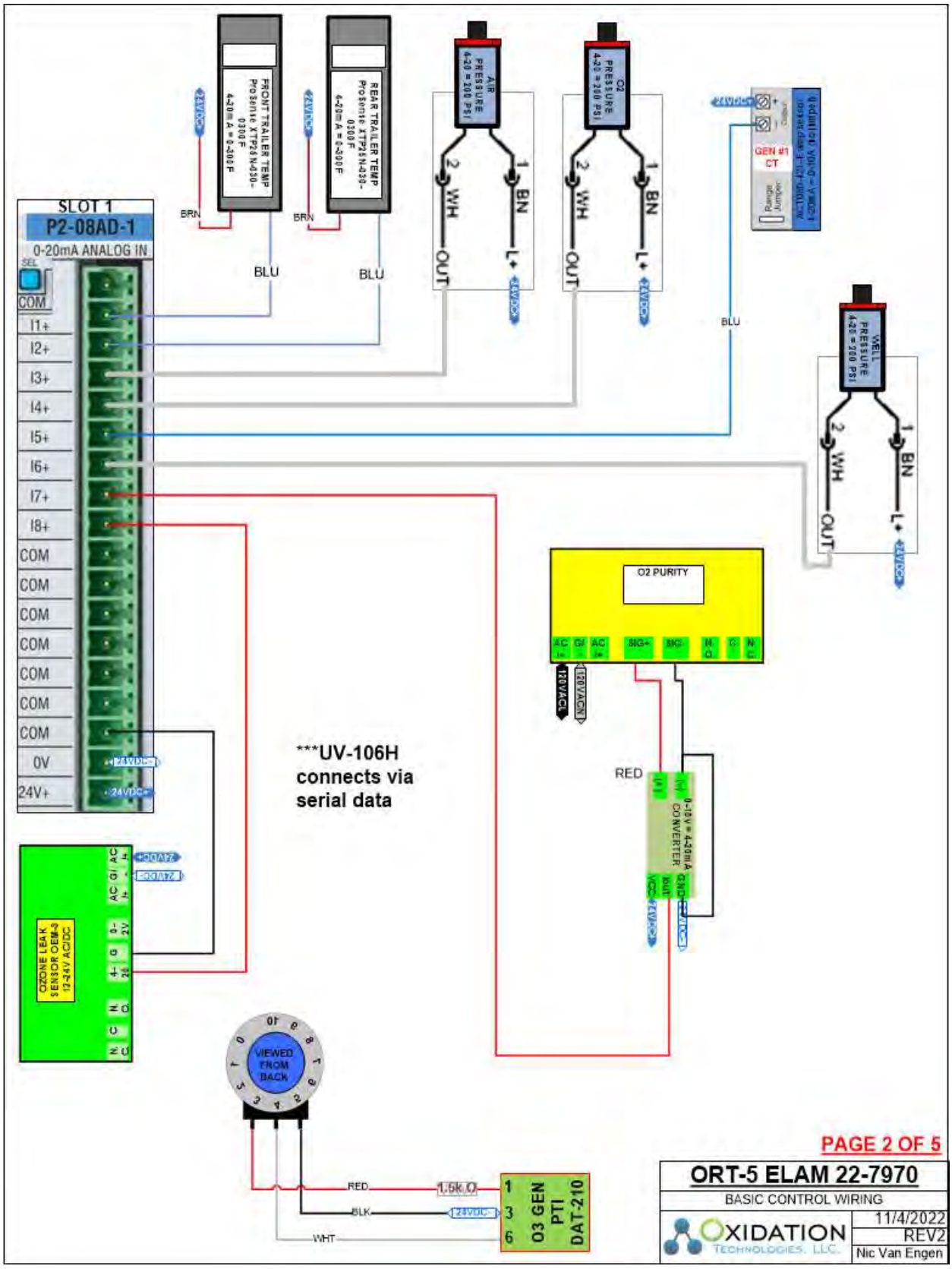
LEGEND

Equipment Ground (GROUND)	GRN or GRN/YEL
120VAC Neutral (120VACN)	WHT
120VAC Control (fused) (120VACL)	BLK
120VAC E-Stop node (120ES)	RED
24VDC Control neg/com (24VDC-)	WHT/BLU
24VDC Control positive (24VDC+)	BLU/WHT
24VDC Auxiliary neg/com (24VDCV-)	BLK #18 AWG
24VDC Auxiliary positive (24VDCV+)	RED #18 AWG

*All control wiring #16-18 AWG
*All power wiring #14 AWG or larger as required
DO NOT use BLACK or RED for low voltage, except as shielded cable or 18AWG wire from shielded cable

ORT-5 ELAM 22-7970
BASIC CONTROL WIRING
OXIDATION TECHNOLOGIES LLC
11/4/2022
REV2
Nic Van Engen

PAGE 1 OF 5



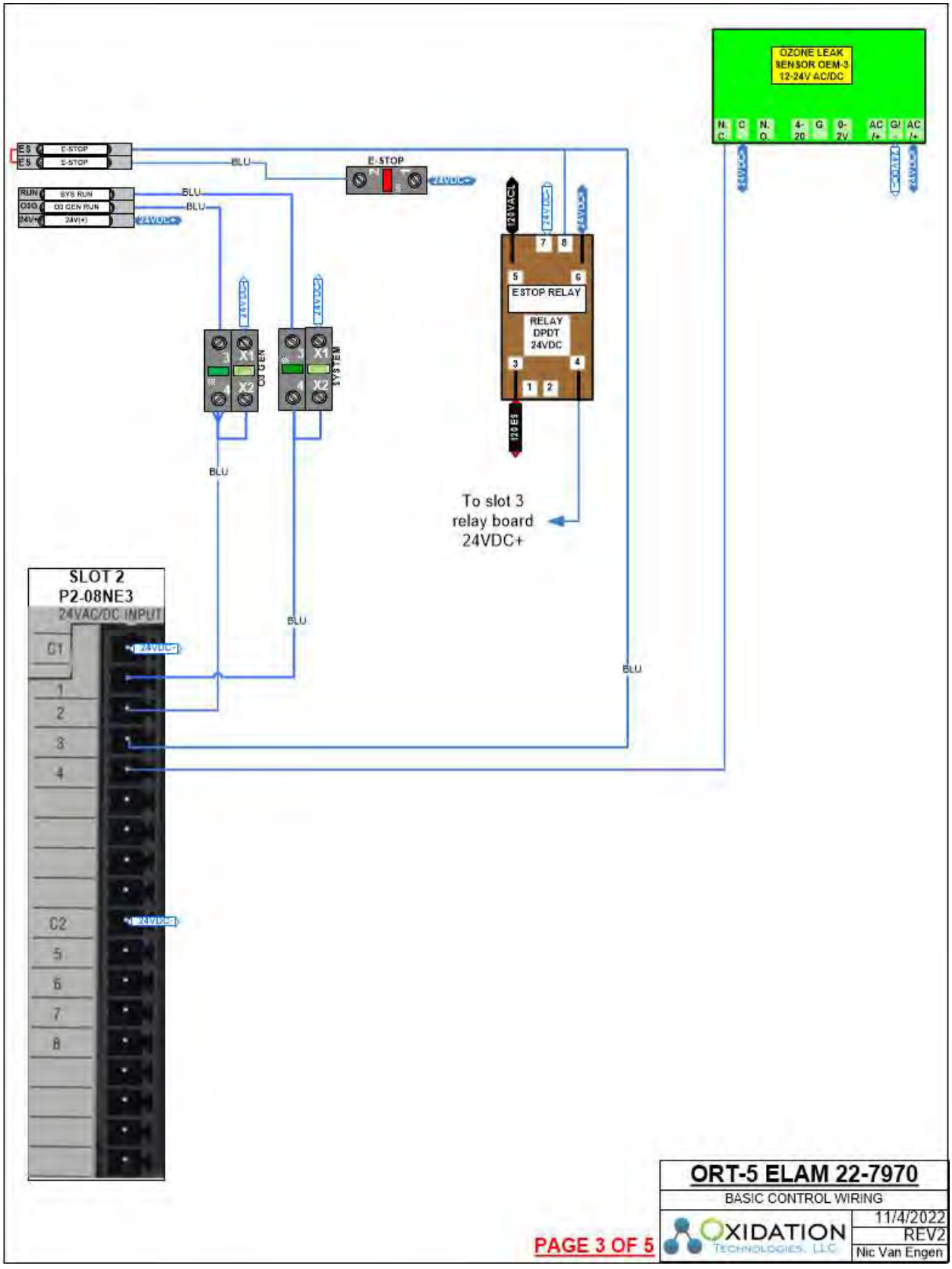
PAGE 2 OF 5

ORT-5 ELAM 22-7970

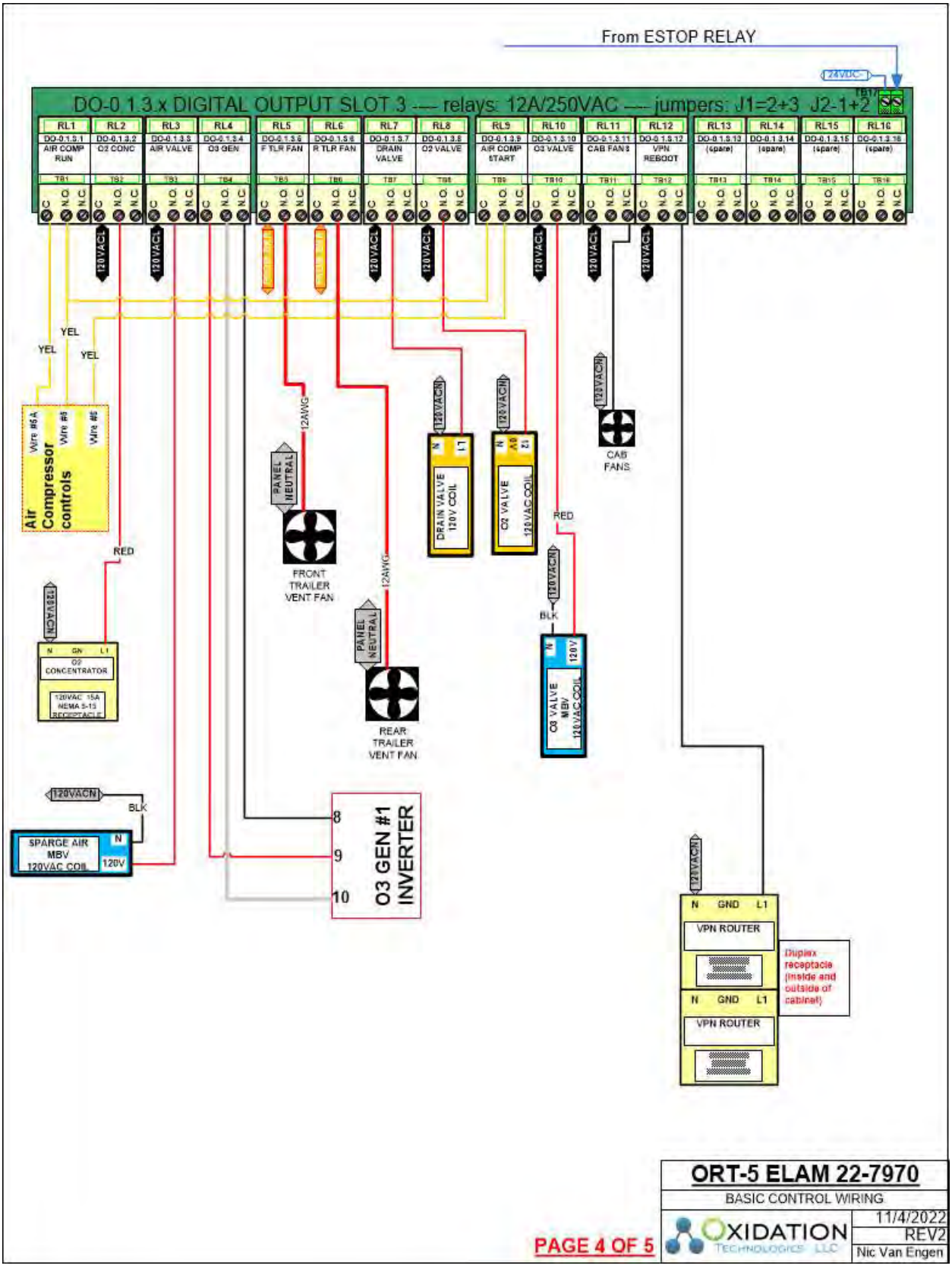
BASIC CONTROL WIRING

OXIDATION TECHNOLOGIES, LLC.

11/4/2022
REV2
Nic Van Engen


OZONE LEAK SENSOR OEM-3 12-24V AC/DC
N. C.
C
N. O.
4-20
G
0-2V
AC /+
G/ -
AC /+
E-STOP
E-STOP
E-STOP
SYS RUN
O3 GEN RUN
24V(+)
BLU
BLU
BLU
24VDC
24VAC
ESTOP RELAY
RELAY DPDT 24VDC
To slot 3 relay board 24VDC+
O3 GEN
SYSTEM
X1
X2
SLOT 2
P2-08NE3
24VAC/DC INPUT
C1
C2
ORT-5 ELAM 22-7970
BASIC CONTROL WIRING
OXIDATION TECHNOLOGIES, LLC
11/4/2022
REV2
Nic Van Engen

PAGE 3 OF 5



ORT-5 ELAM 22-7970

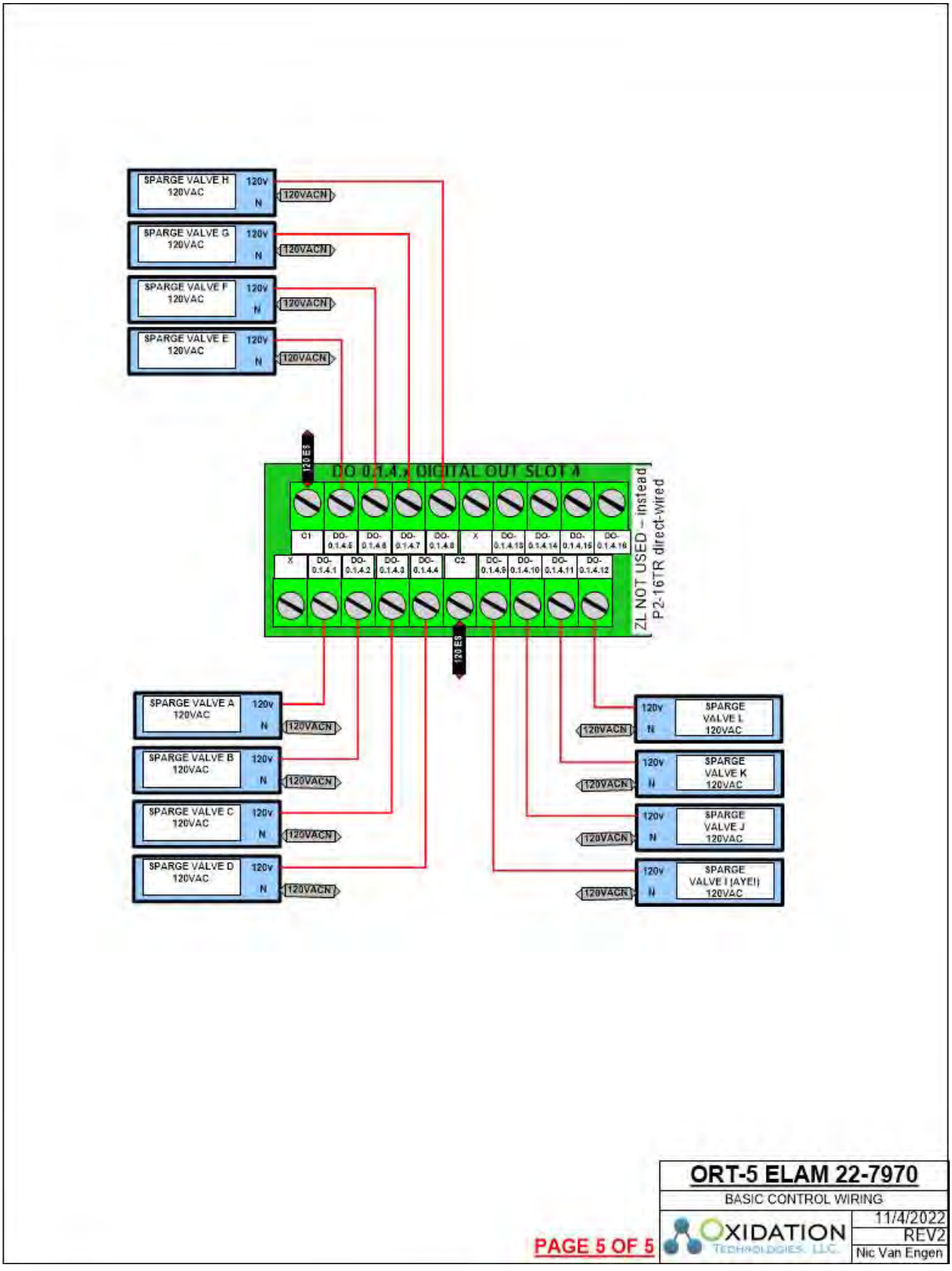
BASIC CONTROL WIRING

OXIDATION TECHNOLOGIES LLC

11/4/2022

REV2

Nic Van Engen


SPARGE VALVE H 120VAC
SPARGE VALVE G 120VAC
SPARGE VALVE F 120VAC
SPARGE VALVE E 120VAC
120v
N
120VACN
DO 0.1.4.x DIGITAL OUT SLOT 4
ZL NOT USED – instead P2-16TR direct-wired
SPARGE VALVE A 120VAC
SPARGE VALVE B 120VAC
SPARGE VALVE C 120VAC
SPARGE VALVE D 120VAC
SPARGE VALVE L 120VAC
SPARGE VALVE K 120VAC
SPARGE VALVE J 120VAC
SPARGE VALVE I (AYE!) 120VAC
ORT-5 ELAM 22-7970
BASIC CONTROL WIRING
11/4/2022
REV2
Nic Van Engen
OXIDATION TECHNOLOGIES, LLC.
PAGE 5 OF 5

Personal Safety and Equipment Damage Concerns

Flushing ozone from the system

Safety warnings regarding ozone gas are found at the beginning of this manual. The Ozone Remediation System produces a large amount of ozone, which can be inadvertently "stored" within the Ozone Generators, manifolds, and ozone lines.

> *NOTE: In most circumstances, a very small amount of ozone will be contained within the system after shutdown and therefore exposure will be minimal.*

Eventually the ozone (even while in the system) will safely revert back to oxygen, but in the right conditions the ozone can remain in the system for 24 hours or even longer. In the event that maintenance must be performed on the components in contact with ozone, the following is recommended for reducing the possibility of exposure to the ozone:

- Whenever possible it is recommended that the machine run with maximum permissible air and oxygen flow for at least 10 minutes with the Ozone Generator OFF in order to flush out residual ozone.

- If the machine cannot be operated prior to maintenance or repair, a waiting period of 12 to 24 hours (if ozone has been produced recently) is recommended to allow the ozone to decay by reverting back into oxygen.

Isolating energy sources

The Ozone Water Remediation Trailer has electrical and mechanical hazards, and maintenance or repair should not take place unless all energy sources have been turned off, disconnected, and/or drained. Energy sources include, but are not limited to:

- Electrical power
- Air Storage Tank
- Oxygen Storage Tank
- Oxygen Concentrator sieve beds
- Ozone Generator internal capacitors

Equipment Damage Concerns during normal operation.

With normal use of the system as instructed by Oxidation Technologies and as outlined in this manual, the Ozone Water Remediation Trailer is monitored and protected to prevent damage to equipment. Even with these protective measures, it is possible to cause equipment damage in the event of operator error or lack of maintenance:

Component	Cause/Failure	Effect
Oxygen Concentrator		
	Operating the system with malfunctioning or dirty compressed air filters	Shortened sieve bed life, lower oxygen concentration, lower oxygen flow - see also Air-Sep Oxygen Concentrator OM
	Operating the system with oxygen flow beyond the capacity of the Oxygen Concentrator (maximum capacity of the AS-D is 90SCFH/42SLPM	Shortened sieve bed life, lower oxygen concentration, lower oxygen flow - see also Air-Sep Oxygen Concentrator OM
Ozone Generators		
	Allowing water to back-up through the system and enter the Ozone Generators, by allowing check valves to become stuck open or removing check valves.	Ozone Generator failure. Solenoid valve and/or Flowmeter clogging.
	Allowing the Ozone Generators to run while the Oxygen Concentrator is damaged or not maintaining >85% purity	Ozone Generator failure.
Air Compressor		
	Low oil or lack of filter maintenance	Compressor failure
	Lack of ventilation filter maintenance, allowing the compressor to run in extreme heat conditions (normally protected by sensor)	Compressor or other rear trailer component failure due to heat. Moisture in compressed air causing O2, O3 gen., flowmeter and solenoid valve damage

Maintenance

Overview

Some of the individual components will require periodic maintenance and/or calibration, please reference the individual component manuals for information. Components requiring maintenance includes, but may not be limited to:

- Air Compressor
- Refrigerant Air Dryer
- Compressed Air Filters
- Oxygen Concentrator
- Solenoid Valves
- Flowmeters
- Check Valves
- Ozone Leak Sensor

Maintenance Schedule

Maintenance to other components on the Ozone Remediation Trailer are described in the following Maintenance Schedule:

Machine	Part #	Description	Monthly	Quarterly	Annually	As-needed
Air Comp 7.5hp	22421853	Package air filter	clean	clean	replace	
Air Comp 7.5hp	23846264	Inlet valve kit (older models 38341723)		test		x
Air Comp 7.5hp	88171913	Inlet air filter (or 89243778?)		replace		
Air Comp 7.5hp	23134968	Minimum press valve kit (assy 23410806)		test		x
Air Comp 7.5hp	22282024	Thermal valve (also have retrofit kit 23157241 available)		test		x
Air Comp 7.5hp	22124085	Blowdown valve		test	16000hrs	
Air Comp 7.5hp	54774302	Pilot valve		test	16000hrs	
Air Comp 7.5hp	23681604	HATS switch				x
Air Comp 7.5hp	54410931	Condensate drain valve ***NOTE: can retrofit other 110V valve	test	clean	16000hrs	
Air Comp 7.5hp	NAPA 1261	coolant filter 39329602		replace		
Air Comp 7.5hp	NAPA P26A734	separator cartridge, clean scavenge screen 22388045		replace		
Air Comp 7.5hp	85560274	main air hose		inspect	16000hrs	
Air Comp 7.5hp	24279127	oil hose x1		inspect	16000hrs	
Air Comp 7.5hp	24279135	oil hose x2		inspect	16000hrs	
Air Comp 7.5hp	motor grease	If greasable motor bearings then 1/2 pump every 2 years		inspect	16000hrs	
Air Comp 7.5hp	89306294	7.5 hp belt (leave used as spare on-site)		inspect	replace	
Air Comp 7.5hp	Ultimate-8000	coolant (holds 1.2 gallons)	check	inspect	replace	
Air Comp 7.5hp	24241952	air filter GP		replace		
Air Comp 7.5hp	24241960	air filter HE		replace		
Air Comp 7.5hp	23012313	air filter - control air		inspect		x
Air filter (front)	MSP-96-649	Replace filter 0.5mic		replace		
Air tanks	SV-4-B	test/clean drain valve 120VAC x2		test	rebuild	
AS-B	FRP-95-115	Air-In filter primary		replace		
AS-B	MTP-95-549	Air-In filter secondary		replace		
AS-B	SV-4-B	Condensate drain 1/8" EPDM or PVDF 120VAC	test	clean	inspect	x
AS-B	VA089-1 (304817)	Feed valve qty. 2		test	rebuild	
AS-B	VA096-1 (302272)	EQ valve qty. 2		test	rebuild	
AS-B	VA096-1 (302272)	Waste valve qty. 2		test	rebuild	
AS-B	VA044-1	Check valve x2		test	inspect	x
AS-B	SV-4-B	Product valve 1/8" EPDM or PVDF 120VAC		test	inspect	x
AS-B	XP-Molecular Sieve	Replace if dusting or low purity - 65lbs		test		x
O2 valve	GZ-RK-E0V1	O2 valve - replace diaphragm		test	rebuild	
O2 filter	MTP-96-648	Replace filter		replace		
O2 pressure reg	Norgren PR repair kit	inspect diaphragm		test		x
O3 valve	AC2CW	MBValve - inspect - clean or repair as needed		test		x
Sparge air press reg	Norgren PR repair kit	inspect diaphragm		test		x
Sparge air valve	AC2CW	MBValve - inspect - clean or repair as needed		test		x
leak sensor	SM-3-1.0	bump-test quarterly, replace annually		test		x
manifold	AC2CW	MBValve - replace O-rings every 1-3 years		test		x
manifold	CHK-6SV	replace sparge manifold check valves (2 locations)		inspect	replace	
manifold	KF 10-6-6-KPG	kynar fittings on manifold and ozone lines		inspect		x

Specifications

Electrical Requirements:

Voltage: 120/240V 1-phase 4-wire

Full Load Amperage: ~68A (maximum)

Minimum circuit ampacity: 100A

Ozone Production:

5.5 lbs/day (103 g/hr) Maximum ozone production

Environment:

Temperature (Operating): 0°F to 95°F (outdoors)

Temperature (Storage): 32°F to 120°F

Contact Information

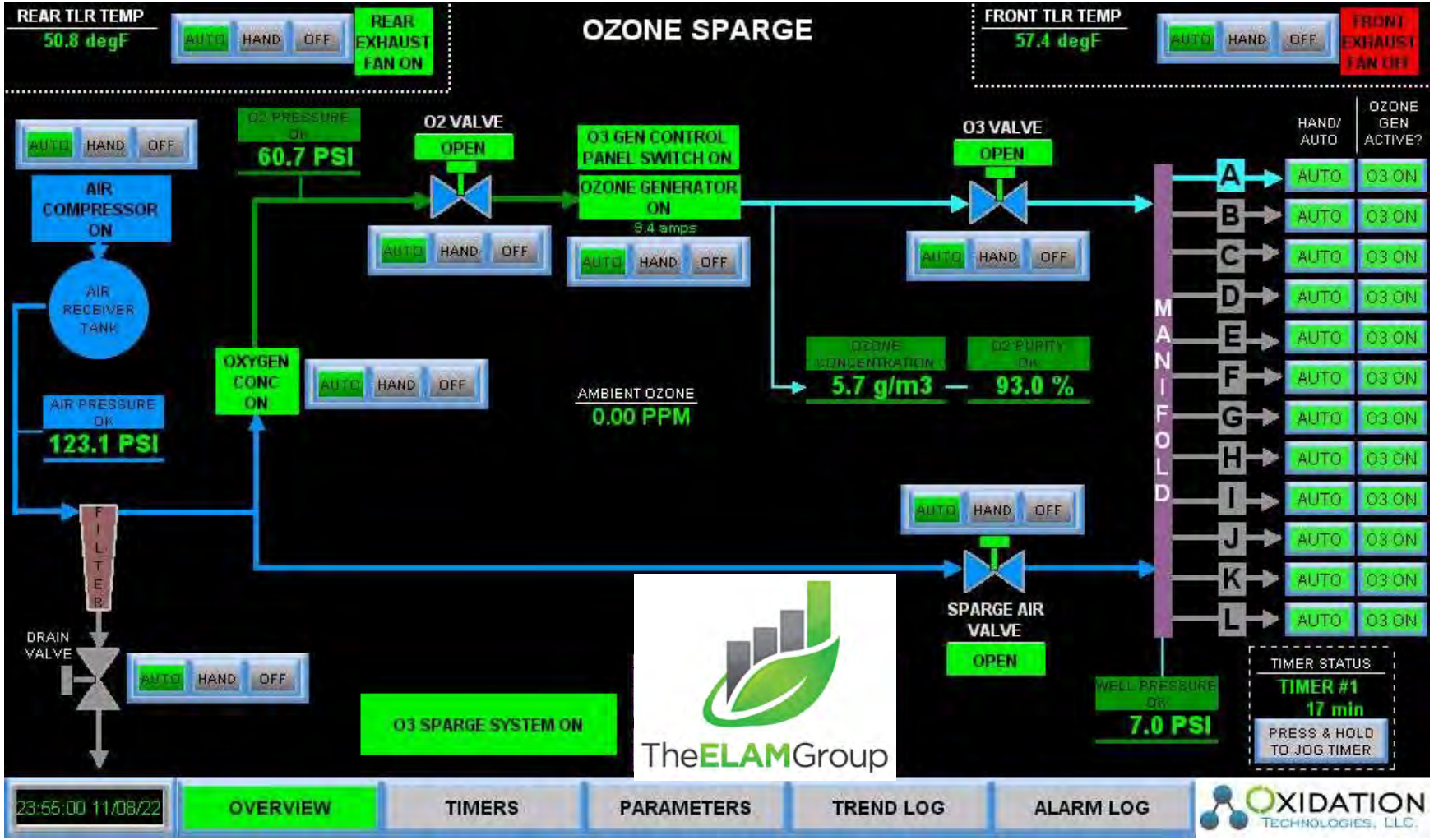
Oxidation Technologies
214 W Highway 18
Inwood, IA 51240

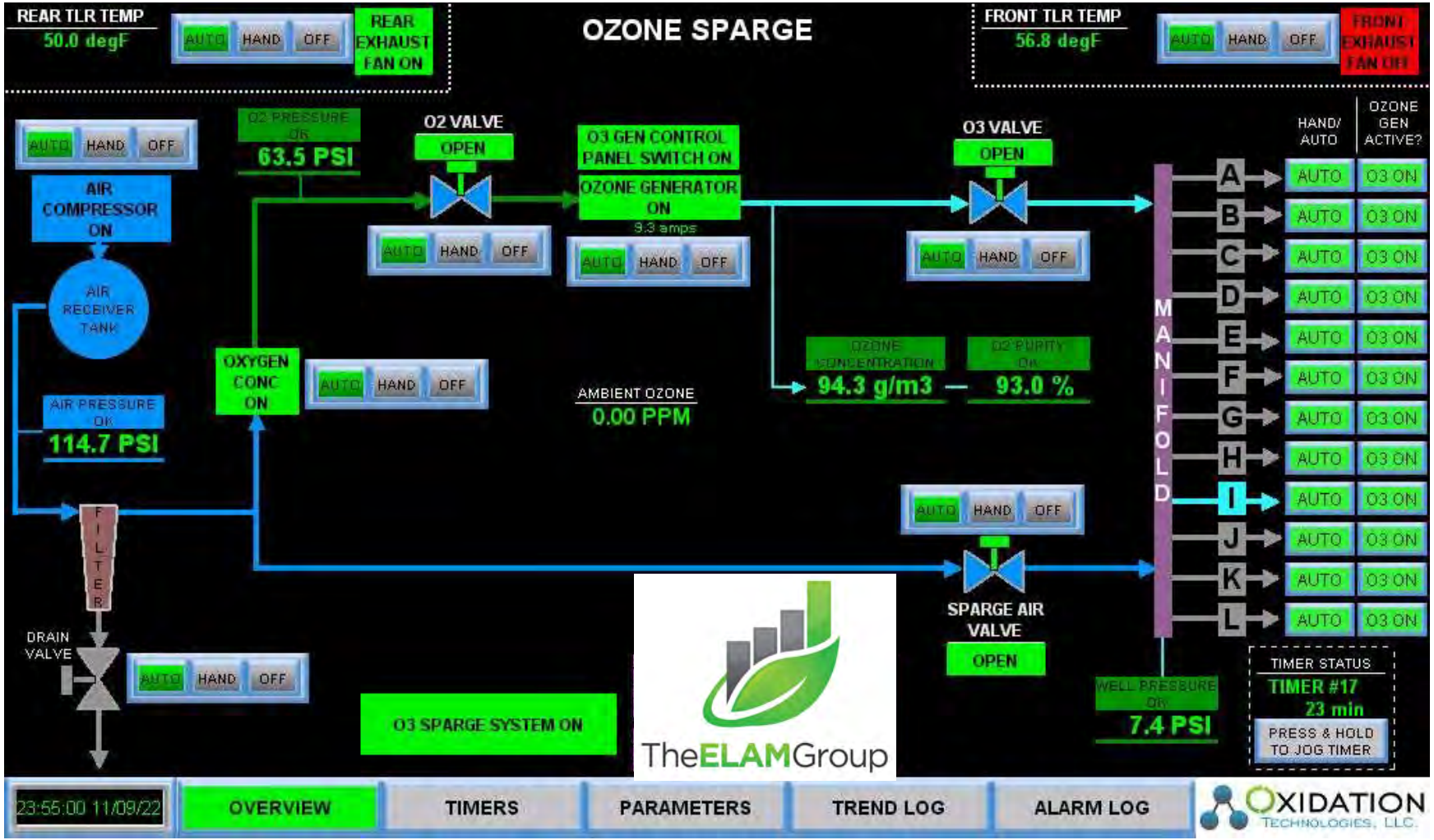
Ph: (515)635-5854

E-mail: info@oxidationtech.com
Website: www.oxidationtech.com

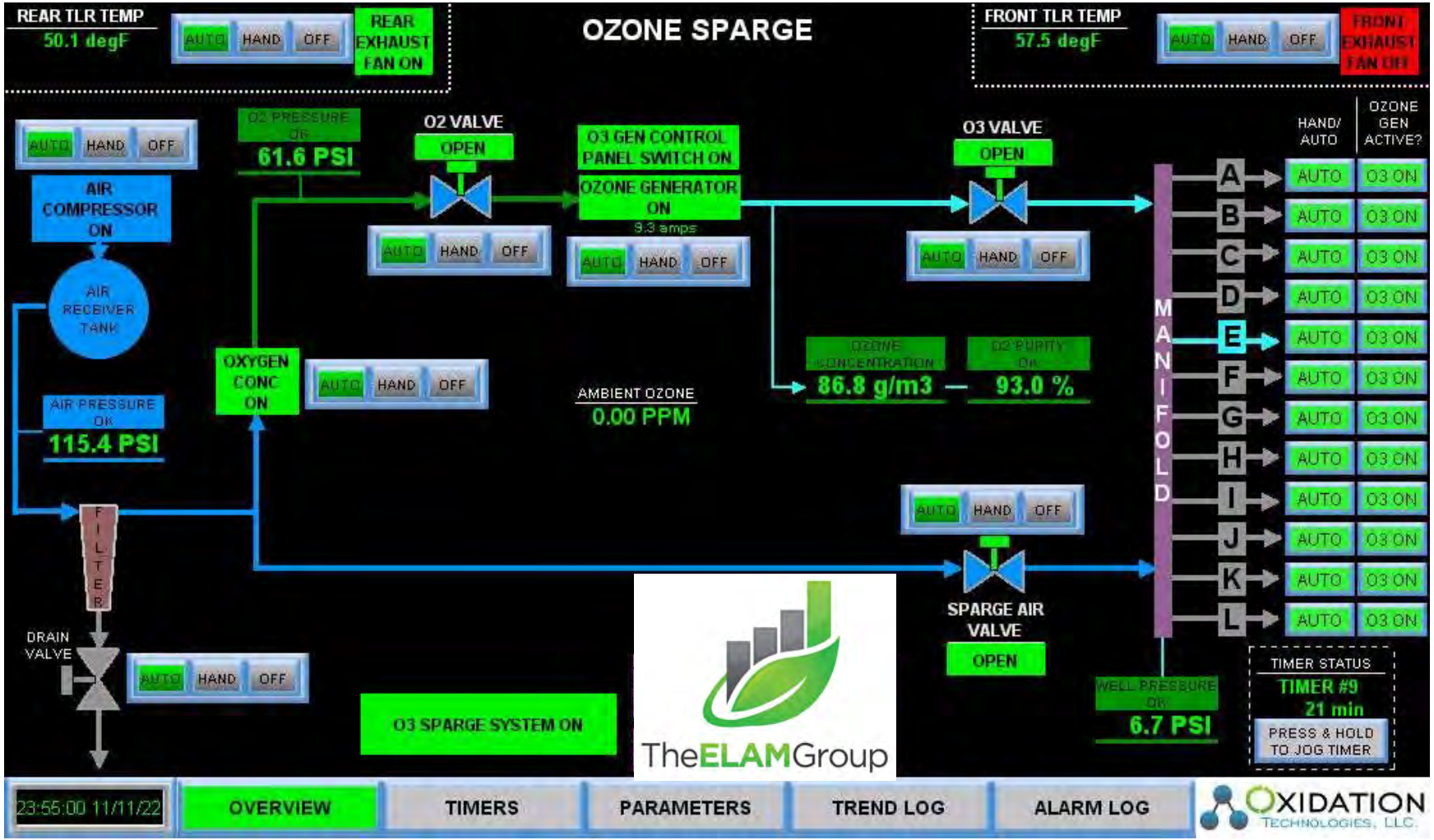
Appendix E

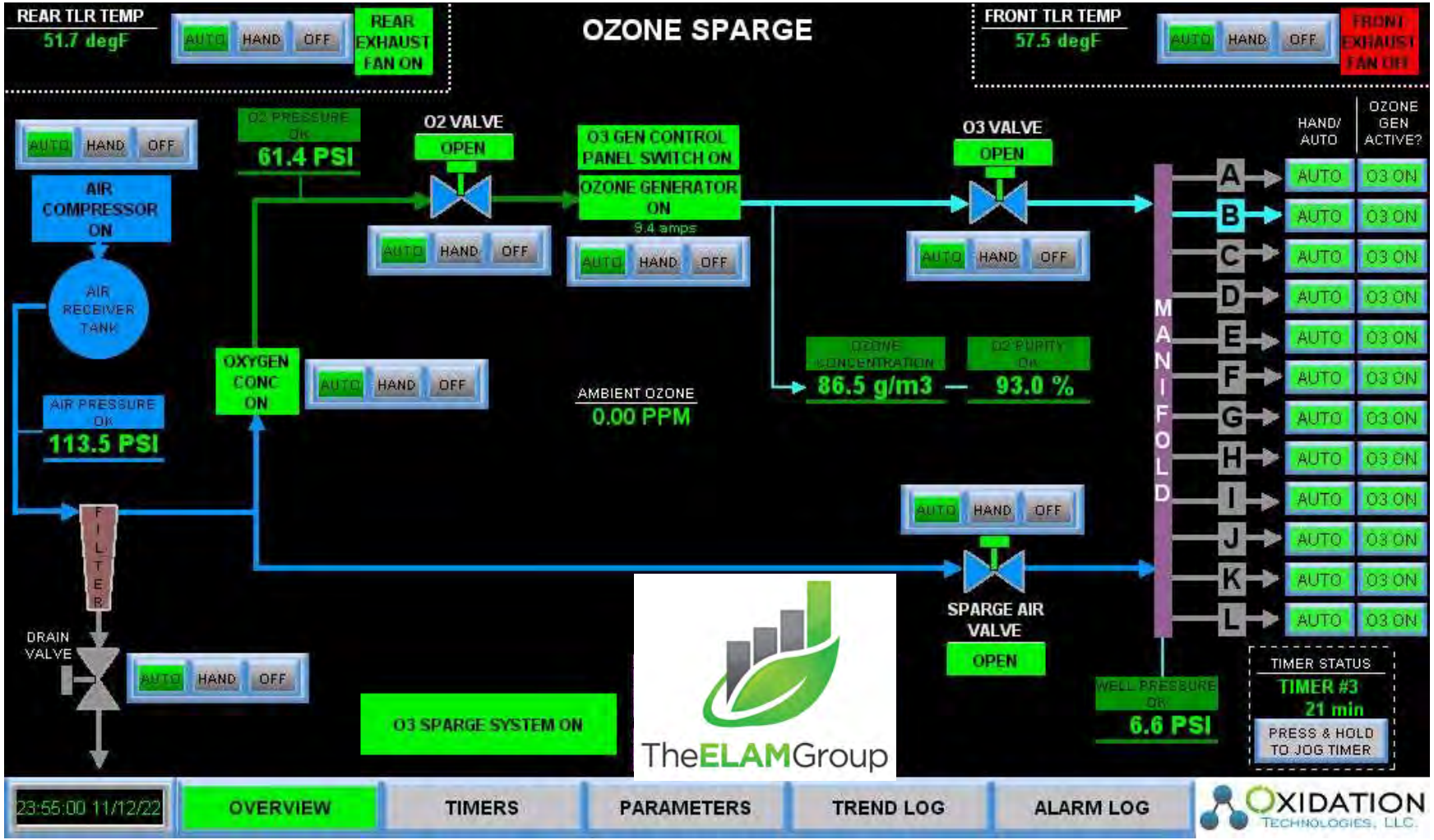
OITS Daily Operation Data Screenshots

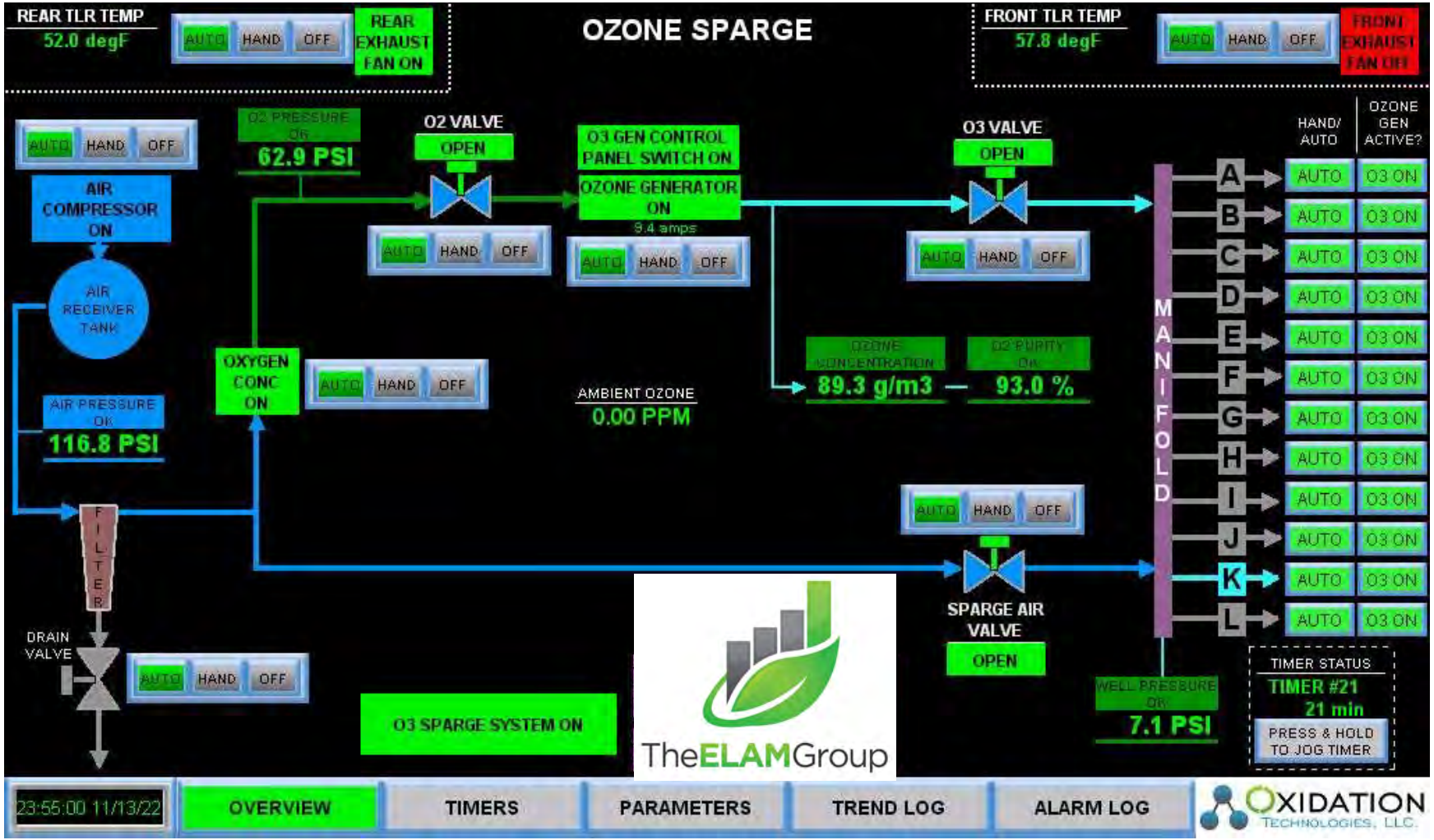

REAR TLR TEMP
50.8 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
57.4 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
123.1 PSI
O2 PRESSURE OK
60.7 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
9.4 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
5.7 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
7.0 PSI
TIMER STATUS
TIMER #1
17 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/08/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

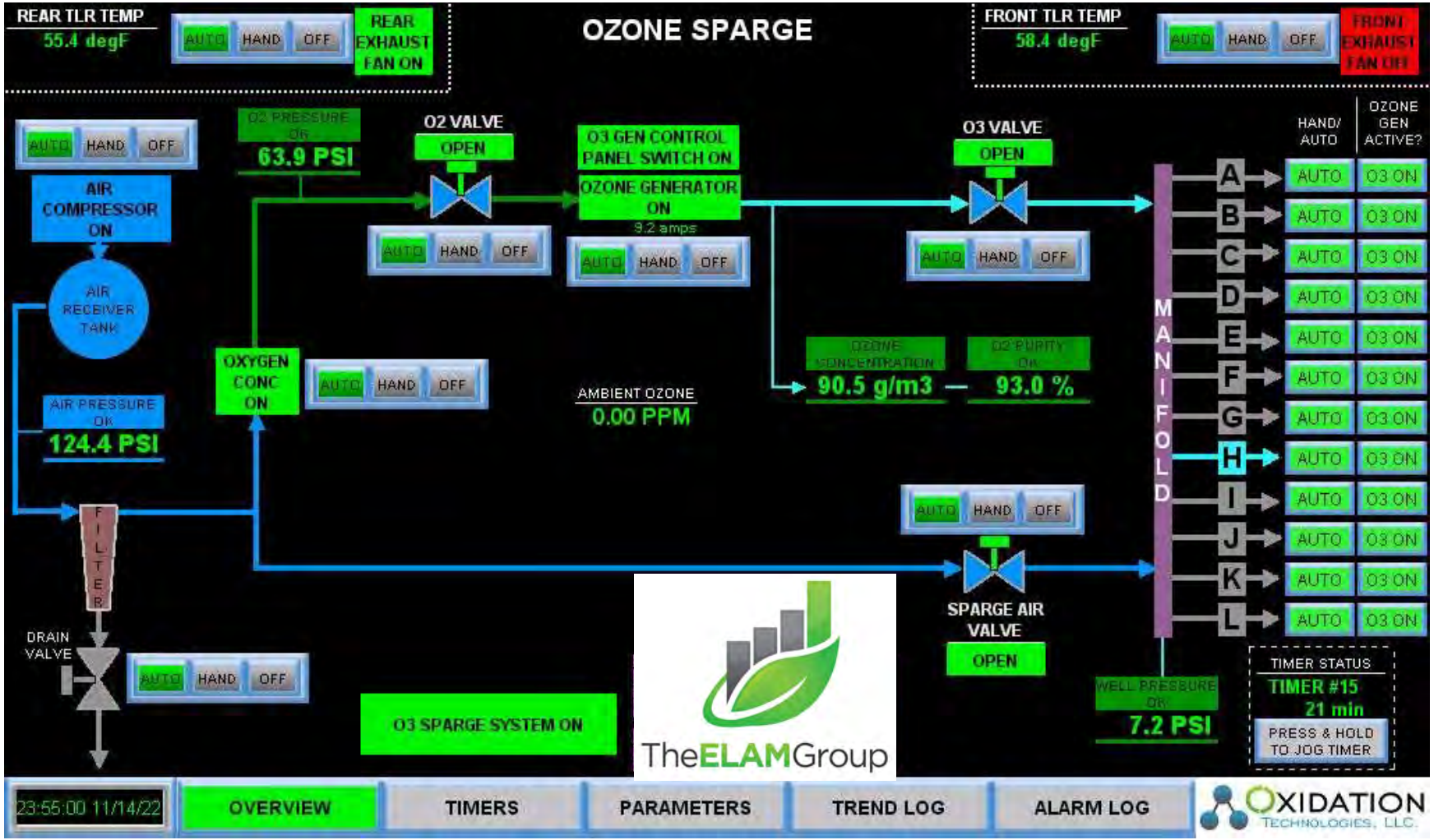

REAR TLR TEMP
50.0 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
56.8 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
114.7 PSI
O2 PRESSURE OK
63.5 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
94.3 g/m3
O2 PURITY
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
7.4 PSI
TIMER STATUS
TIMER #17
23 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/09/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

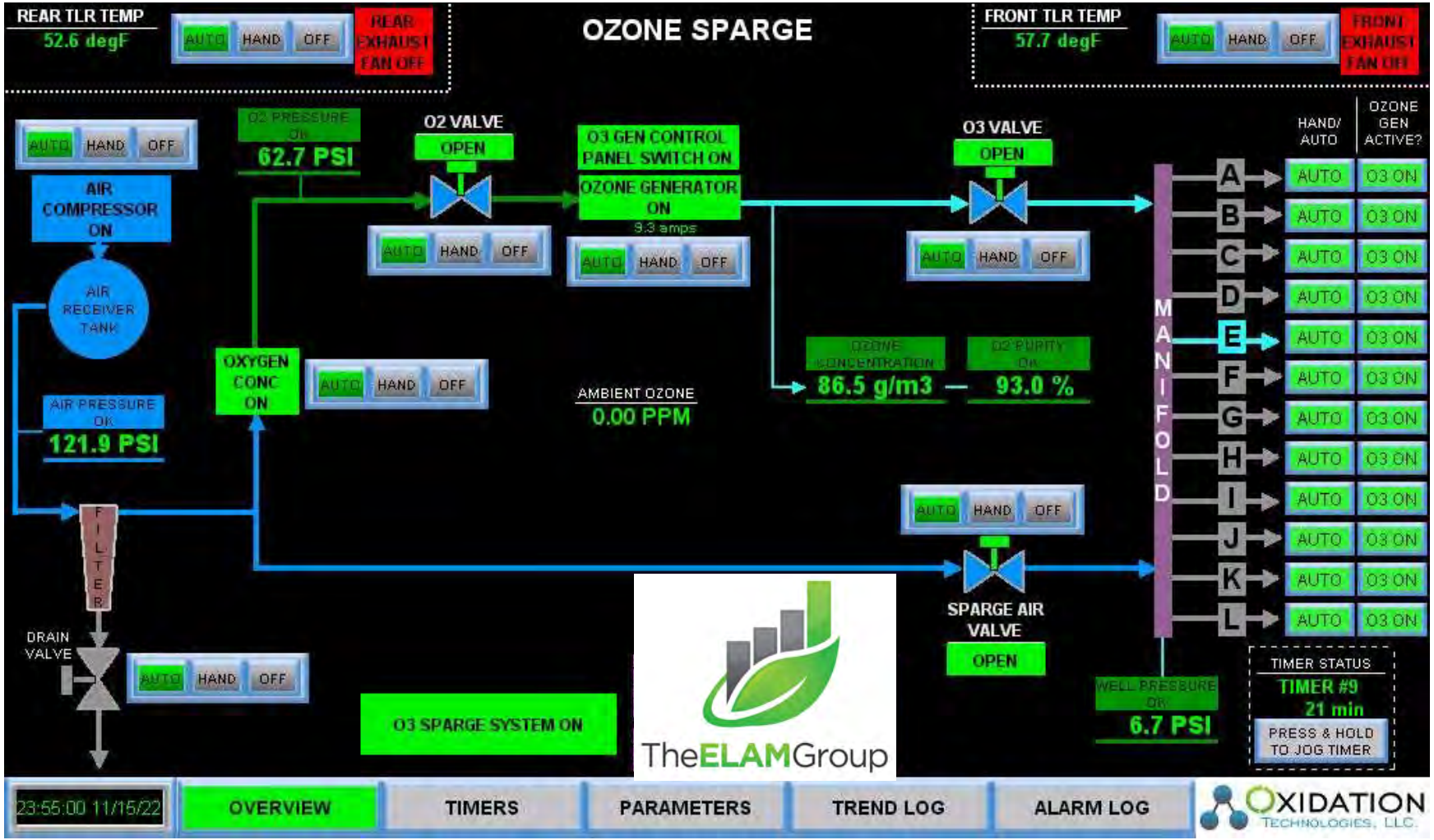
11/10/22 - File Missing

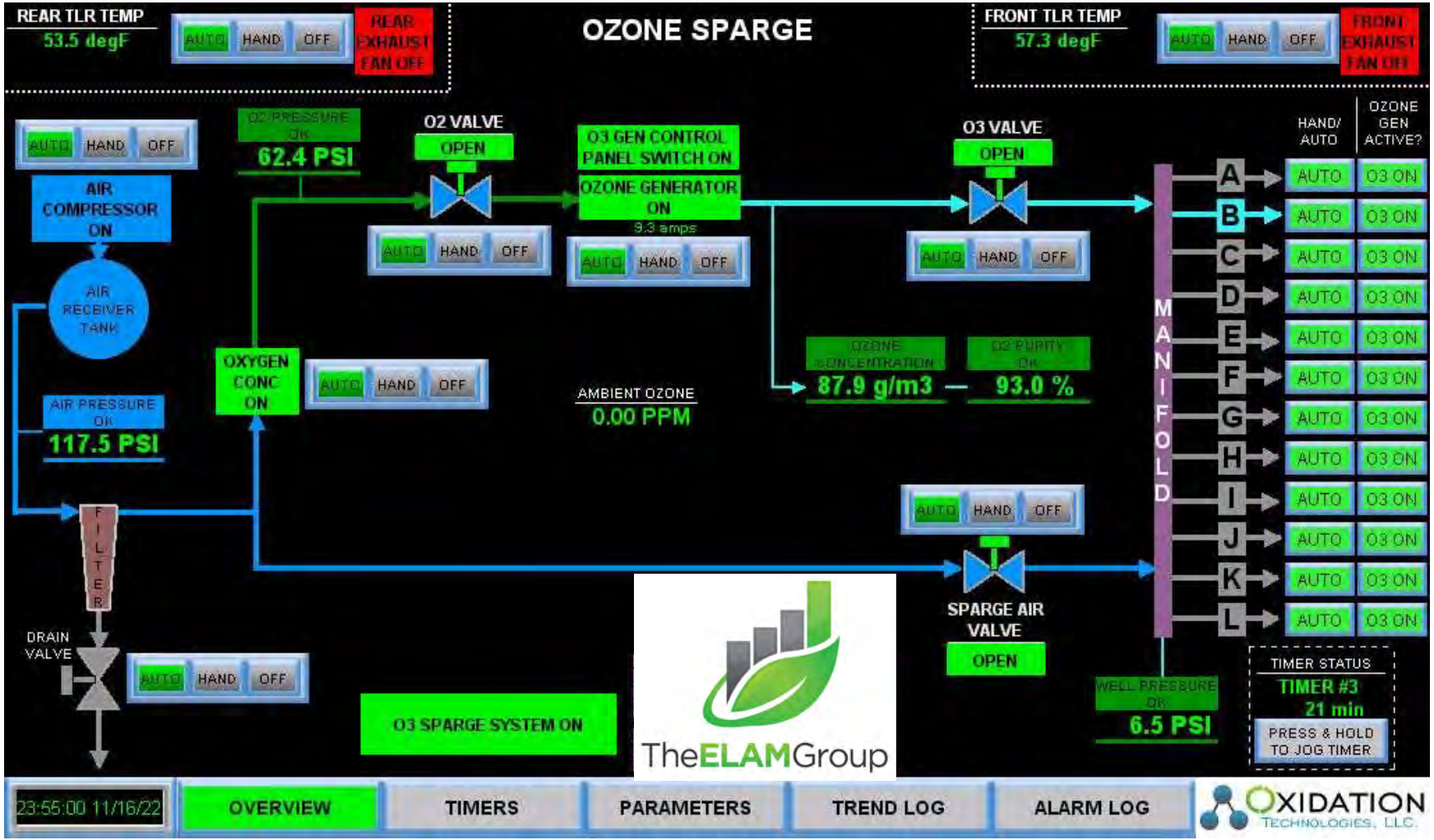

REAR TLR TEMP
50.1 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
57.5 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
115.4 PSI
O2 PRESSURE OK
61.6 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
86.8 g/m3
O2 PURITY
93.0 %
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
WELL PRESSURE OK
6.7 PSI
TIMER STATUS
TIMER #9
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/11/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

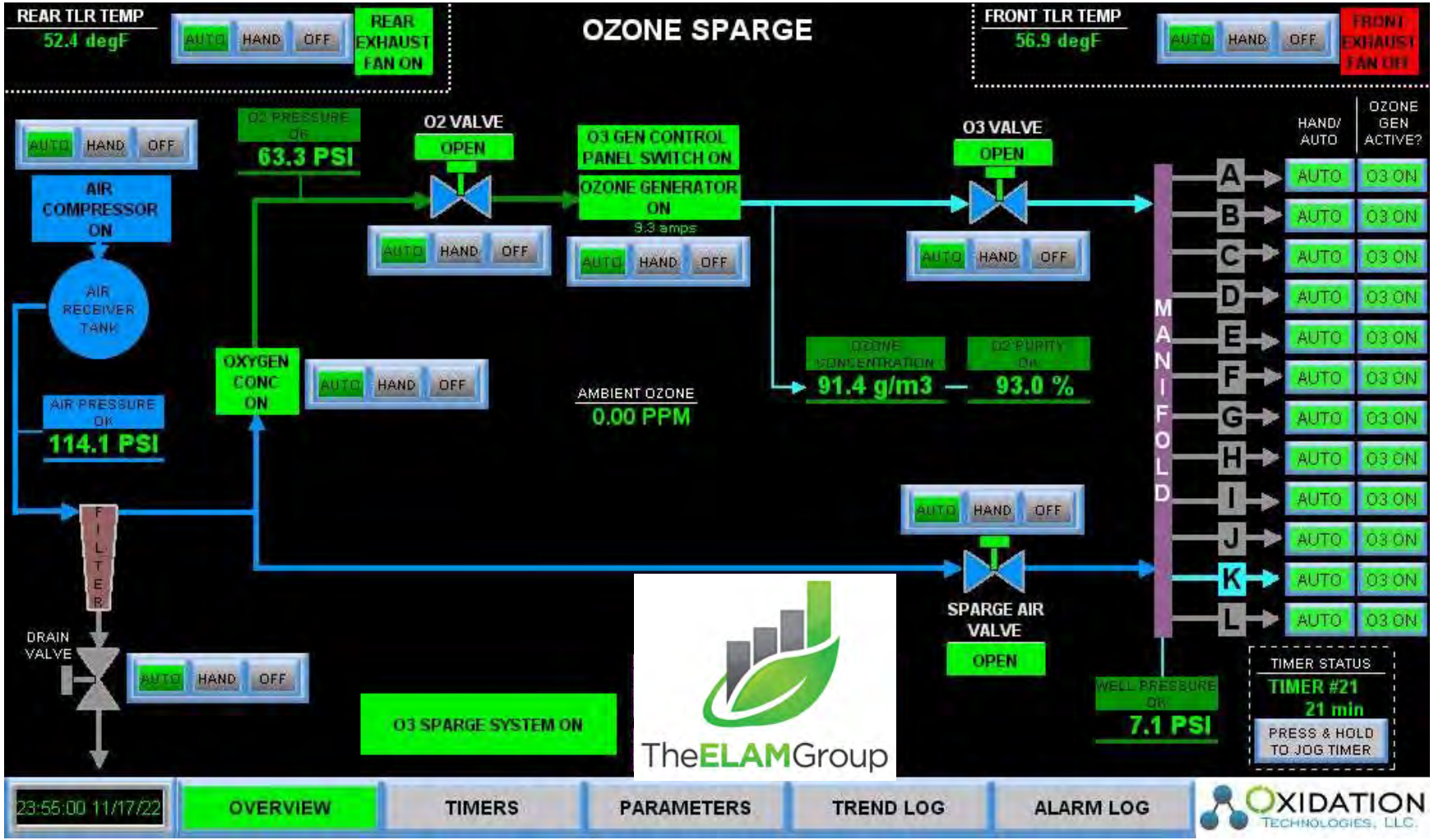

REAR TLR TEMP
51.7 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
57.5 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
113.5 PSI
O2 PRESSURE OK
61.4 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
9.4 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
86.5 g/m3
O2 PURITY
93.0 %
HAND/ AUTO
OZONE GEN ACTIVE?
MANIFOLD
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.6 PSI
TIMER STATUS
TIMER #3
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/12/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

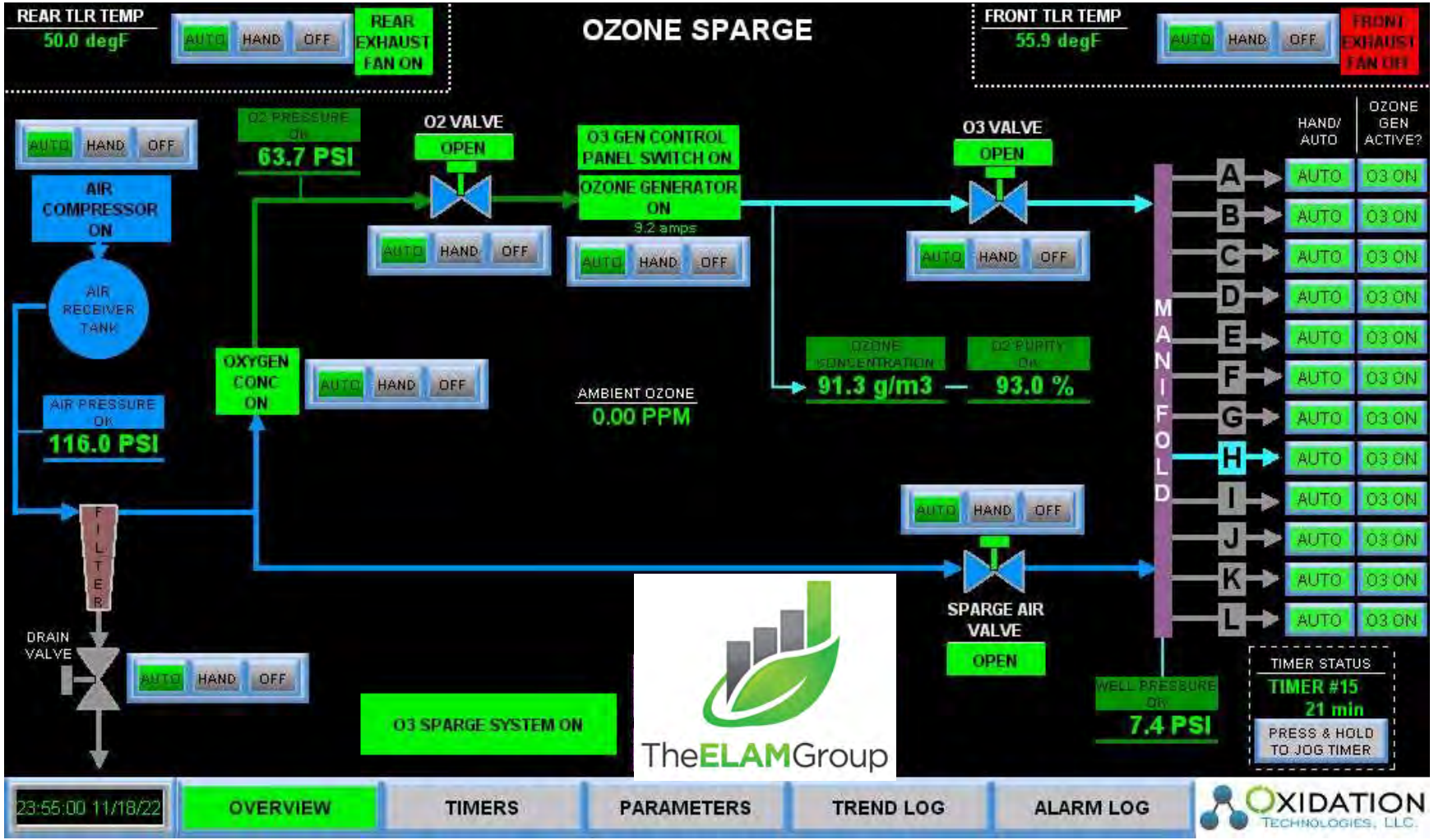

REAR TLR TEMP
52.0 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
57.8 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
116.8 PSI
O2 PRESSURE OK
62.9 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
9.4 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
89.3 g/m3
O2 PURITY
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
7.1 PSI
TIMER STATUS
TIMER #21
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/13/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

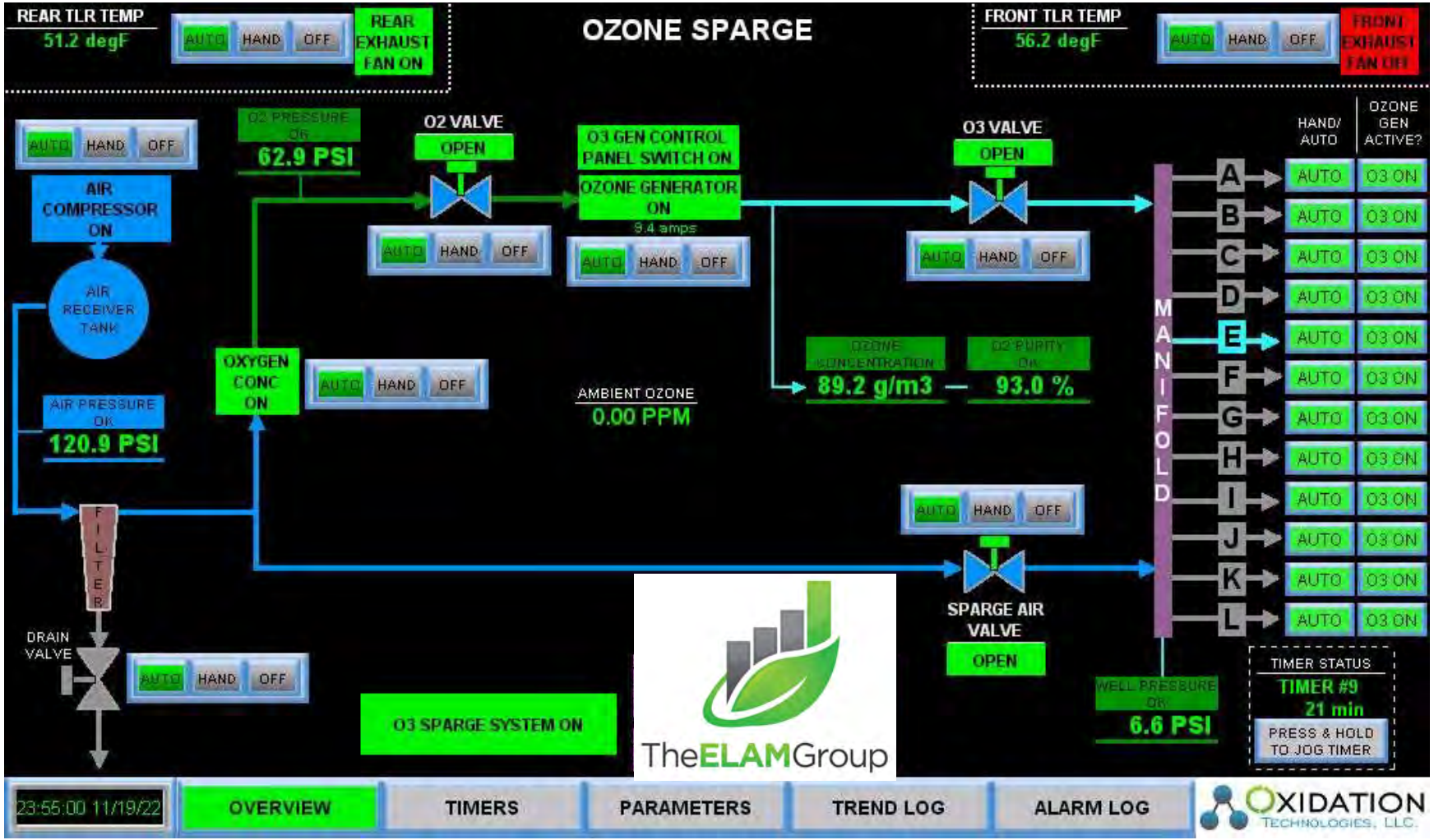

REAR TLR TEMP
55.4 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
58.4 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
124.4 PSI
O2 PRESSURE OK
63.9 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.2 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
90.5 g/m3
O2 PURITY
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
7.2 PSI
TIMER STATUS
TIMER #15
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/14/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

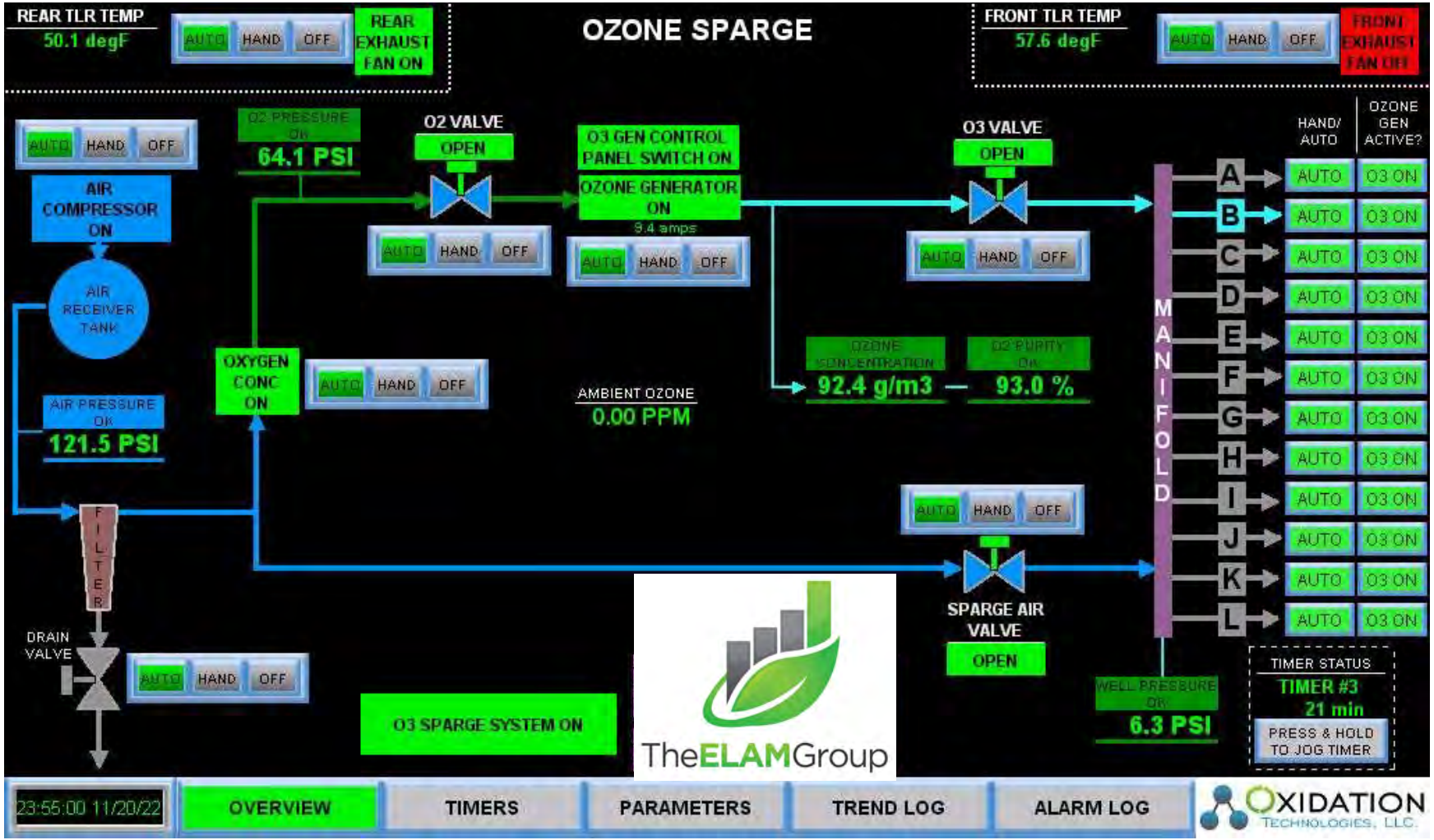

REAR TLR TEMP
52.6 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
57.7 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
121.9 PSI
O2 PRESSURE OK
62.7 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
86.5 g/m3
O2 PURITY OK
93.0 %
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
WELL PRESSURE OK
6.7 PSI
TIMER STATUS
TIMER #9
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/15/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

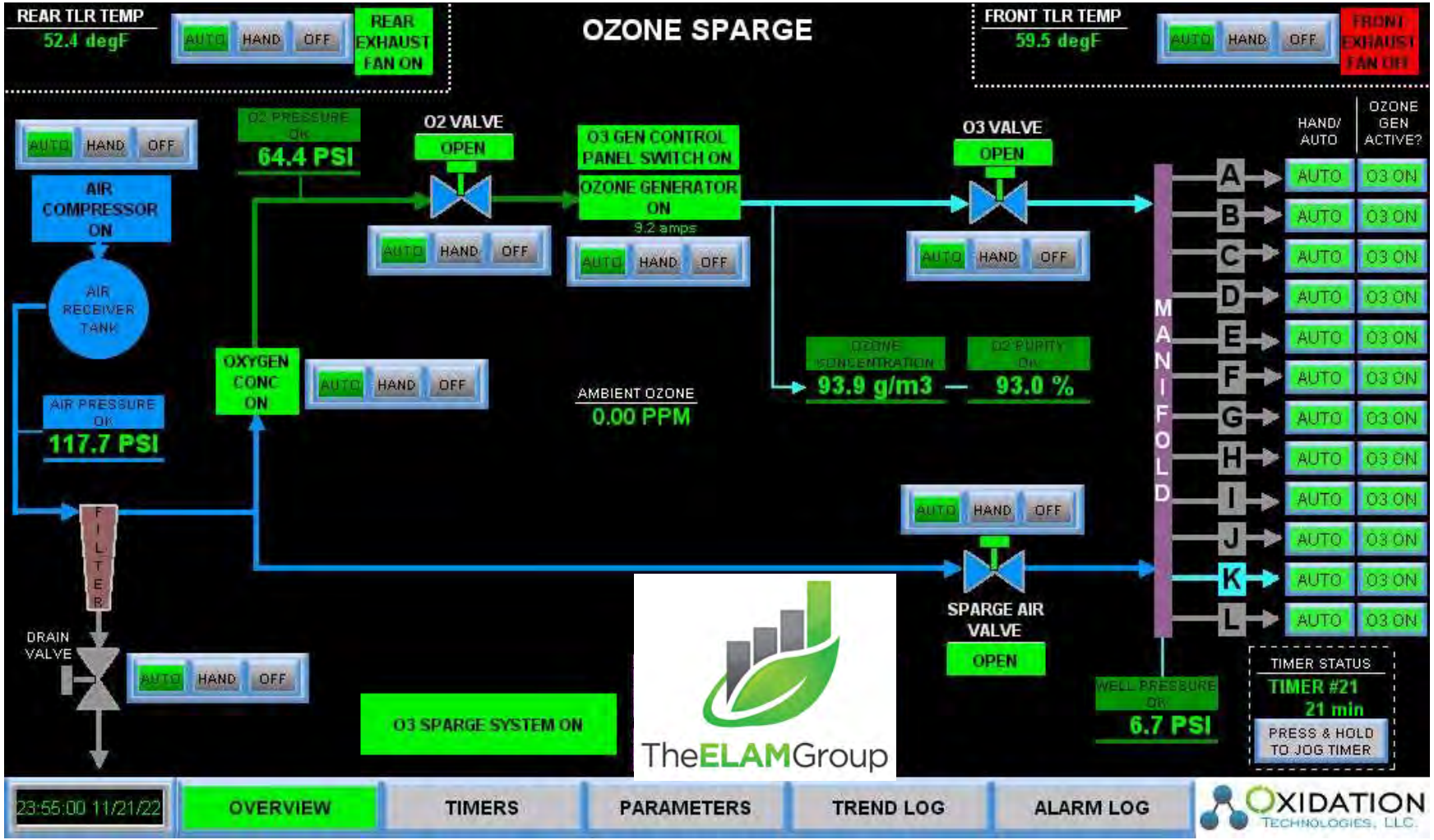

REAR TLR TEMP
53.5 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
57.3 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
117.5 PSI
O2 PRESSURE OK
62.4 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
87.9 g/m3
O2 PURITY
93.0 %
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
WELL PRESSURE OK
6.5 PSI
TIMER STATUS
TIMER #3
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/16/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

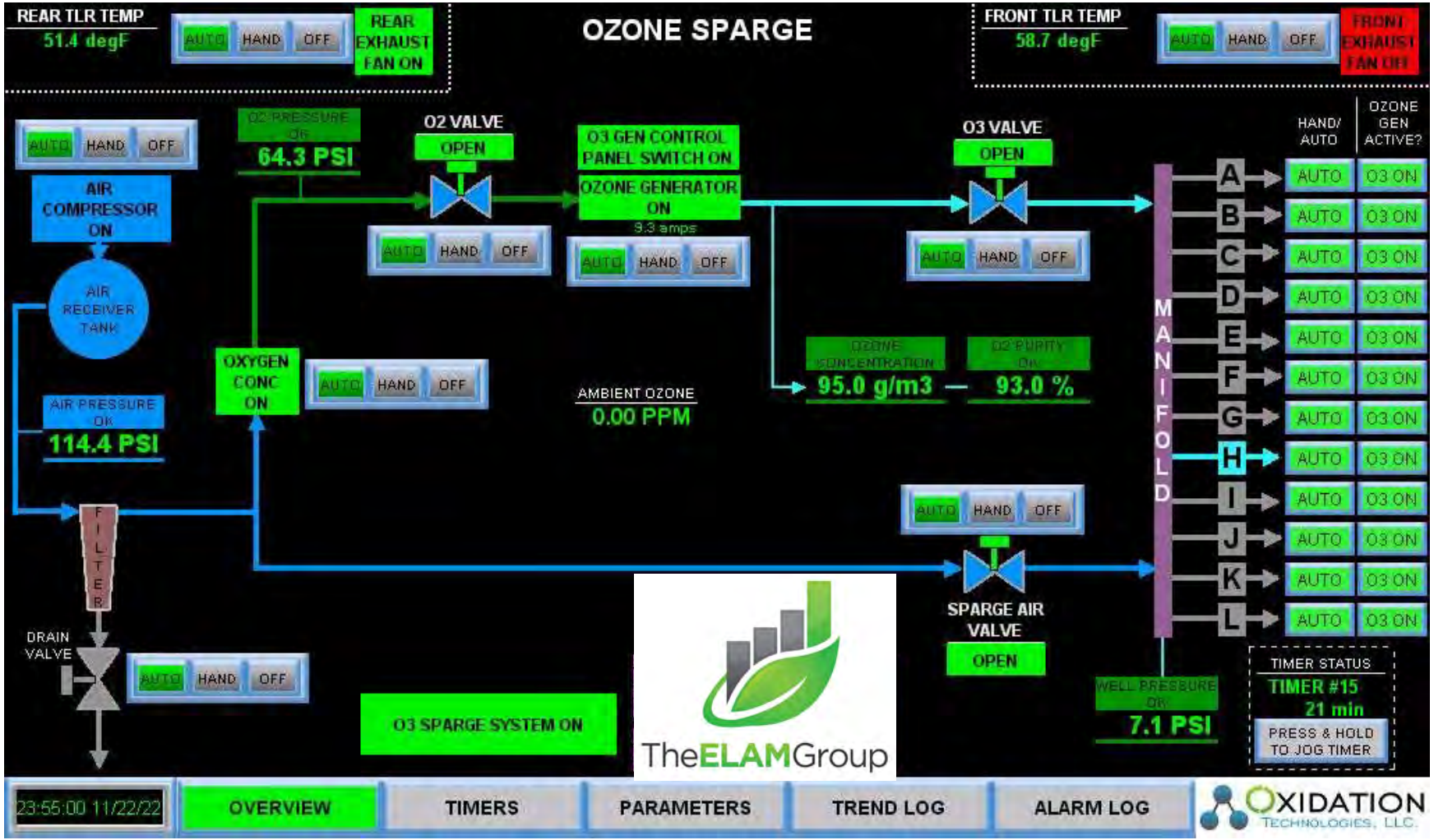

REAR TLR TEMP
52.4 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
56.9 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
114.1 PSI
O2 PRESSURE OK
63.3 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
91.4 g/m3
O2 PURITY
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
7.1 PSI
TIMER STATUS
TIMER #21
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/17/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

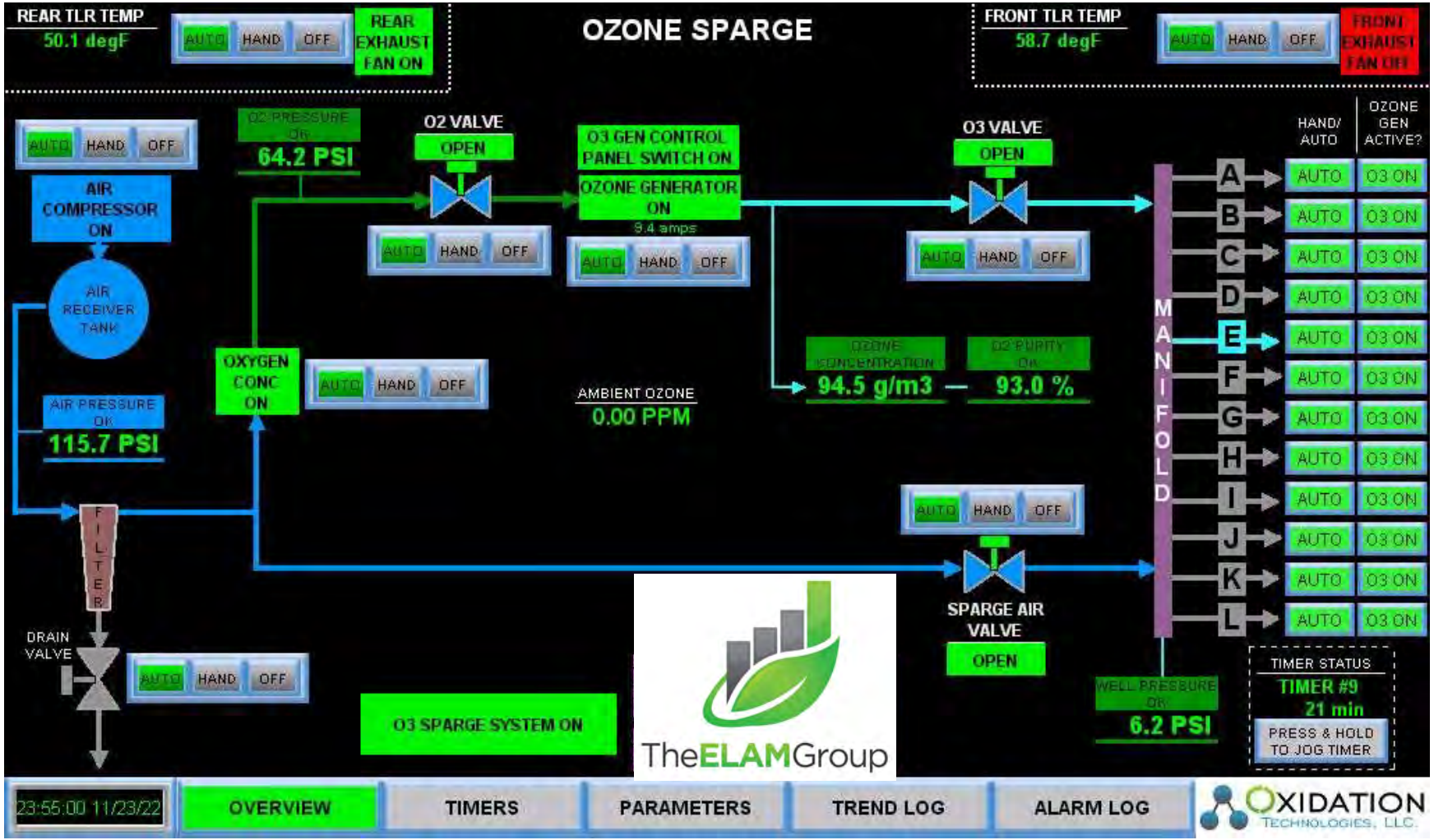

REAR TLR TEMP
50.0 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
55.9 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
116.0 PSI
O2 PRESSURE OK
63.7 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.2 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
91.3 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
A B C D E F G H I J K L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
7.4 PSI
TIMER STATUS
TIMER #15
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/18/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

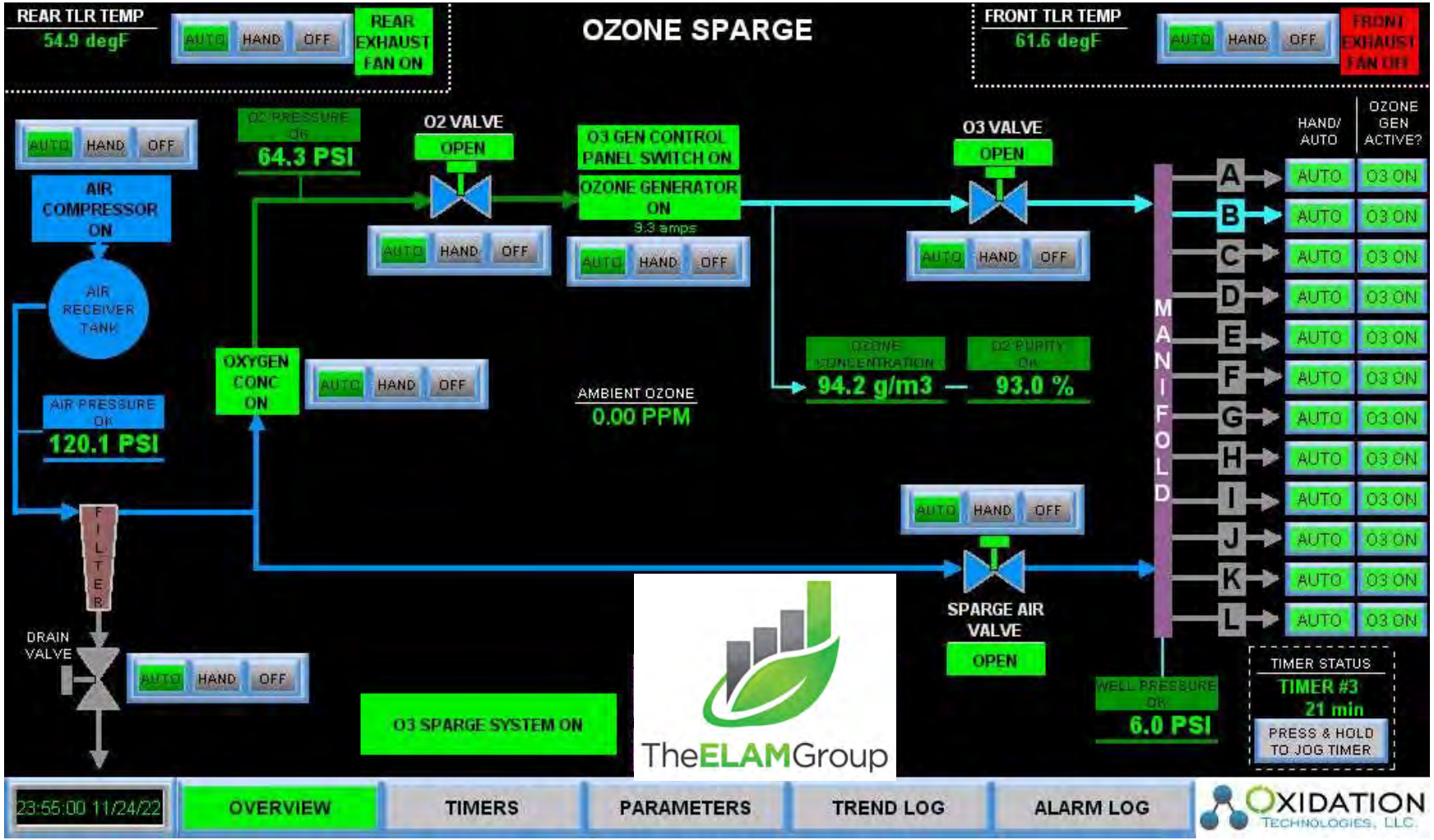

REAR TLR TEMP
51.2 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
56.2 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
120.9 PSI
O2 PRESSURE OK
62.9 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
9.4 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
89.2 g/m3
O2 PURITY
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.6 PSI
TIMER STATUS
TIMER #9
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/19/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

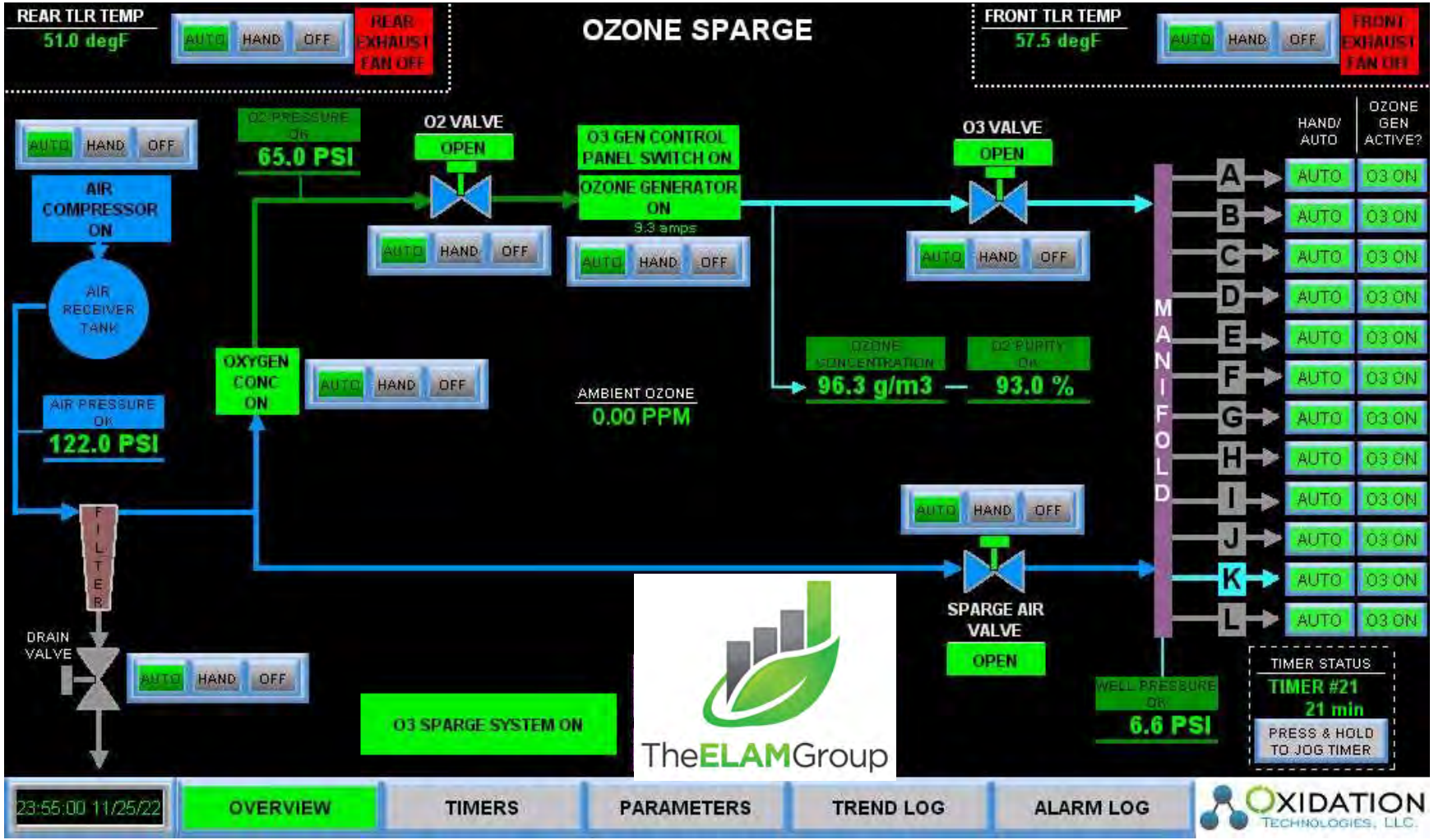

REAR TLR TEMP
50.1 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
57.6 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
121.5 PSI
O2 PRESSURE OK
64.1 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
9.4 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
92.4 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.3 PSI
TIMER STATUS
TIMER #3
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/20/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

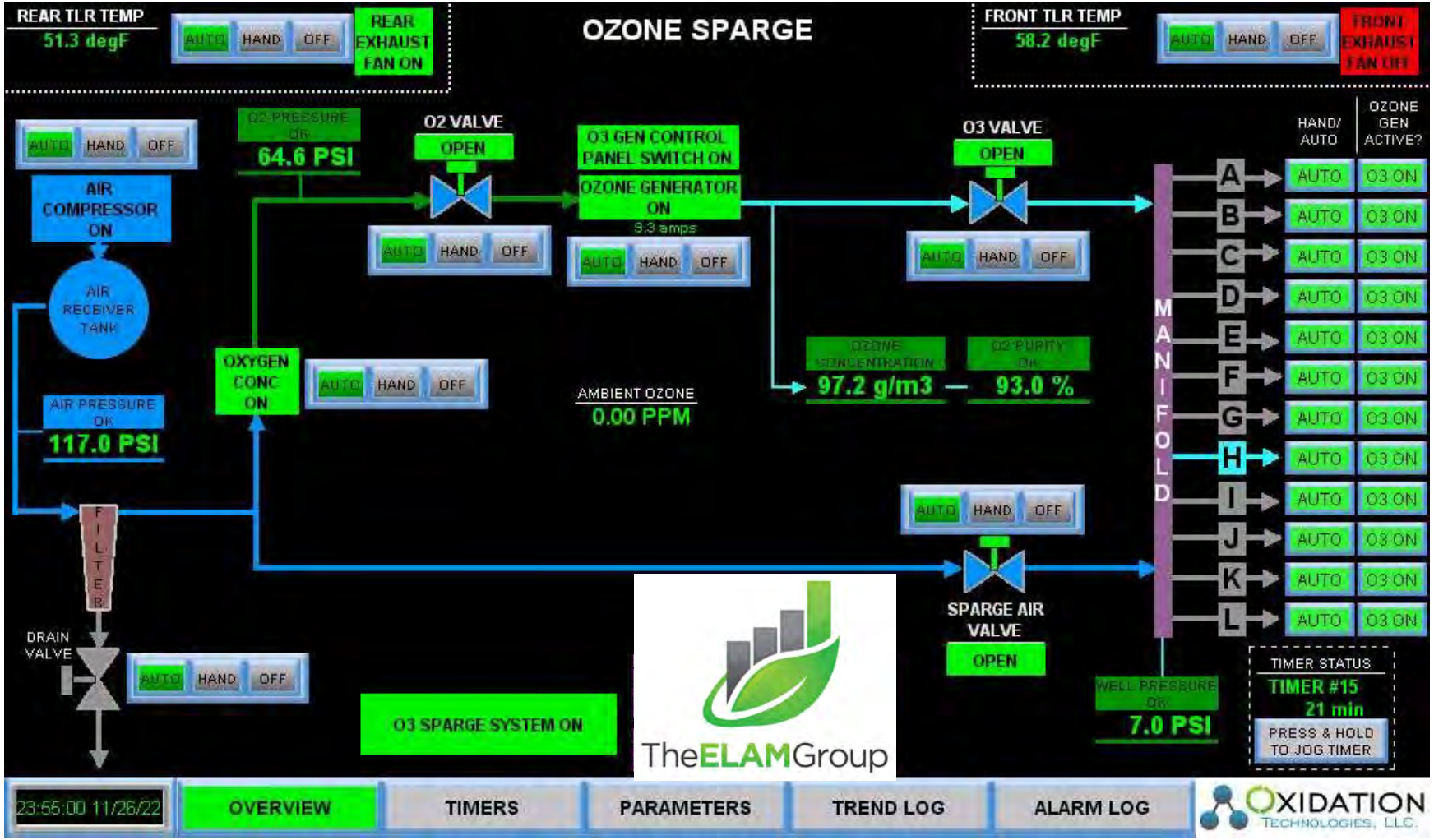

REAR TLR TEMP
52.4 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
59.5 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
117.7 PSI
O2 PRESSURE OK
64.4 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.2 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
93.9 g/m3
O2 PURITY
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.7 PSI
TIMER STATUS
TIMER #21
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/21/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

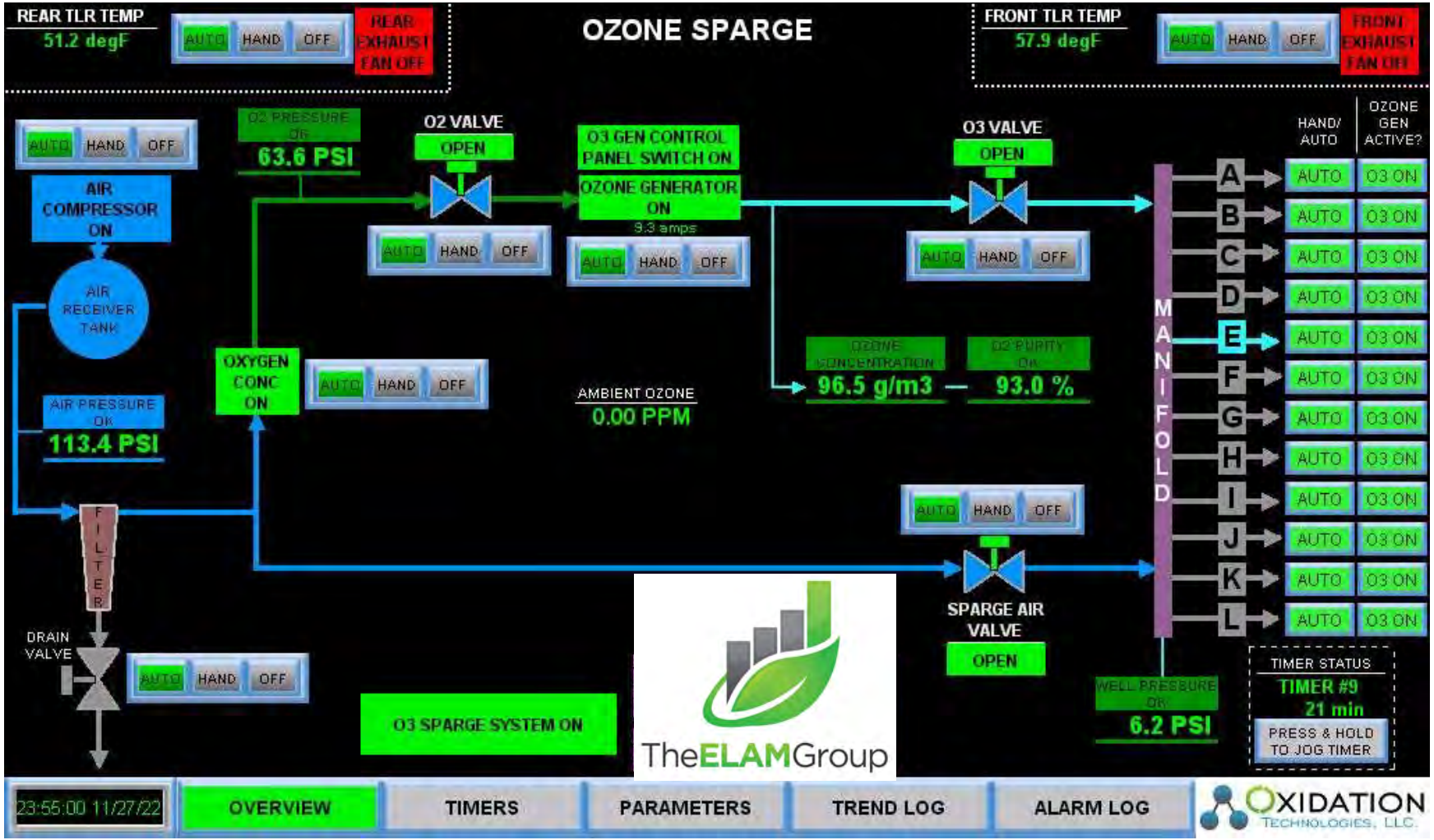

REAR TLR TEMP
51.4 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
58.7 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
114.4 PSI
O2 PRESSURE OK
64.3 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
95.0 g/m3
O2 PURITY
93.0 %
MANIFOLD
A B C D E F G H I J K L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
7.1 PSI
TIMER STATUS
TIMER #15
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/22/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

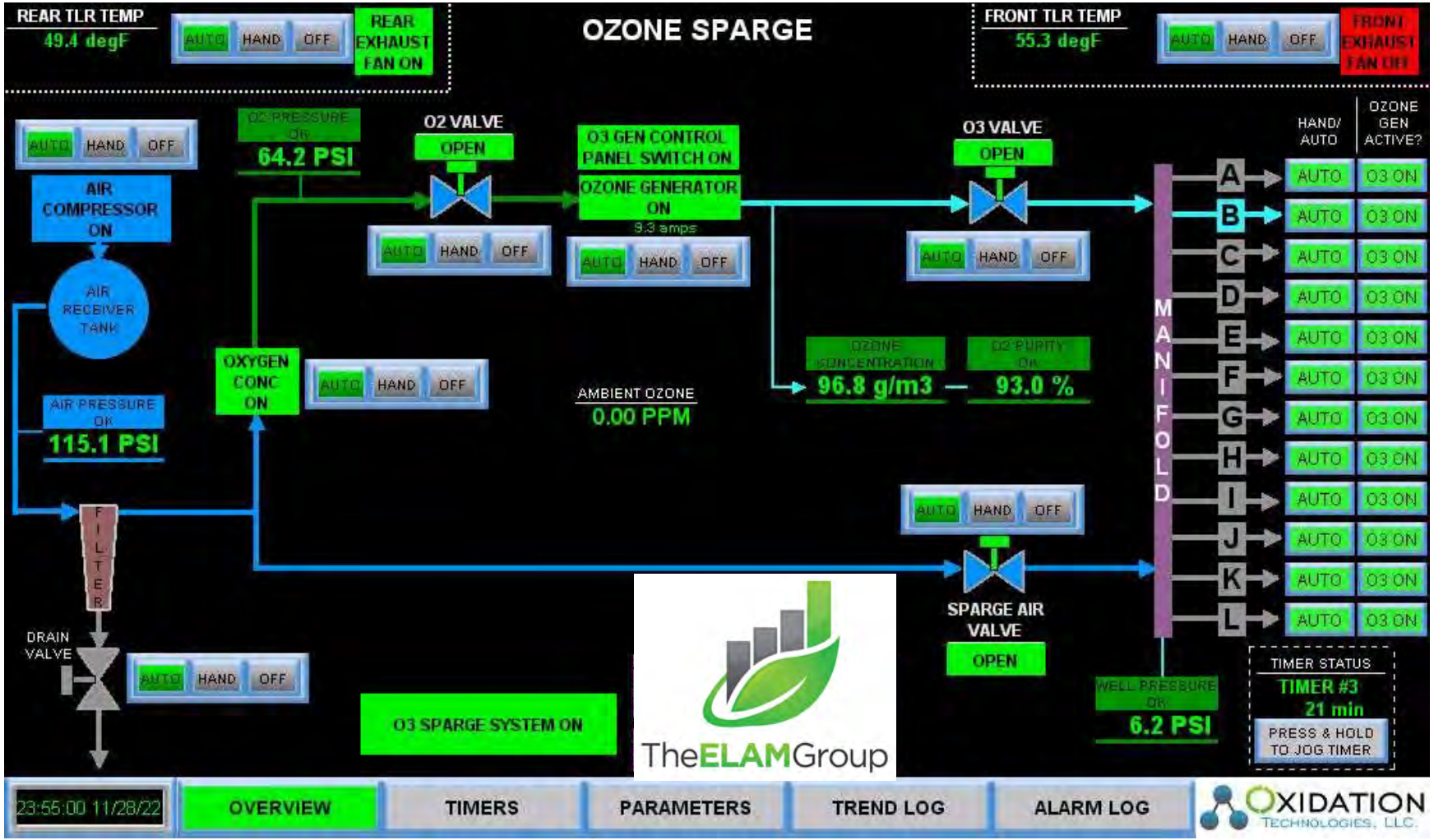

REAR TLR TEMP
50.1 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
58.7 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
115.7 PSI
O2 PRESSURE OK
64.2 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
9.4 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
94.5 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.2 PSI
TIMER STATUS
TIMER #9
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/23/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

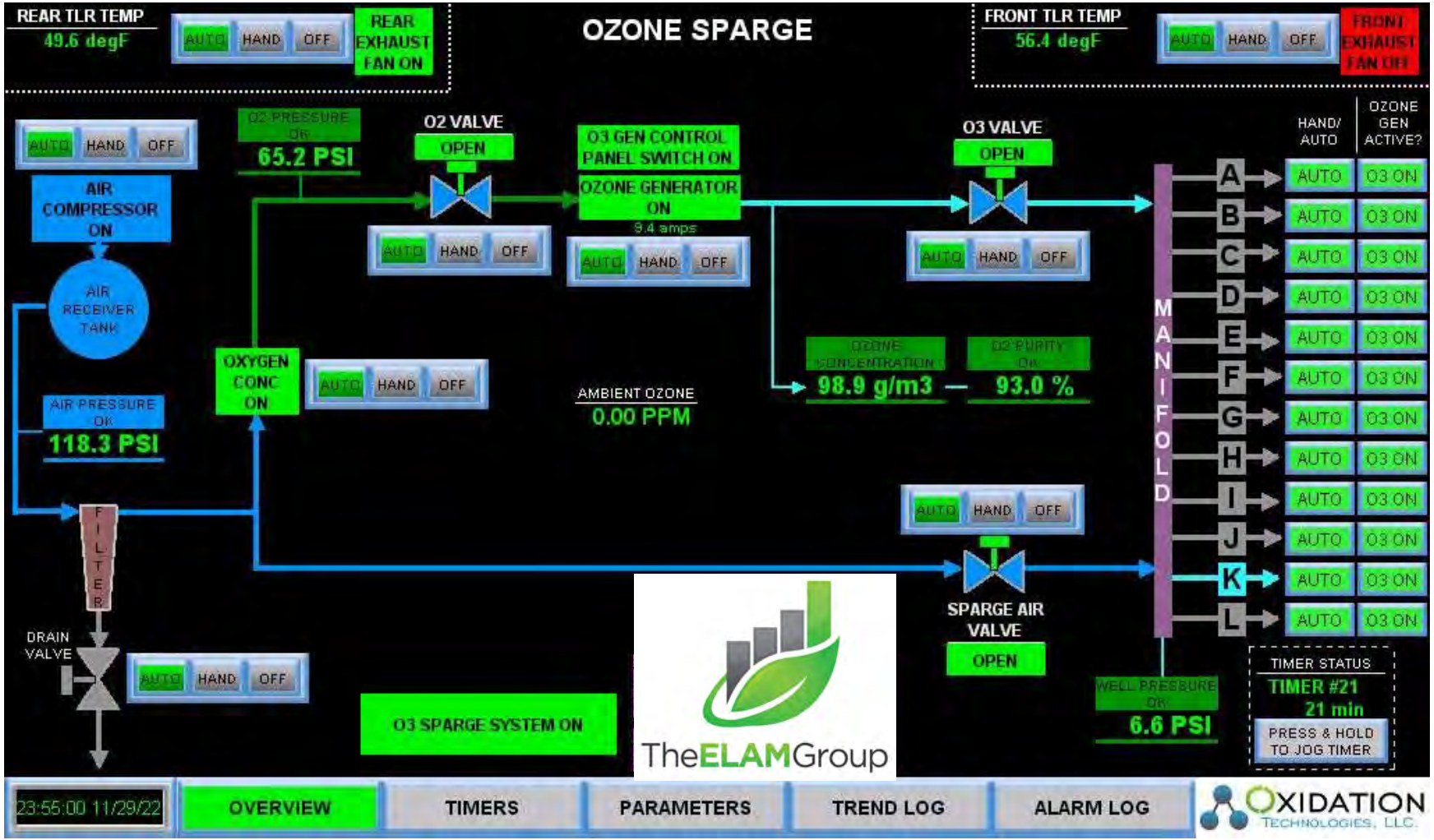

REAR TLR TEMP
54.9 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
61.6 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
120.1 PSI
O2 PRESSURE OK
64.3 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
94.2 g/m3
O2 PURITY
93.0 %
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.0 PSI
TIMER STATUS
TIMER #3
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/24/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.


REAR TLR TEMP
51.0 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
57.5 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
122.0 PSI
O2 PRESSURE OK
65.0 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
96.3 g/m3
O2 PURITY
93.0 %
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.6 PSI
TIMER STATUS
TIMER #21
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/25/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

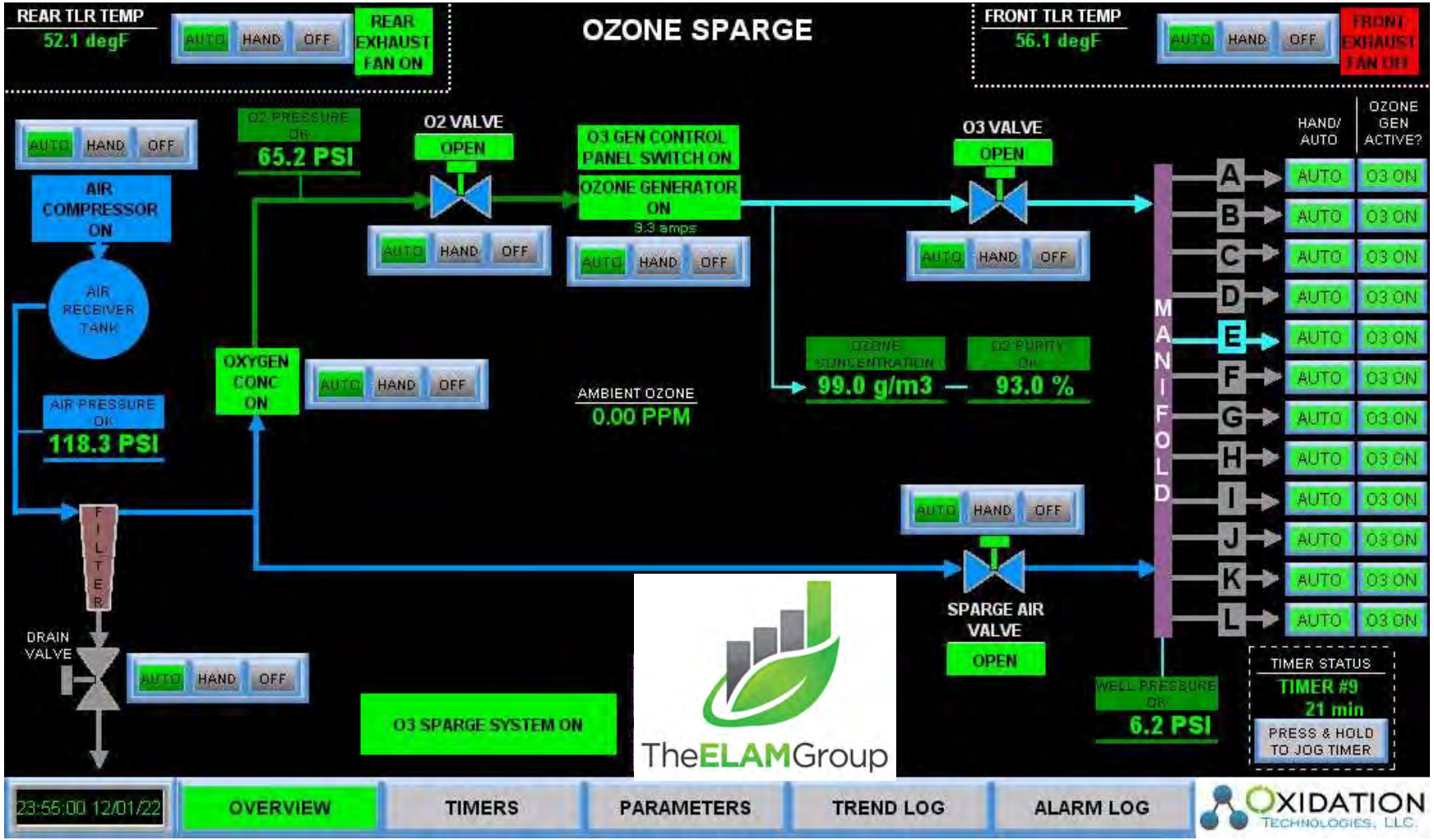

REAR TLR TEMP
51.3 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
58.2 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
117.0 PSI
O2 PRESSURE OK
64.6 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
97.2 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
7.0 PSI
TIMER STATUS
TIMER #15
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/26/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

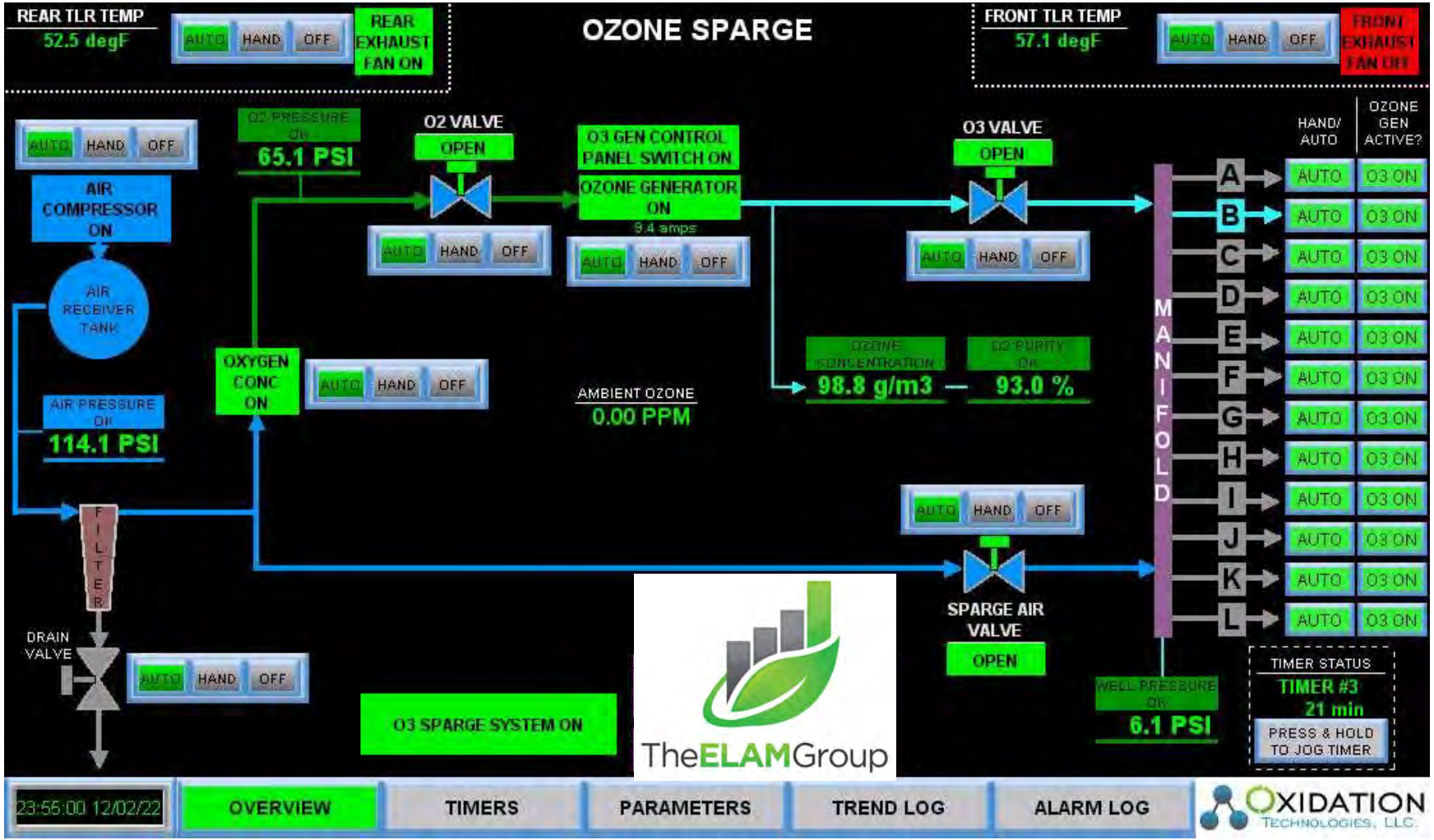

REAR TLR TEMP
51.2 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
57.9 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
113.4 PSI
O2 PRESSURE OK
63.6 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
96.5 g/m3
O2 PURITY
93.0 %
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
WELL PRESSURE OK
6.2 PSI
TIMER STATUS
TIMER #9
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/27/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

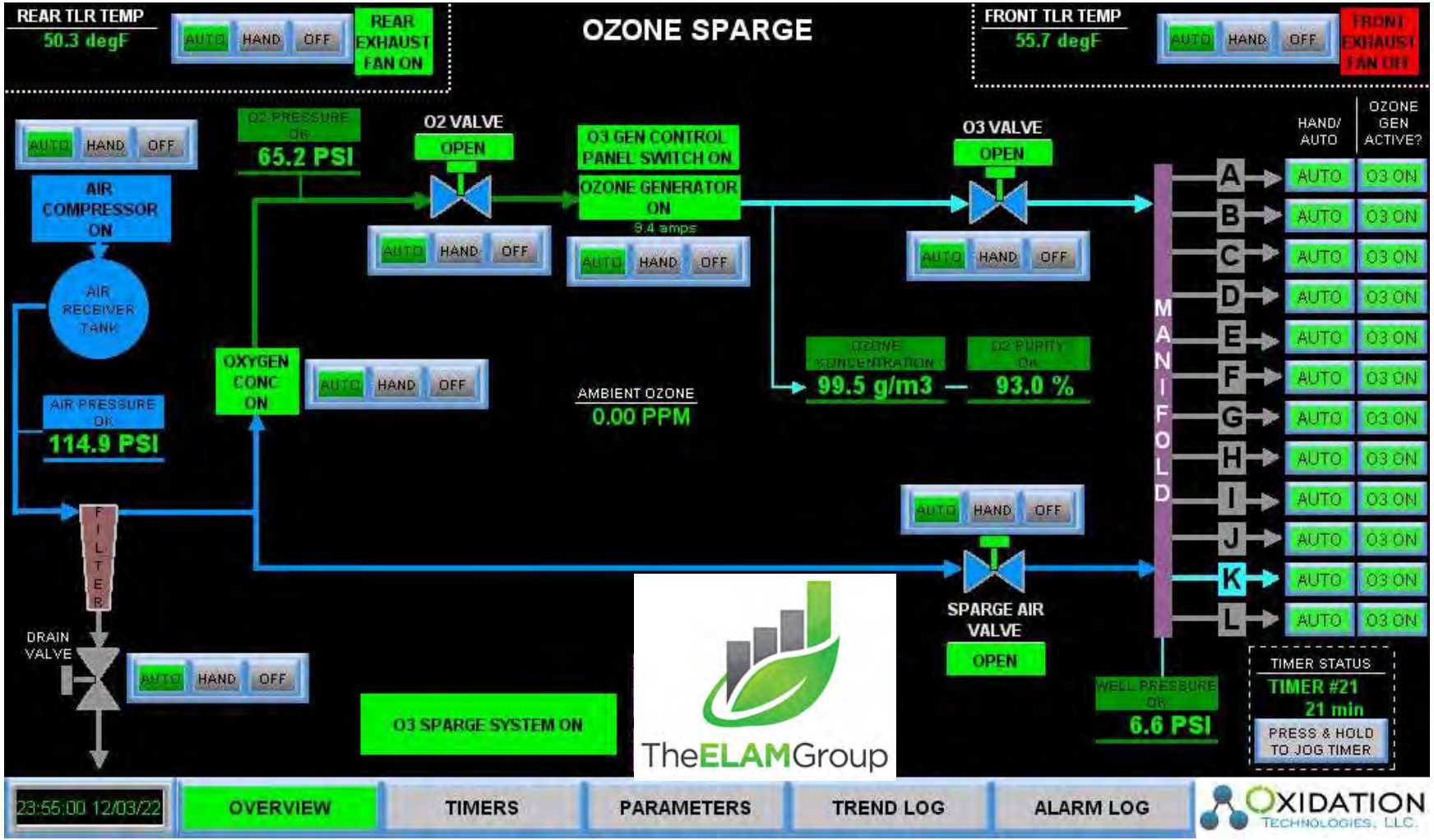

REAR TLR TEMP
49.4 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
55.3 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
115.1 PSI
O2 PRESSURE OK
64.2 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
96.8 g/m3
O2 PURITY OK
93.0 %
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
WELL PRESSURE OK
6.2 PSI
TIMER STATUS
TIMER #3
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/28/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.


REAR TLR TEMP
49.6 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
56.4 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
118.3 PSI
O2 PRESSURE OK
65.2 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
9.4 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
98.9 g/m3
O2 PURITY
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.6 PSI
TIMER STATUS
TIMER #21
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 11/29/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

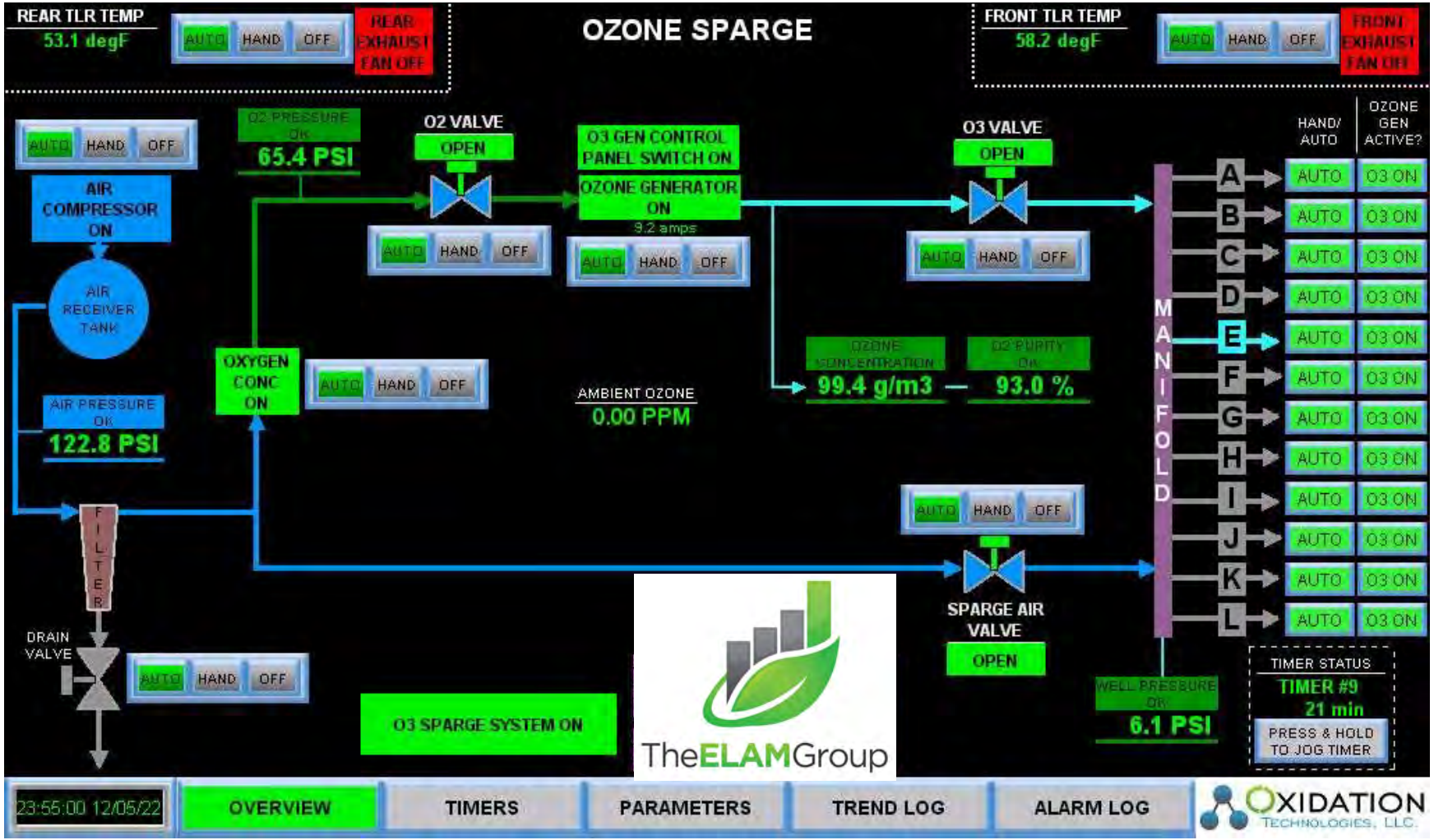
11/30/22 - File Missing


REAR TLR TEMP
52.1 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
56.1 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
118.3 PSI
O2 PRESSURE OK
65.2 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
99.0 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.2 PSI
TIMER STATUS
TIMER #9
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/01/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

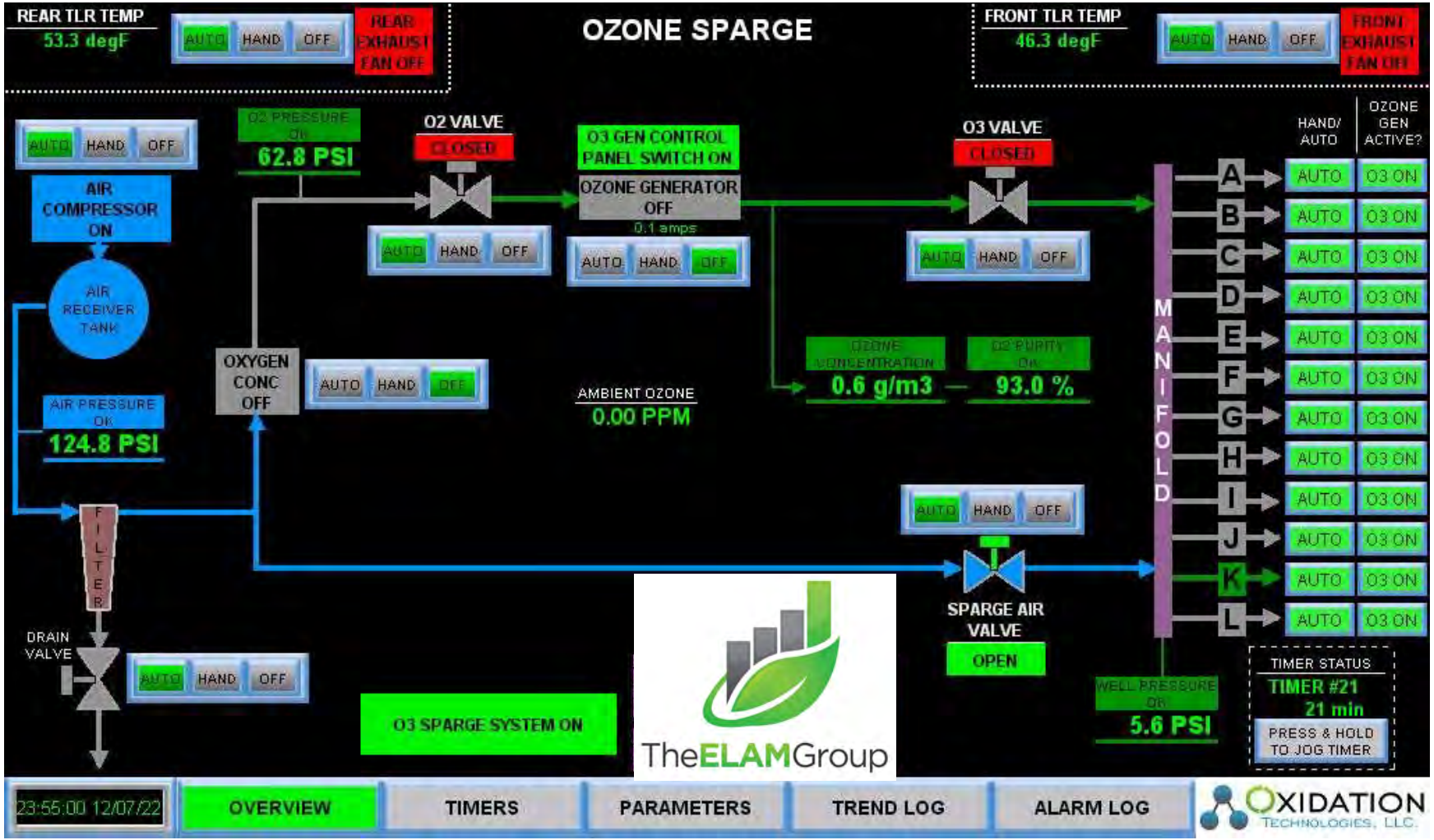

REAR TLR TEMP
52.5 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
57.1 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
114.1 PSI
O2 PRESSURE OK
65.1 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
9.4 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
98.8 g/m3
O2 PURITY
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.1 PSI
TIMER STATUS
TIMER #3
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/02/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

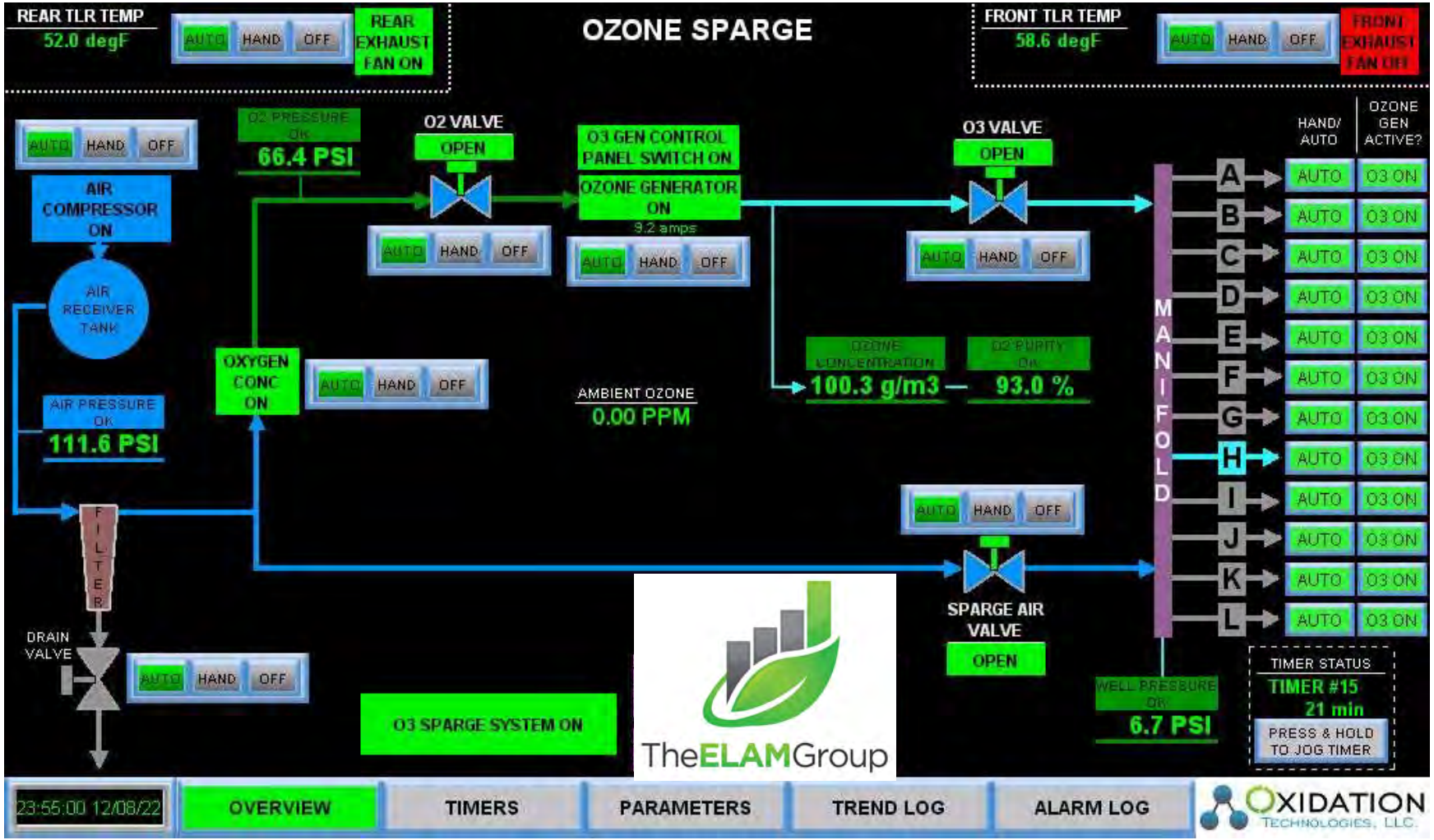

REAR TLR TEMP
50.3 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
55.7 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
114.9 PSI
O2 PRESSURE OK
65.2 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
9.4 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
99.5 g/m3
O2 PURITY
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.6 PSI
TIMER STATUS
TIMER #21
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/03/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

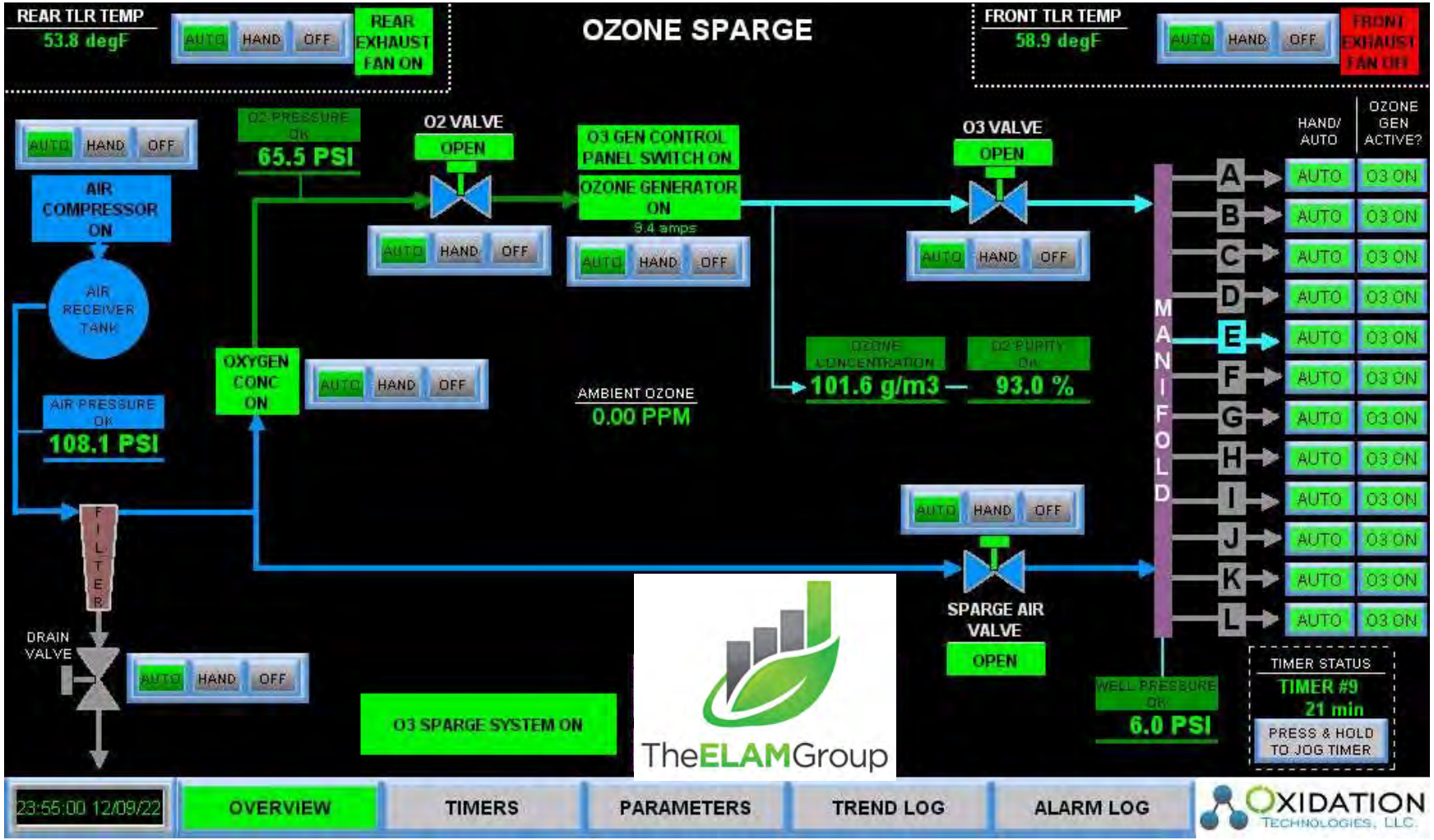
12/04/22 - File Missing

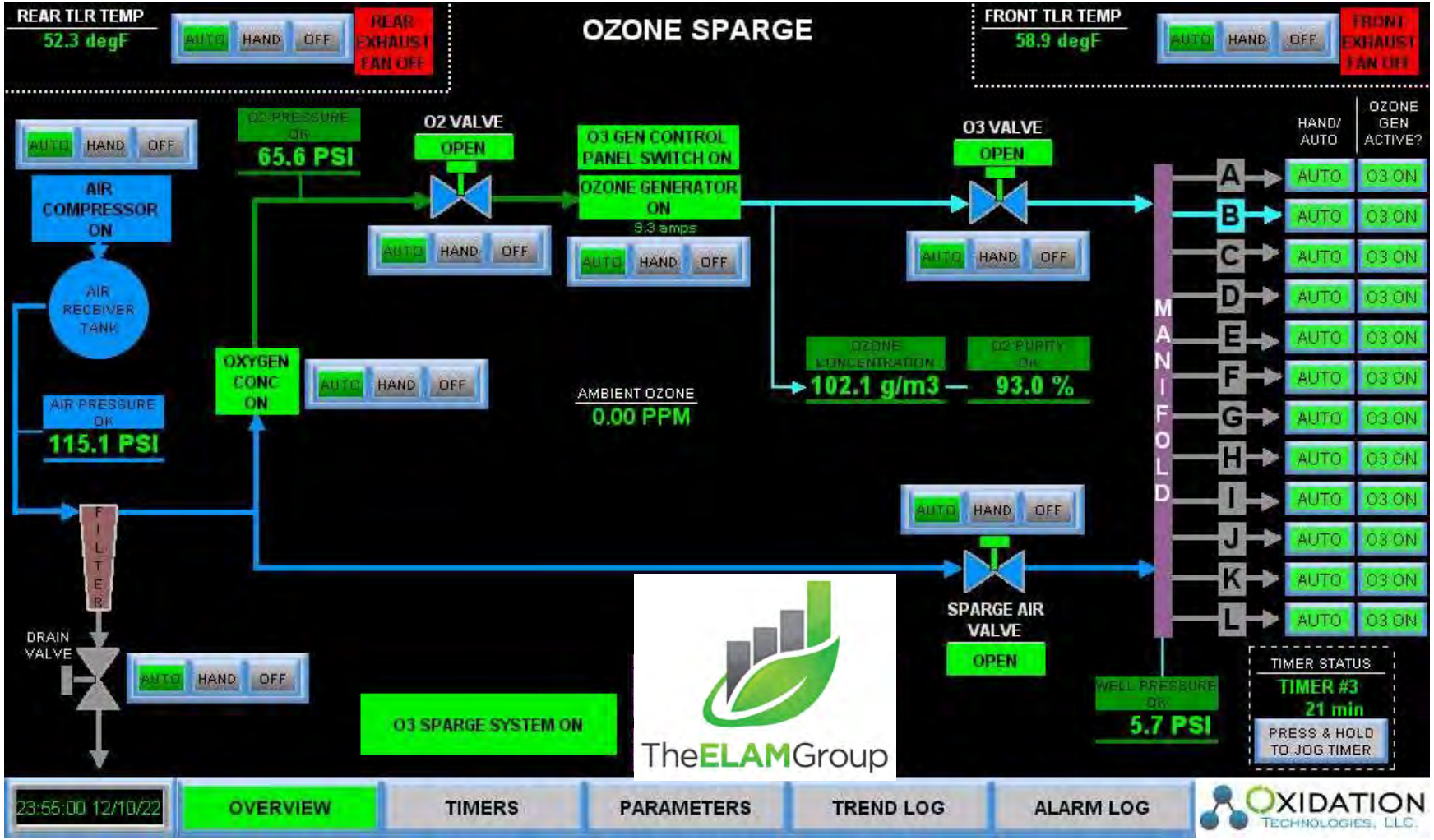

REAR TLR TEMP
53.1 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
58.2 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
122.8 PSI
O2 PRESSURE OK
65.4 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.2 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
99.4 g/m3
O2 PURITY
93.0 %
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
WELL PRESSURE OK
6.1 PSI
TIMER STATUS
TIMER #9
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/05/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

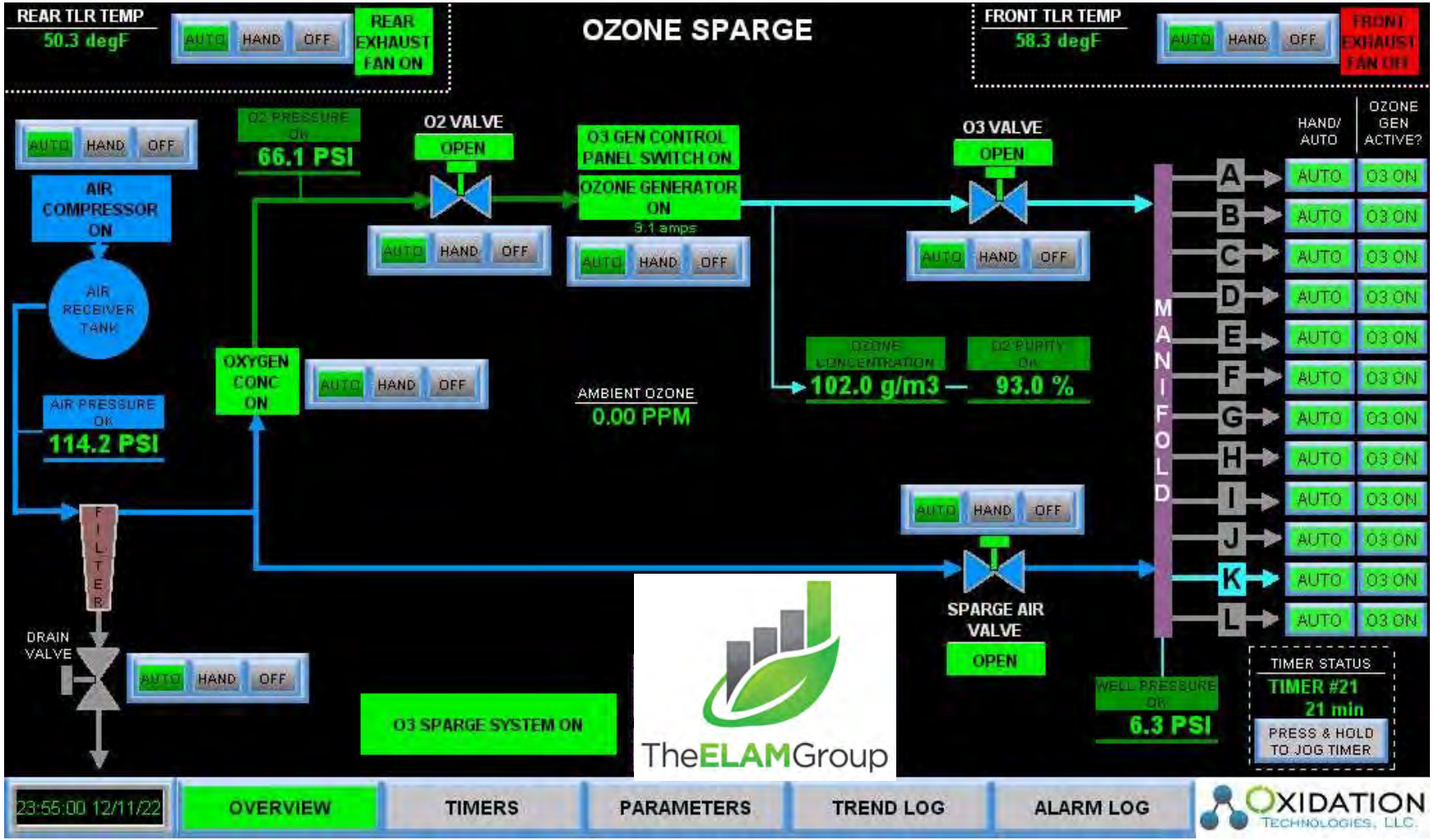
12/06/22 - File Missing

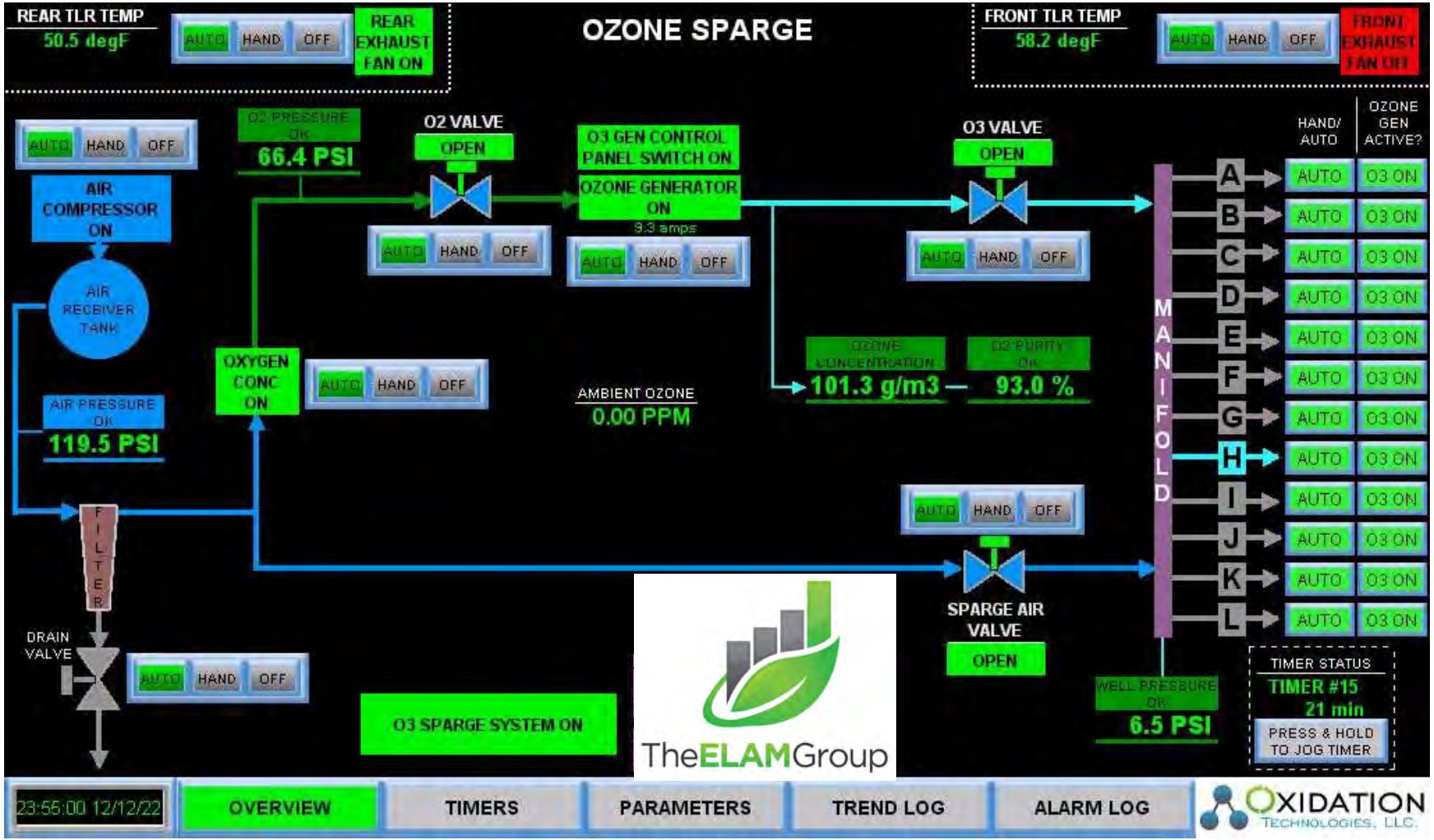

REAR TLR TEMP
53.3 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
46.3 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
124.8 PSI
O2 PRESSURE OK
62.8 PSI
O2 VALVE
CLOSED
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR OFF
0.1 amps
AUTO HAND OFF
O3 VALVE
CLOSED
AUTO HAND OFF
OXYGEN CONC OFF
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
0.6 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
5.6 PSI
TIMER STATUS
TIMER #21
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/07/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

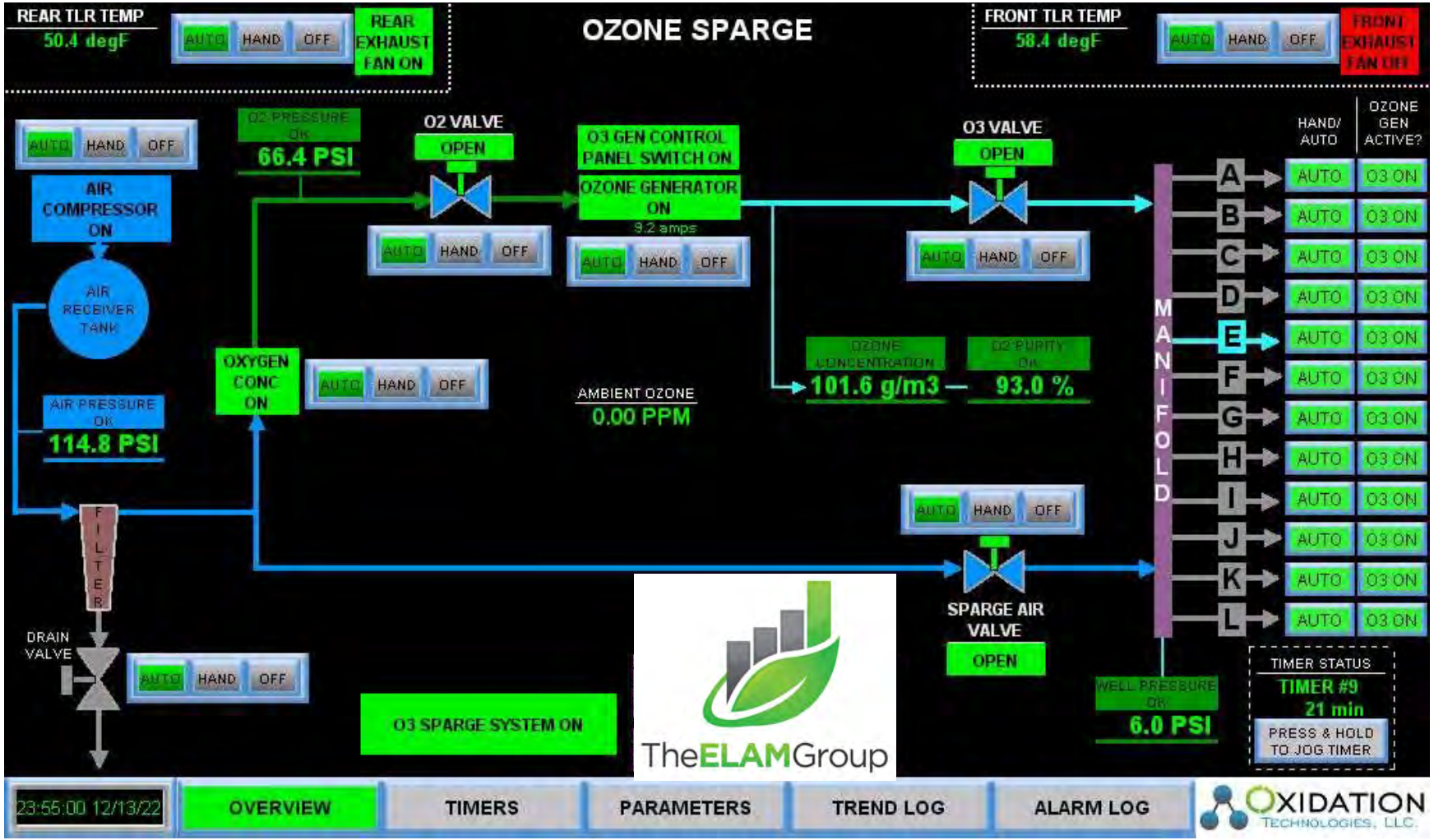

REAR TLR TEMP
52.0 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
58.6 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
111.6 PSI
O2 PRESSURE OK
66.4 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.2 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
100.3 g/m3
O2 PURITY
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.7 PSI
TIMER STATUS
TIMER #15
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/08/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

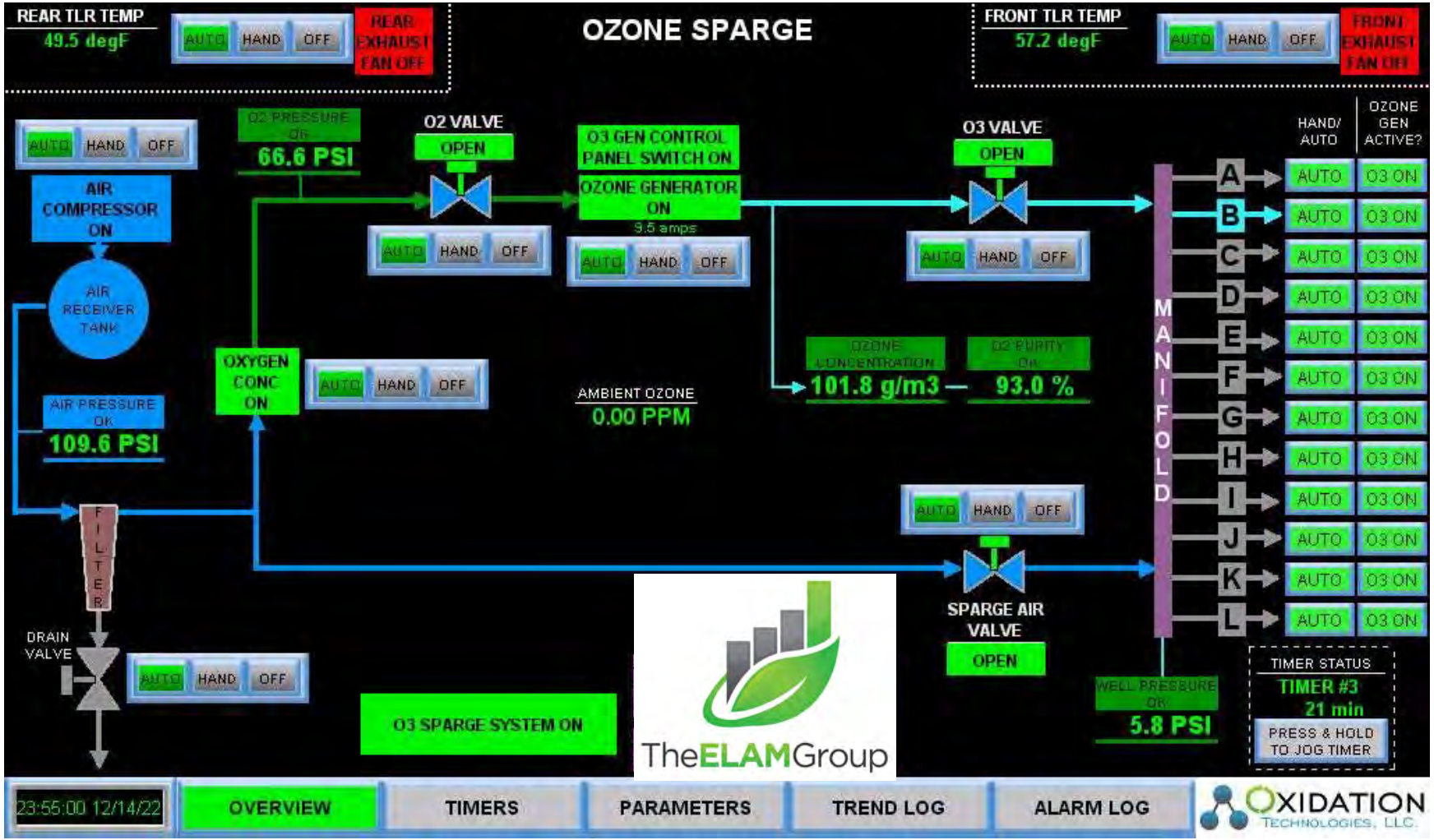

REAR TLR TEMP
53.8 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
58.9 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
108.1 PSI
O2 PRESSURE OK
65.5 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
9.4 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
101.6 g/m3
O2 PURITY
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.0 PSI
TIMER STATUS
TIMER #9
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/09/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

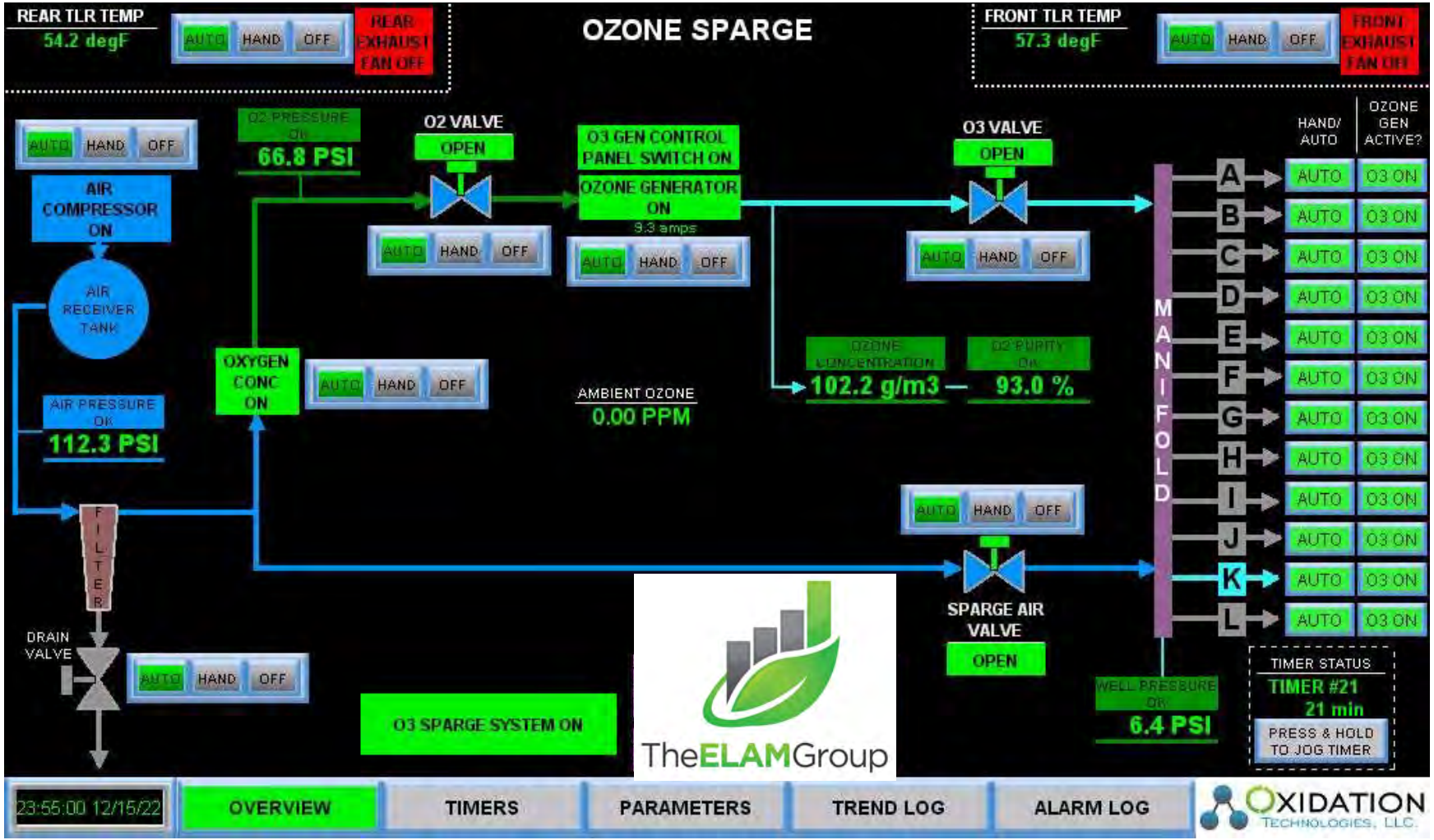

REAR TLR TEMP
52.3 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
58.9 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
115.1 PSI
O2 PRESSURE OK
65.6 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
102.1 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
5.7 PSI
TIMER STATUS
TIMER #3
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/10/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

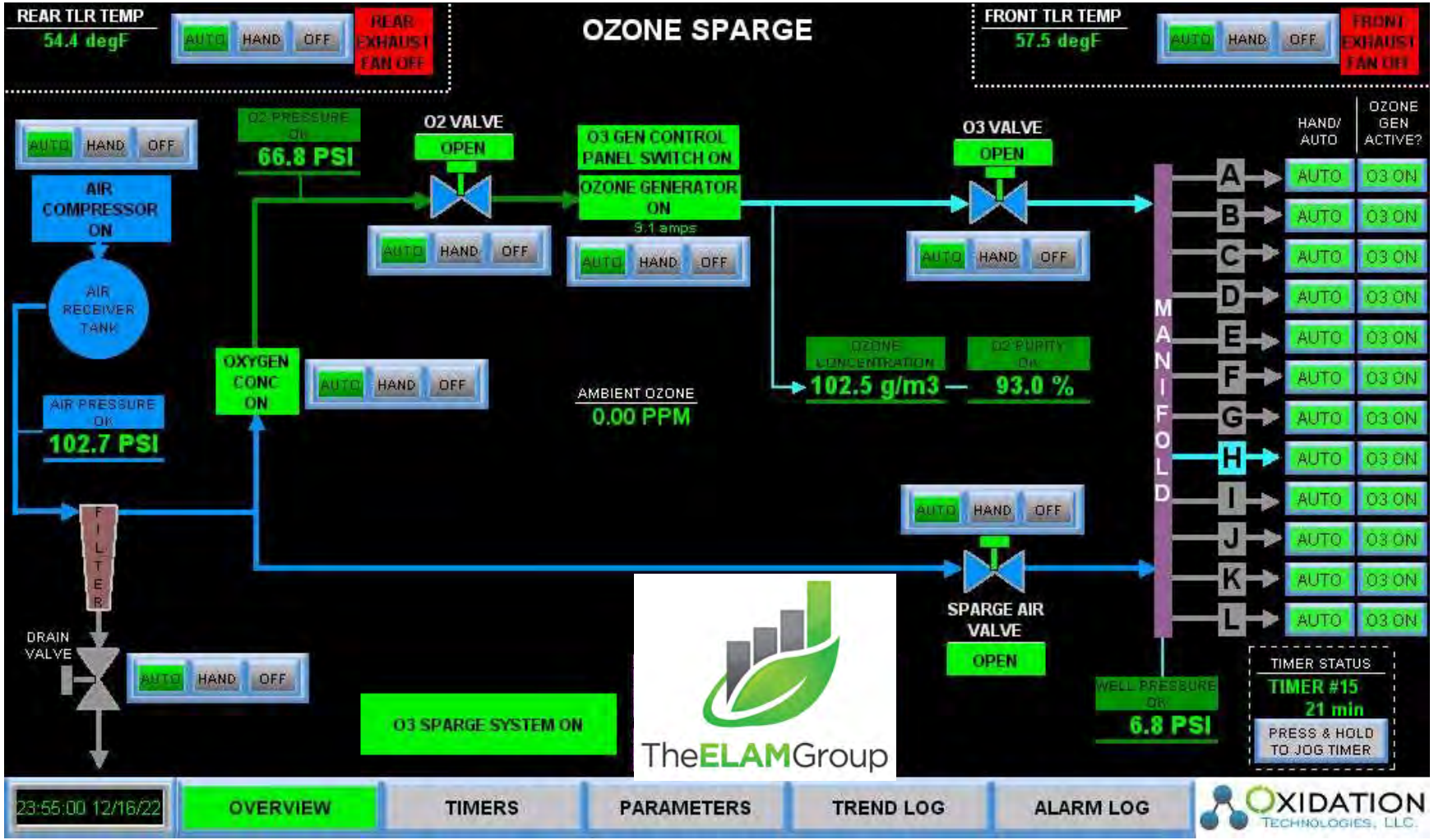

REAR TLR TEMP
50.3 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
58.3 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
114.2 PSI
O2 PRESSURE OK
66.1 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.1 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
102.0 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.3 PSI
TIMER STATUS
TIMER #21
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/11/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.


REAR TLR TEMP
50.5 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
58.2 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
119.5 PSI
O2 PRESSURE OK
66.4 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
101.3 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.5 PSI
TIMER STATUS
TIMER #15
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/12/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

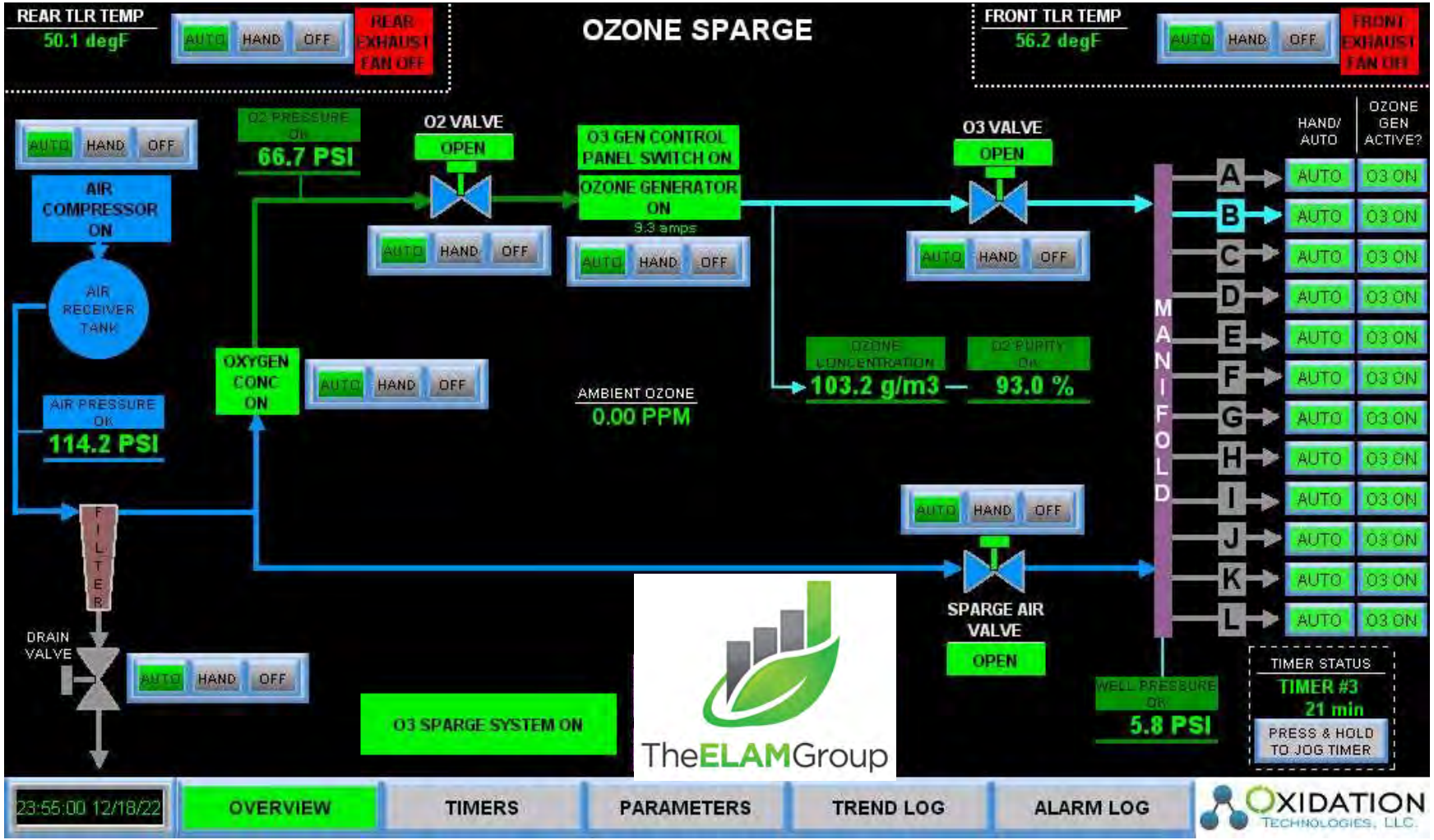

REAR TLR TEMP
50.4 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
58.4 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
114.8 PSI
O2 PRESSURE OK
66.4 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.2 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
101.6 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.0 PSI
TIMER STATUS
TIMER #9
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/13/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

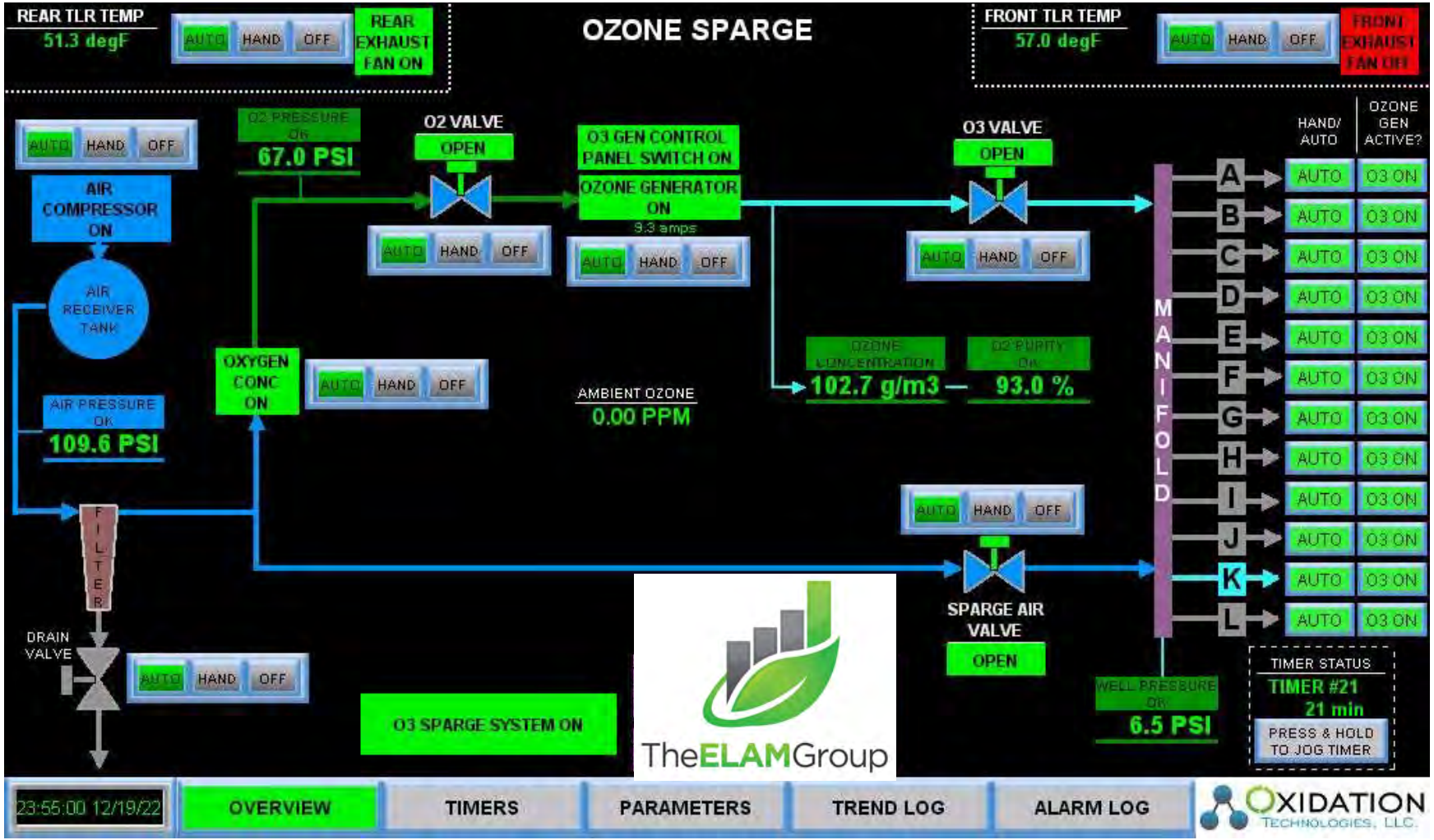

REAR TLR TEMP
49.5 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
57.2 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
109.6 PSI
O2 PRESSURE OK
66.6 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
9.5 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
101.8 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
5.8 PSI
TIMER STATUS
TIMER #3
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/14/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

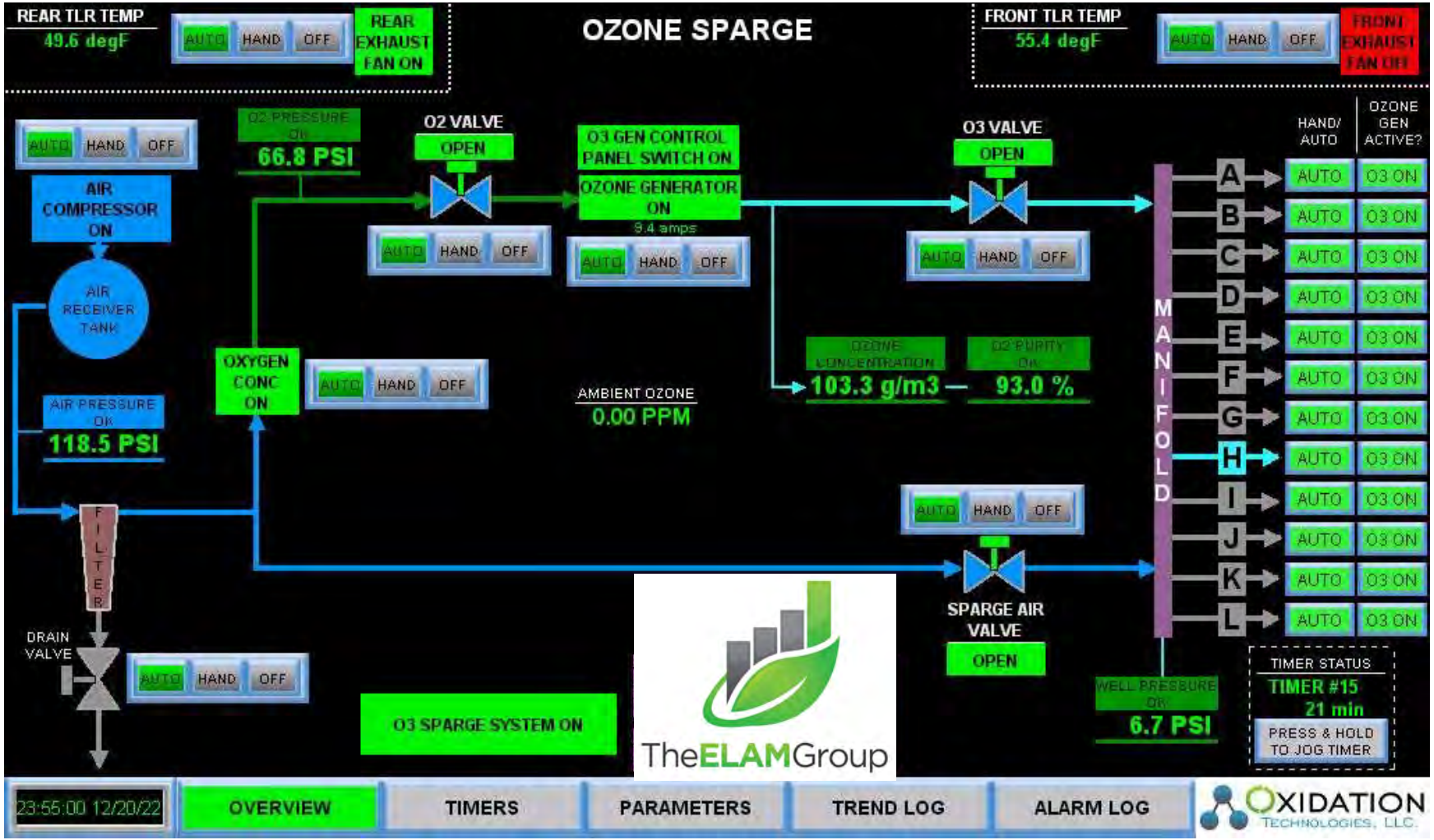

REAR TLR TEMP
54.2 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
57.3 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
112.3 PSI
O2 PRESSURE OK
66.8 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
102.2 g/m3
O2 PURITY OK
93.0 %
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
WELL PRESSURE OK
6.4 PSI
TIMER STATUS
TIMER #21
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/15/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

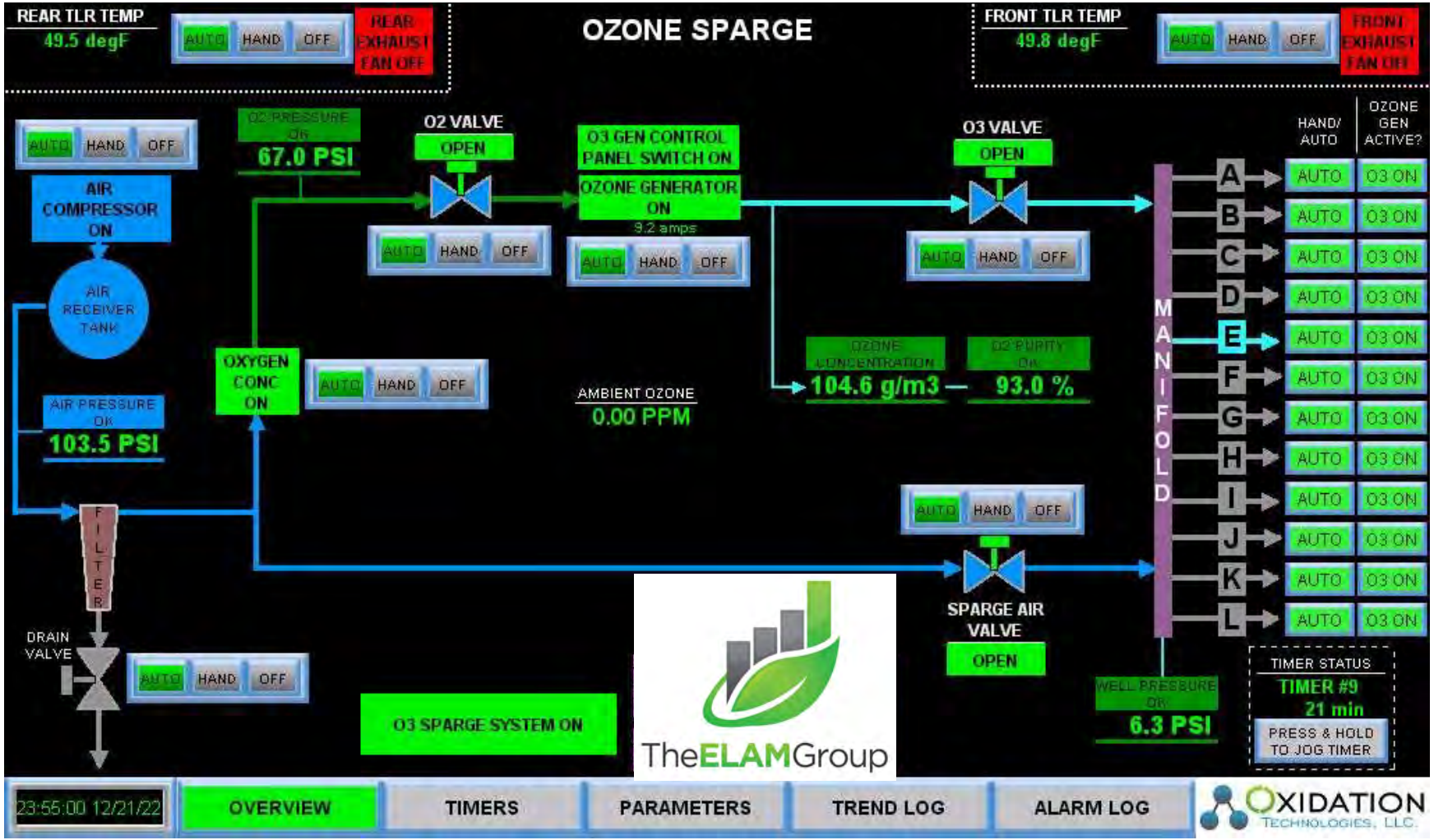

REAR TLR TEMP
54.4 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
57.5 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
102.7 PSI
O2 PRESSURE OK
66.8 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.1 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
102.5 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.8 PSI
TIMER STATUS
TIMER #15
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/16/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

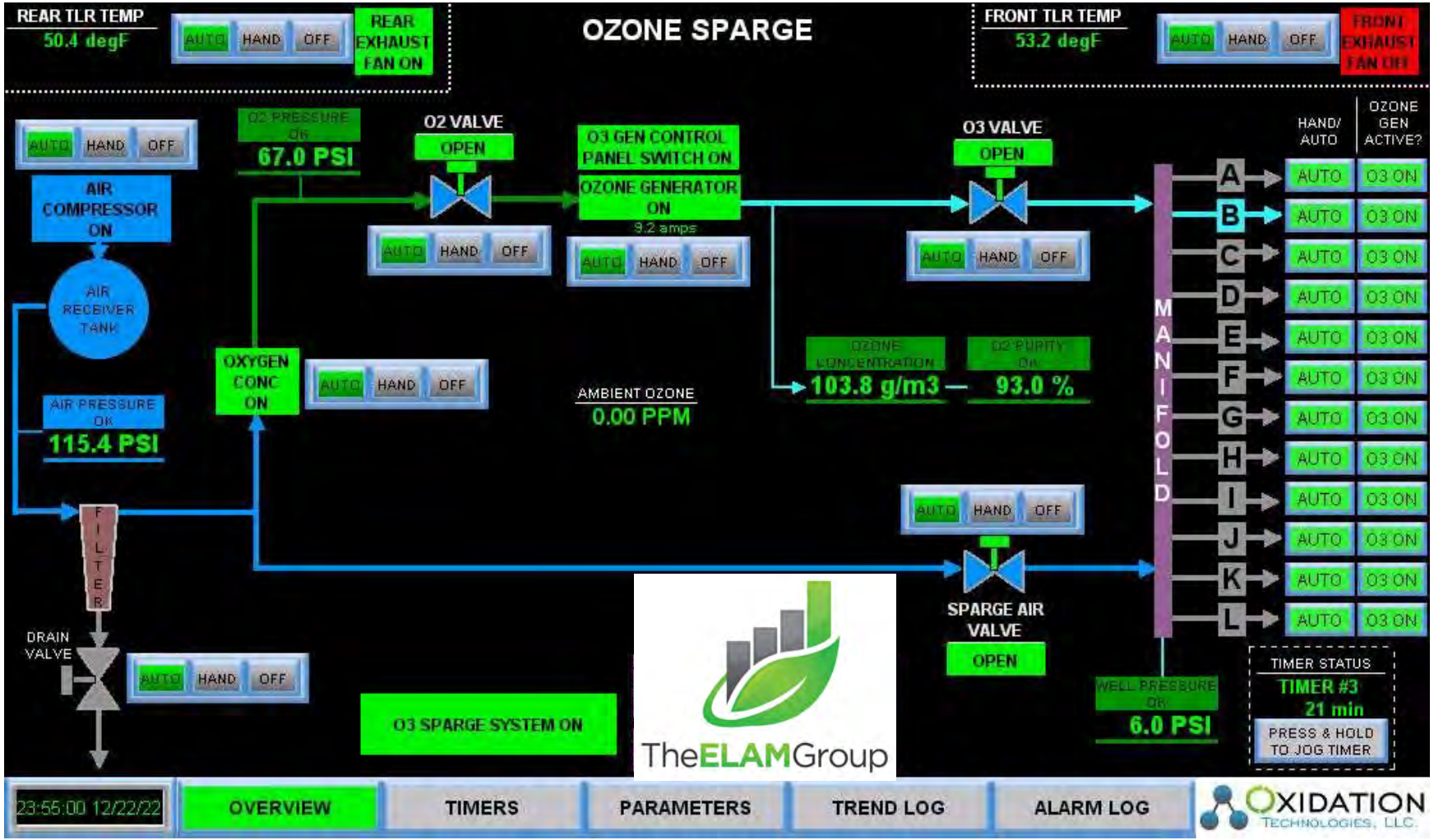
12/17/22 - File Missing

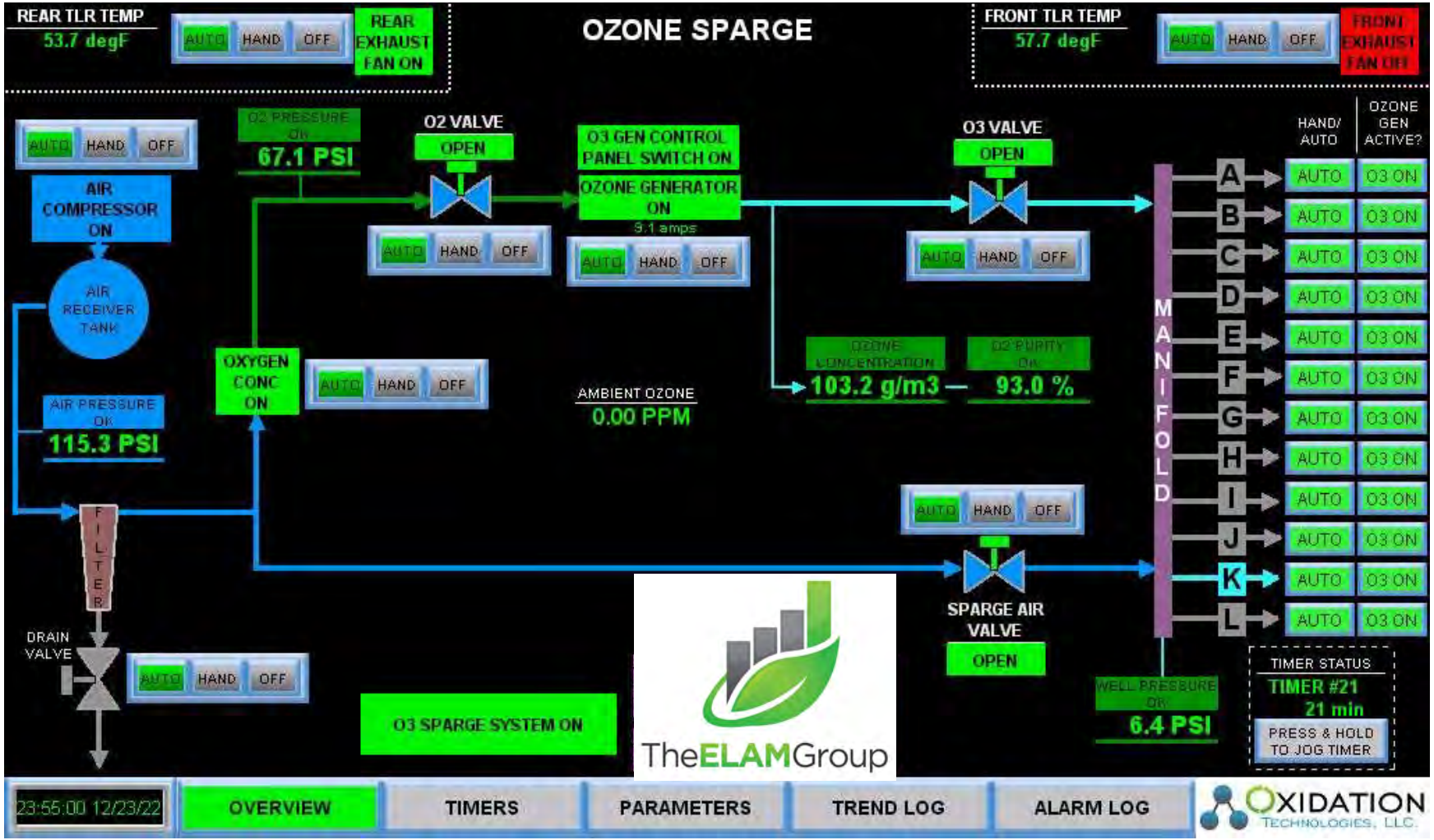

REAR TLR TEMP
50.1 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
56.2 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
114.2 PSI
O2 PRESSURE OK
66.7 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
103.2 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
5.8 PSI
TIMER STATUS
TIMER #3
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/18/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

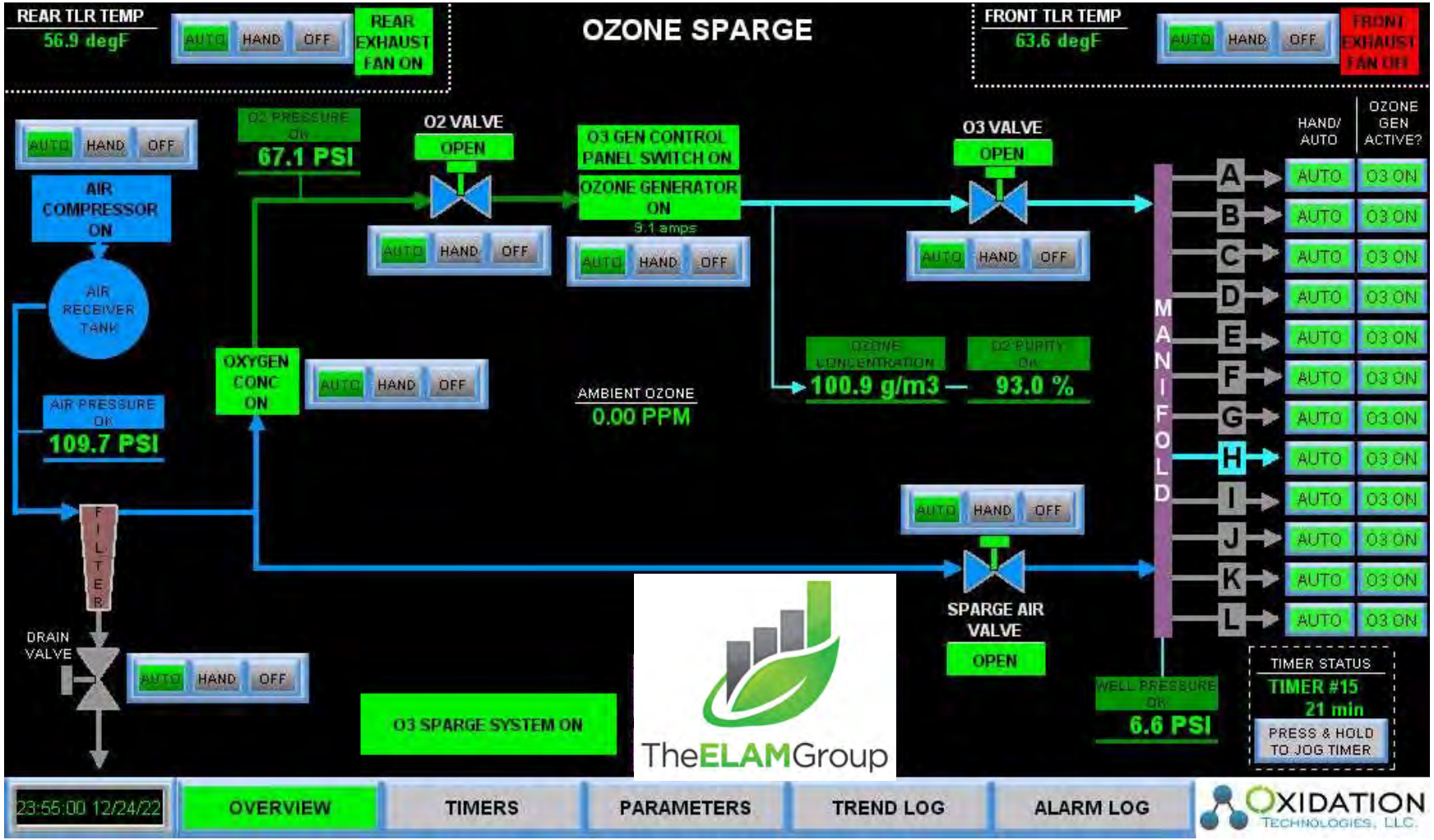

REAR TLR TEMP
51.3 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
57.0 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
109.6 PSI
O2 PRESSURE OK
67.0 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.3 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
102.7 g/m3
O2 PURITY
93.0 %
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.5 PSI
TIMER STATUS
TIMER #21
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/19/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

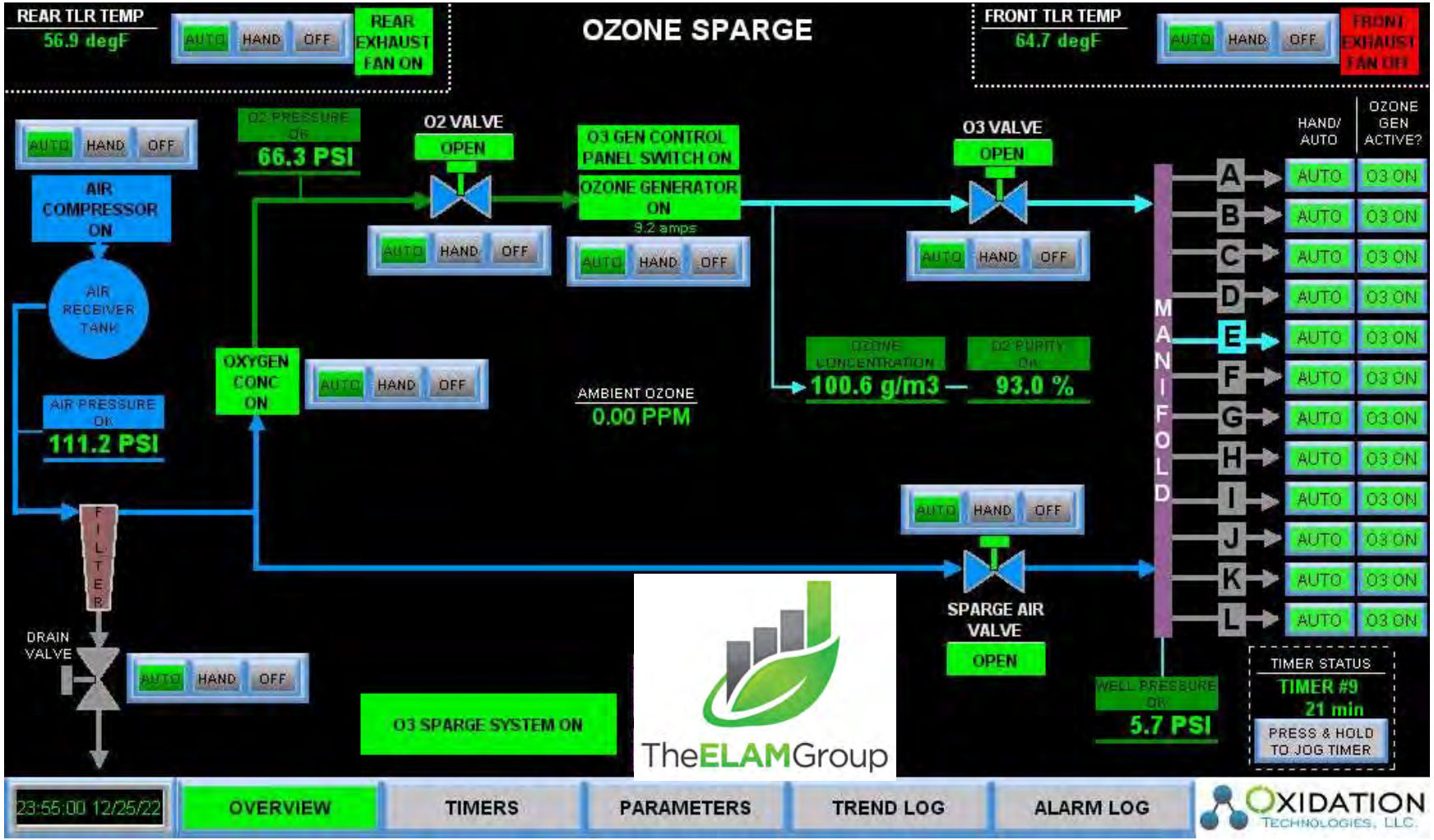

REAR TLR TEMP
49.6 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
55.4 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
118.5 PSI
O2 PRESSURE OK
66.8 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
9.4 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
103.3 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.7 PSI
TIMER STATUS
TIMER #15
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/20/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

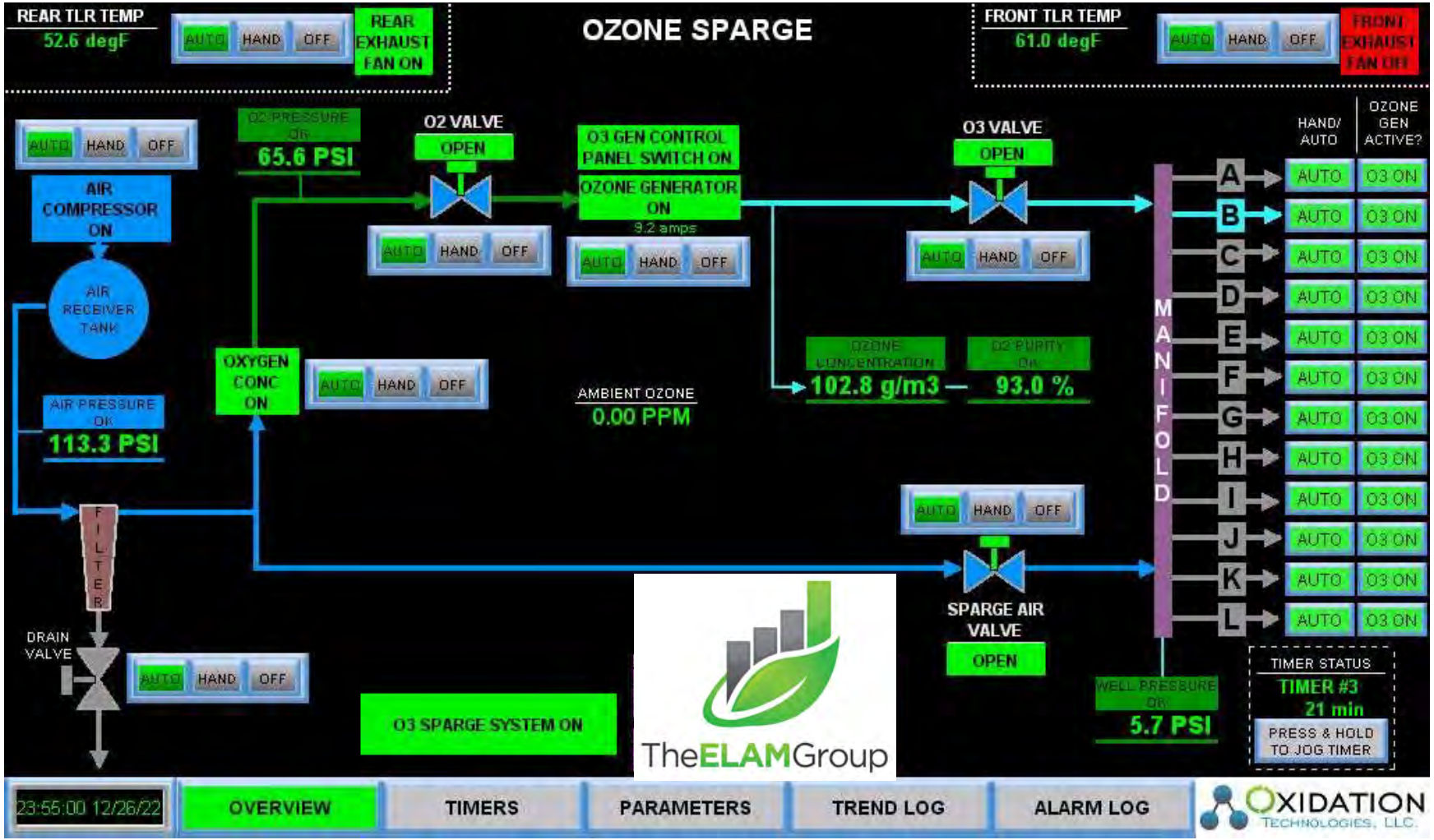

REAR TLR TEMP
49.5 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
49.8 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
103.5 PSI
O2 PRESSURE OK
67.0 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.2 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
104.6 g/m3
O2 PURITY OK
93.0 %
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
WELL PRESSURE OK
6.3 PSI
TIMER STATUS
TIMER #9
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/21/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.


REAR TLR TEMP
50.4 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
53.2 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
115.4 PSI
O2 PRESSURE OK
67.0 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.2 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
103.8 g/m3
O2 PURITY
93.0 %
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
WELL PRESSURE OK
6.0 PSI
TIMER STATUS
TIMER #3
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/22/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.


REAR TLR TEMP
53.7 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
57.7 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
115.3 PSI
O2 PRESSURE OK
67.1 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.1 amps
AUTO HAND OFF
O3 VALVE
OPEN
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
103.2 g/m3
O2 PURITY OK
93.0 %
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
WELL PRESSURE OK
6.4 PSI
TIMER STATUS
TIMER #21
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/23/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

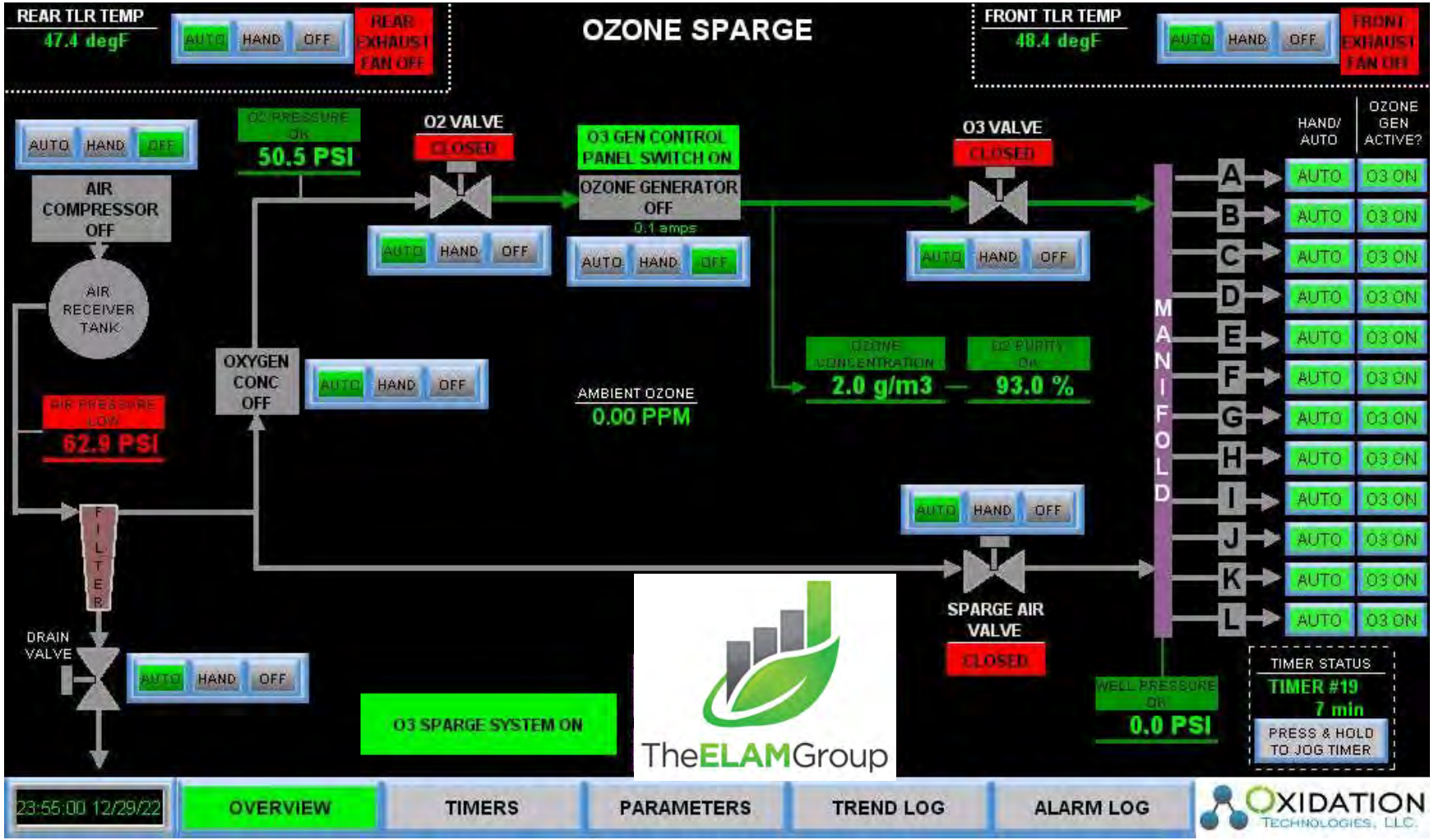

REAR TLR TEMP
56.9 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
63.6 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
109.7 PSI
O2 PRESSURE OK
67.1 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.1 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
100.9 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
6.6 PSI
TIMER STATUS
TIMER #15
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/24/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

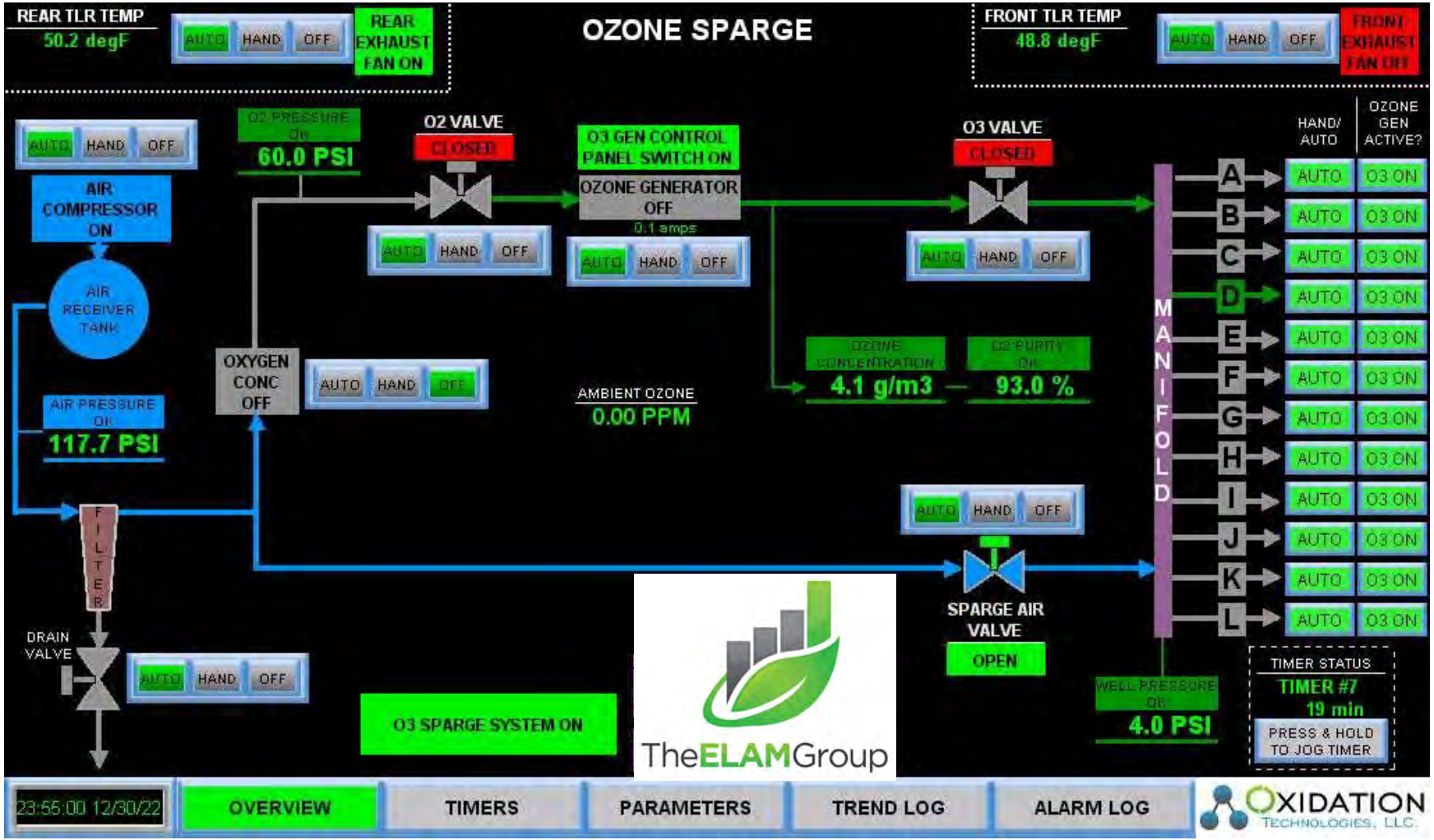

REAR TLR TEMP
56.9 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
64.7 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
111.2 PSI
O2 PRESSURE OK
66.3 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.2 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
100.6 g/m3
O2 PURITY
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
5.7 PSI
TIMER STATUS
TIMER #9
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/25/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

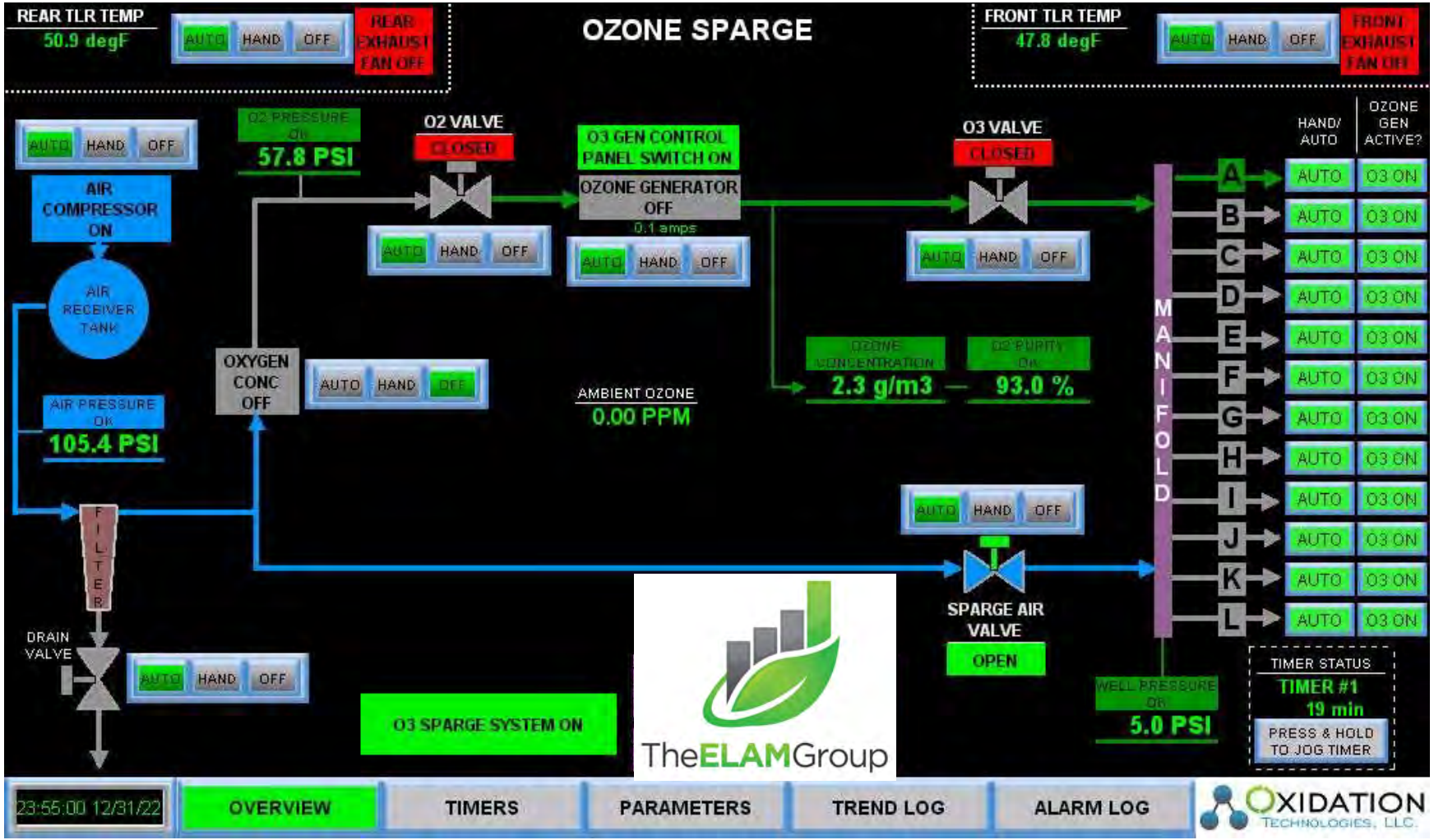

REAR TLR TEMP
52.6 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
61.0 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
113.3 PSI
O2 PRESSURE OK
65.6 PSI
O2 VALVE
OPEN
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR ON
3.2 amps
AUTO HAND OFF
OXYGEN CONC ON
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
O3 VALVE
OPEN
AUTO HAND OFF
OZONE CONCENTRATION
102.8 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
5.7 PSI
TIMER STATUS
TIMER #3
21 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/26/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

12/27/22 - File Missing

12/28/22 - File Missing


REAR TLR TEMP
47.4 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
48.4 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR OFF
AIR RECEIVER TANK
AIR PRESSURE LOW
62.9 PSI
O2 PRESSURE OK
50.5 PSI
O2 VALVE
CLOSED
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR OFF
0.1 amps
AUTO HAND OFF
O3 VALVE
CLOSED
AUTO HAND OFF
OXYGEN CONC OFF
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
2.0 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
CLOSED
WELL PRESSURE OK
0.0 PSI
TIMER STATUS
TIMER #19
7 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/29/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.


REAR TLR TEMP
50.2 degF
AUTO HAND OFF
REAR EXHAUST FAN ON
OZONE SPARGE
FRONT TLR TEMP
48.8 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
117.7 PSI
O2 PRESSURE OK
60.0 PSI
O2 VALVE
CLOSED
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR OFF
0.1 amps
AUTO HAND OFF
O3 VALVE
CLOSED
AUTO HAND OFF
OXYGEN CONC OFF
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
4.1 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
A
B
C
D
E
F
G
H
I
J
K
L
HAND/ AUTO
OZONE GEN ACTIVE?
AUTO
O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
4.0 PSI
TIMER STATUS
TIMER #7
19 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/30/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

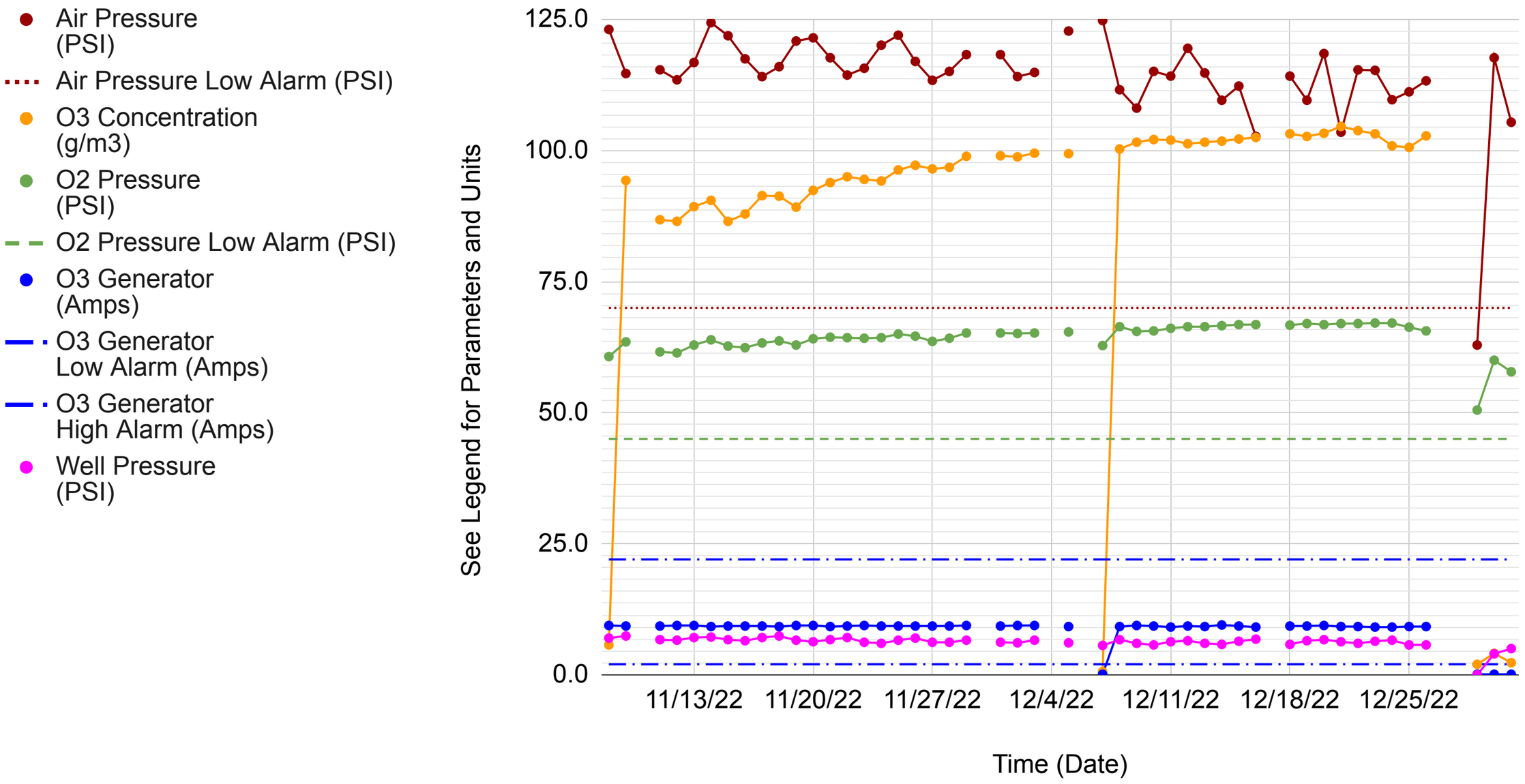

REAR TLR TEMP
50.9 degF
AUTO HAND OFF
REAR EXHAUST FAN OFF
OZONE SPARGE
FRONT TLR TEMP
47.8 degF
AUTO HAND OFF
FRONT EXHAUST FAN OFF
AUTO HAND OFF
AIR COMPRESSOR ON
AIR RECEIVER TANK
AIR PRESSURE OK
105.4 PSI
O2 PRESSURE OK
57.8 PSI
O2 VALVE
CLOSED
AUTO HAND OFF
O3 GEN CONTROL PANEL SWITCH ON
OZONE GENERATOR OFF
0.1 amps
AUTO HAND OFF
O3 VALVE
CLOSED
AUTO HAND OFF
OXYGEN CONC OFF
AUTO HAND OFF
AMBIENT OZONE
0.00 PPM
OZONE CONCENTRATION
2.3 g/m3
O2 PURITY OK
93.0 %
MANIFOLD
HAND/ AUTO
OZONE GEN ACTIVE?
A AUTO O3 ON
B AUTO O3 ON
C AUTO O3 ON
D AUTO O3 ON
E AUTO O3 ON
F AUTO O3 ON
G AUTO O3 ON
H AUTO O3 ON
I AUTO O3 ON
J AUTO O3 ON
K AUTO O3 ON
L AUTO O3 ON
FILTER
DRAIN VALVE
AUTO HAND OFF
AUTO HAND OFF
SPARGE AIR VALVE
OPEN
WELL PRESSURE OK
5.0 PSI
TIMER STATUS
TIMER #1
19 min
PRESS & HOLD TO JOG TIMER
O3 SPARGE SYSTEM ON
TheELAMGroup
23:55:00 12/31/22
OVERVIEW
TIMERS
PARAMETERS
TREND LOG
ALARM LOG
OXIDATION TECHNOLOGIES, LLC.

Appendix F

OITS Daily Operation Data Chart

Appendix F: OITS Daily Operation Data Chart

Former Cherry Street Cleaners - VCP ID: NW2009



Appendix G

OITS Ozone Production Chart

Appendix G: OITS Ozone Production Chart

Former Cherry Street Cleaners - VCP ID: NW2009