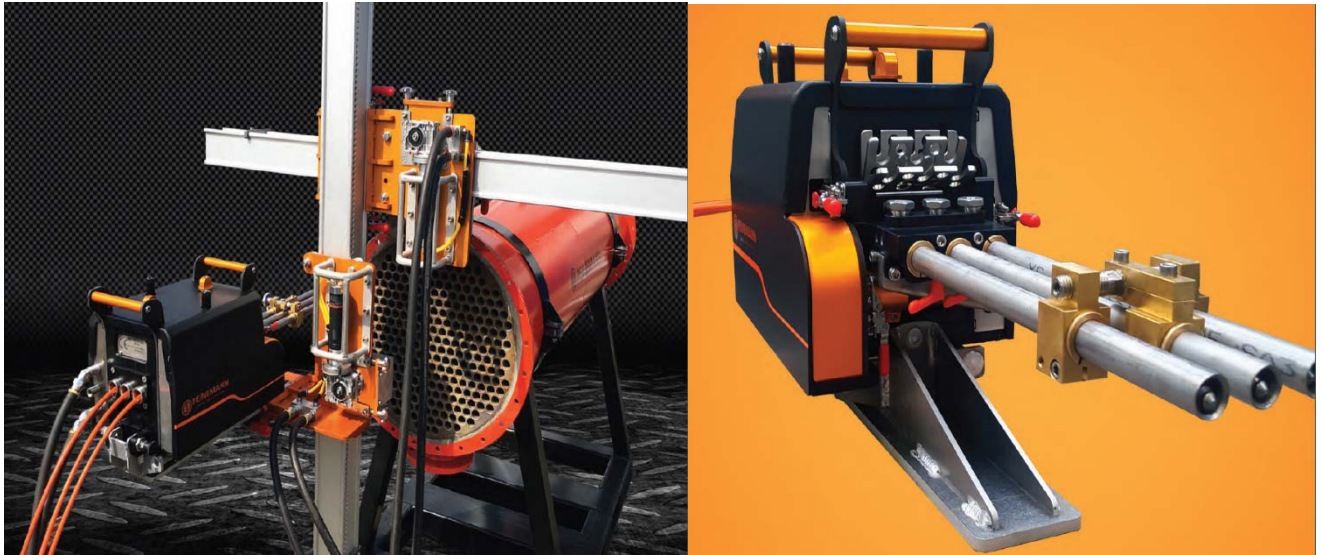




MN-PV-CIS-030

TLX Competency Manual

MN-PV-CIS-030 – TLX Competency Manual
Rev 1

Updated: December 1, 2021

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Training Expectation Letter

It is required that this document is completed prior to the Employee starting training on a TLX Triple Tube Lance. This document will serve as formal record that all parties have reviewed and understand the expectations for training on the TLX Triple Tube Lance.

Trainee Name:

Date of Discussion:

Expectations of Supervisor/Leader

- Ensuring trainee has scheduled time for training.
- Ensure trainee has reviewed and understand the technical documentation
- Verify field competency sign offs once completed
- Provide support for the assessor, mentor, trainer and trainee whenever possible.
- Ensure training documentation is sent to CEDA Training Department

Expectations of Trainer, Mentor, assessor

- Must be qualified in the position for which he/she is training.
- Educate and support trainee with technical review package.
- Review trainee's technical knowledge and verify acceptable understanding
- Educate and support trainee with field tasks identified in the competency check sheet
- Verify trainee has the ability to perform tasks identified in the competency check sheet
- Communicate to Supervisor that the technical review and field competency is complete

Expectations of Trainee

- Complete all prerequisites outlined within the training program.
- Understand the training process outlined in this document.
- Understanding systems and spending time in the field.
- Ensure all lessons and tasks are signed off by the appropriate personnel as indicated on the training documents.
- Inform Supervisor/Leader on progress of training through face to face meetings.
- Will utilize all the materials provided to ensure a comprehensive training program is followed.
- Provide feedback on the training process and any updates that are required to the training material.
- Inform Supervisor/Leader of any training barriers that may exist during the training process.

Training Expectation Acceptance Agreement

I, _____ understand the expectations of me as a trainee as outlined in this document

(Operator Name)

Operator\Trainee

Name

Signature

Date (MM\DD\YY)

Supervisor/Leader

Name

Signature

Date (MM\DD\YY)



Acknowledgement

This manual has been developed using information and knowledge obtained from manufacturer's documentation and input from experienced Operators. Additionally, this manual has been validated by numerous Subject Matter Experts at CEDA. We welcome any comments or suggestions pertaining to this manual and its contents.

Many thanks to those who have demonstrated a clear dedication to CEDA and our values by participating in the creation of this program.

Jeremy Hanrahan (Fort McMurray)

Tate Regular (Fort McMurray)





Objective

Welcome to TLX Tripple Tube Lance

This program is designed to provide you with the training necessary to carry out your job in a manner that safeguards yourself, those around you and our environment. Upon Completion of this Module you will be able to:

- Describe purpose of TLX operation.
- Describe/ locate major equipment and components.
- Describe/ locate operator controls.
- Identify principles of operation.
- Understanding of operating limits and Safety Considerations
- Operate CEDA TLX Tripple Tube Lance

Employee(s) will demonstrate knowledge & skill in the proper application of equipment through practical application.

Instructions

All material must be completed in the order presented to ensure that prerequisites are met.

Employees will demonstrate knowledge and skill in the proper application of equipment through practical demonstration and application.

NOTE: All forms and procedures included are those required by CEDA. Work must be performed in accordance with these standards. On Client work sites, there may be additional standards and modified work procedures that will also have to be met.

Description: This is a knowledge and practical skill that requires written material to be reviewed along with the completion of an on-the-job demonstration prior to the test being written.

Whenever possible, the on-the-job demonstration should be completed at a job site or the shop under controlled conditions.

Arrange a time with your Mentor/Supervisor/Trainer to complete the On-the-Job Demonstration, where you will observe the proper operation of the Wet Vacuum unit and its components.

Assessment of Competency: Successful completion of this competency requires:

- A score of 100% on the written examination.
- A successful demonstration by trainee requiring a sign-off from Trainer.



Prerequisites

- CEDA Orientation
- HP Water Blasting Practice
- HP Theory Training
- Specific work location Orientation
- High Volume Pump Training

Below is a list of the learning resources that are included and others you must obtain the most recent version from your Supervisor.

- TLX Operations Procedures
- TLX Operators Manual
- TLX Daily Pre-Job Checklist
- CEDA Pre-Trip Inspection (Vehicle Inspection Report)
- Site specific documentation
- Job Hazard Analysis for the work
- CEDA FLHA
- Other CEDA procedures and practices that pertain to the job being completed

NOTE: All forms and procedures included are those required by CEDA. Work must be performed in accordance with these standards and can be found in CEDA Health, Safety and Environment Management System (HSEMS) or be requested from your Leader. On Client work sites, there may be additional standards and modified work procedures that will also have to be met.

General Overview

Federal & Provincial Legislation

All work must be completed in accordance with applicable Municipal, Provincial, & Federal Acts & Regulations, including but not limited to:

Transportation of Dangerous Goods (TDG)

- Vehicle must be DOT Approved and be equipped with appropriate safety devices
- DOT approved vehicles will have sticker on side of unit
- Operator must place appropriate placards on side of vehicle
- Operator must prepare bill of lading prior to transporting materials

The Workplaces Hazardous Materials Information System (WHMIS)

- All CEDA field employees working with or around equipment will have WHMIS and TDG training prior to starting work.

Occupational Health & Safety (OH&S)

Seat Belts

Anytime a vehicle (CEDA owned or personal) is being operated during business hours for business use, or on CEDA property, the occupants must be wearing seatbelts.



Personal Protective Equipment (PPE)

To operate the TLX, employees must have and utilize the following personal protective equipment (PPE):

- CSA Certified Hard Hat
- CSA Certified Safety Boots (Boot Grips when required)
- Fire Retardant Coveralls
- Hearing Protection (plugs or muffs)
- Approved Gloves for the Site/Task
- Safety Glasses with Side Shields.
- Rain Gear as Required

For hot materials, the following additional personal protective equipment may also be required:

- Rubber gloves

- 
- Steel-toed rubber boots
 - Face shield

Workplace Organization

CEDA's goal is to reduce waste (time, energy and materials) by maintaining an orderly and clean workplace, including our trucks and equipment. We ask that you take pride in the equipment you operate; treat it as if it were your own. A clean and organized vehicle/workspace is a safer vehicle/workspace. There are many ways to eliminate waste:

Allocation & Utilization of Resources: Have the right people and equipment in the right place, at the right time. Use equipment and resources on tasks and activities that are required and add value to our business.

Improve Productivity: Eliminate redundant or unnecessary steps/tasks without negative impact to the safety or quality of our products and services.

Use of Materials: Ensure equipment is stocked with required supplies (filter bags, duct tape etc.) before leaving for jobsite – replace the materials you have used during the shift to ensure that the next crew is adequately stocked. Use the correct materials in the quantities required to do the job safely & correctly.

Preventative Maintenance: Tools and equipment should be assessed as per the performance maintenance schedule to ensure safe operation. Regular maintenance will reduce costly breakdowns in the field.

There are steps we can take to improve our current state and move towards a more productive, organized and safe work environment. Improving workplace organization will reduce costs, improve morale and create a safer work environment. The following steps outline how best to achieve an organized workplace:

Sort, organize and eliminate unnecessary items from the workplace to eliminate clutter. Keep only essential items.

- Tools and equipment that are not utilized for day-to-day operations should be repurposed within the organization or discarded.
- Garbage or loose items should be removed or properly stored.

Prioritize tools, parts and materials based on usage and keep them in easily-accessible places.

- A place for everything and everything in its place.

Create storage areas that are easy to access and clearly laid out:

- Tools and equipment should be stored clean and ready for use.
- Storage areas and stored items should be properly identified using signage, labels or a visual outline.

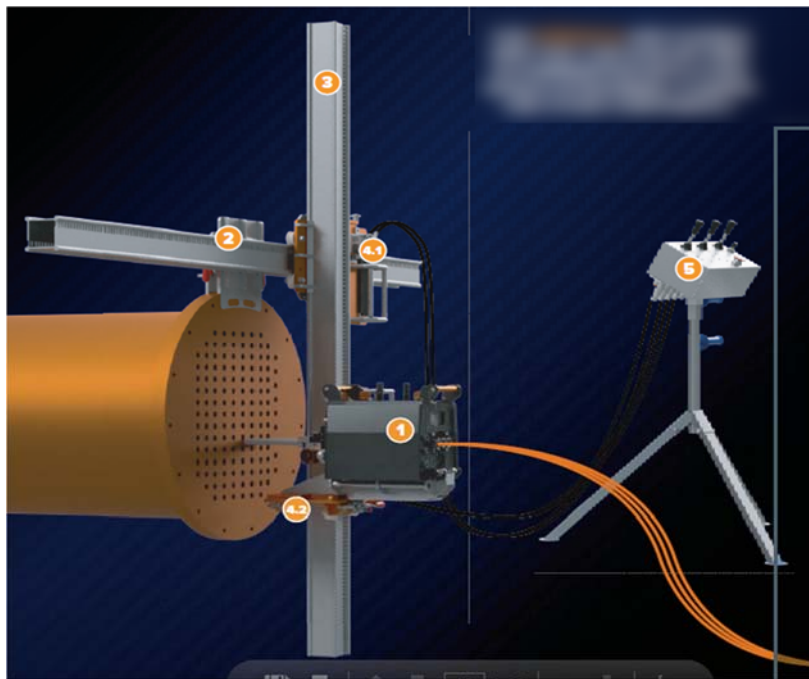
Set clear standards for workplace organization:

- Hold yourself and others accountable for keeping the work areas clean and safe. Make workplace organization a standard work rule in your area.
- Clean general work areas and equipment after each shift.
- Put clean tools away in the proper place.
- Note any spills, leaks or other messes – clean and report if equipment requires maintenance
- Inspect the area(s) regularly and immediately record and correct any infractions. Handle deviations from work rules in a timely manner.
- Review processes and procedures regularly and adjust as required.

Equipment Overview

The Triple Lance Tube Cleaner (TLX) is an automatic flex lance cleaning system that uses high pressure water to clean smaller piping and tubing. Most commonly the TLX is used for cleaning tubes inside heat exchanger bundles. Heat exchangers can have up to several thousand tubes that require cleaning to maintain the unit's efficiency. High pressure pumps are connected to the TLX tool which consists of 3 lancing probes that have the ability to clean three tubes at the same time. Operators control these probes from a safe distance via remote control which allows forward, reverse, up and down motion of the equipment by air motors.

The TLX has the capabilities of cleaning both vertical and horizontal bundles and with its compact and light weight design it can complete scopes in difficult to reach locations



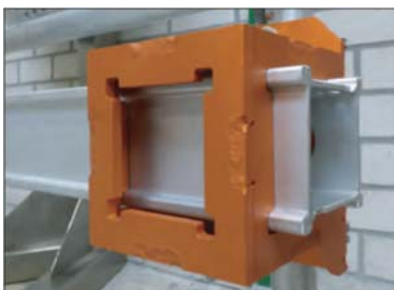
Typical Set up of TLX System

Main Components of a TLX System

The TLX. This component provides the mechanical force to push/pull the lance tubes into the area being cleaned. It allows the operator to control travel speeds and efficiently clean the component selected using a wide range of cleaning options.



The various mounting brackets allow for mechanical securement of slotted rail system to prevent movement. Can be mounted directly to the exchanger or mounted using one of the many other options.

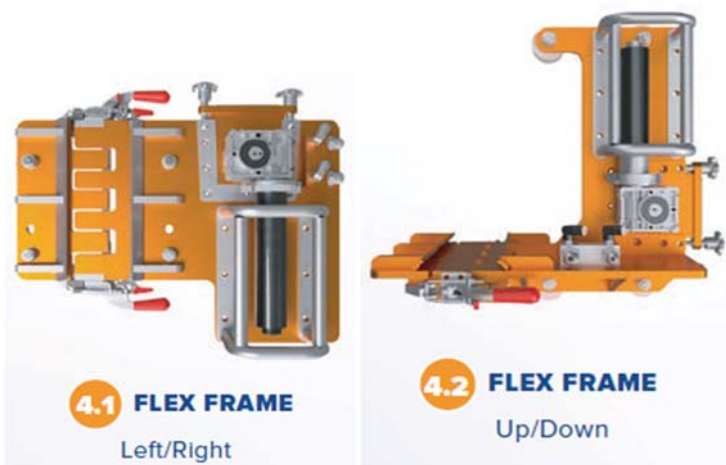


2 MOUNTING BRACKET

The slotted rail system allows for directional movement of the TLX unit in conjunction with the vertical and horizontal drive motors.

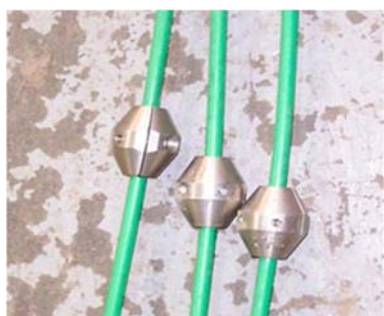


3 4" DUAL SLOTTED RAIL
Slotted rail with holes to connect two pieces together



These flex frame components are drive motors that allow the tool to move left to right (4.1 Horizontal Drive Motor) and up and down (4.2 Vertical Drive Motor)

The Control Panel allows the operator to control the up, down, left right movement of the drive motors and forward/reverse motions of the flex lance. This is also equipped with a momentary (“Deadman”) switch which operates an air actuated dump valve setup.



Hose stoppers limit the depth in which the flex lance can be placed into the tubes being cleaned. This will prevent the high pressure flex lance from exiting the tube or pushing to far into a “U” shaped exchanger and causing damage. Hose stoppers come in different sizes and need to be aligned with the hose size being used.

Anti-Withdrawal Devices prevent the high pressure flex lances from reversing and exiting the tubes being cleaned. These devices ensure the safety of the operator and **MUST** be in place prior to starting the cleaning process or introducing pressure

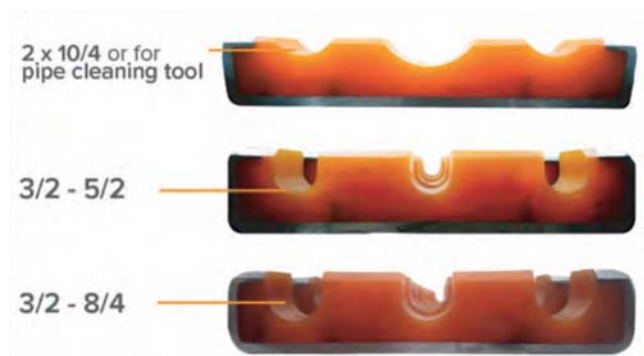


Anti Withdrawl Device 1



Anti Withdrawl Device 2

Friction blocks are designed to advance and retract the flex lance(s). The friction blocks are attached to a chain that moves the blocks forwards and backwards. This component is designed to receive the flex lance(s) and create a clamping force on the flex lance. These blocks range in size – please ensure you have the correct size selected for your flex lance.

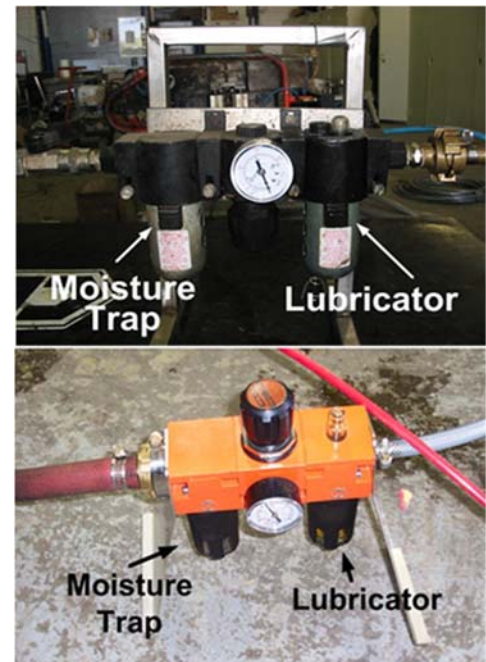


The Cartridge is an easy, no tool changeable component. There is a Drive Cartridge and a Driven Cartridge. These are equipped with auto tensioners to keep the friction block chains tight during operation. The drive cart has a shaft mounted gear that is interchangeable to select various feed rates per minute. These cartridges move within the TLX body to create the clamping force required to push/pull the Flex Lance.



Air Regulators assemblies serve multiple functions:

- Regulate air flow/Psi that drives the movement of the 3-TLX flex lance(s)
- Adds extra lubrication (air tool oil)
- Captures moisture from the air supply



There are a wide variety of cleaning nozzles that can be used. Brands such as Stoneage Tools, Jetstream, APS, Derc Salotech and Teryadon are the most commonly used at CEDA.

The Stoneage Tools model “Banshee” would be considered one of the most common models that CEDA uses as these have several configurations from 10K-40K at a variety of GPM.

Exchanger Cleaning Nozzles



Procedural Guidelines

Procedural Guideline: Job Preparation for TLX

Step	Description	Notes
1.	Don required PPE.	✓
2.	Complete daily pre-job checklist.	✓
3.	Complete field level hazard assessment (FLHA) in the work environment.	✓ Review FLHA with crew performing the scope. ✓ Review of JHA with crew performing the scope ✓ Complete a Pre job start up meeting to ensure all parties involved understand the specific details of the scope (ie. Max cleaning pressure, roles and responsibilities)
4.	Place "Do not enter" and "High Pressure Water Blasting" signs securing all areas where the equipment and hoses are installed	✓
5.	Verify that the exchanger bundle being cleaned is secured in position, with the tubes oriented in the correct manner to facilitate cleaning.	✓ For straight through exchangers, back stop is to be used if required.
6.	Secure the frame (rails) into position using extendable legs, scaffolding clamp, fin fan clamp or by physically connecting the frame to the exchanger (method is dependent upon position and type of exchanger being cleaned).	
7.	Install left to right motorized driver to top rail	✓
8.	Install non – motorized driver to bottom rail when using a three rail system	✓
9.	Secure vertical rail into both top and bottom drivers	✓
10.	Install up and down motorized driver to vertical rail	✓
11.	Install specific flex lance for cleaning with TLX system	✓
12.	Install AWD (Anti Withdrawal Device) for the specific Flex Lance that is being used.	
13.	Visually inspect and install proper length guide tubes	
14.	Install 3-TLX to up and down driver	
15.	Align the guide tube with the first tube(s) being cleaned	



16.	Feed flex lance through exchanger being cleaned to determine proper length and install hose stop to ensure tip doesn't exit exchanger (do not perform this task under pressure).	
17.	Place foot pedal or air actuated dump system	✓ Place foot pedal in accessible area out of line of fire
18.	Install whip checks at each hose connection.	✓
19.	Install high pressure hoses from the pressure pump to the foot pedal or air actuated dump system.	✓ Ensure hoses are placed in a manner to prevent trip hazards ✓ Use hose ramps or hooks to organize hoses if possible
20.	Ensure flex lance hoses have the ability to move freely and without obstruction as the cleaning process requires	✓ Watch hose path on first test and move as required
21.	Install Flex Lance hose to the foot pedal or air actuated dump system	
21.	Install foot pedal bypass hose if required	✓ Ensure hoses are placed in a manner to prevent trip hazards
21.	Install air hoses from the air supply to the control panel	
21.	Install air line from control panel to correct locations on drive motors and 3-TLX.	✓ Each location is labeled to what function they do
21.	Support all hoses and assemblies to prevent excessive sway and stress on connections and protect them from abrasive wear against hard surfaces.	

Procedural Guideline: Flushing and Pre-Start up of the system

1.	Check or install both bag and Absolute filters using correct micron rating.	✓ Confirm Micron rating with operator manual and supervision depending on water to be used
2.	Fill High Pressure truck tank with water or hook up direct feed from water truck or fire hydrant.	✓
3.	3-TLX Operator to communicate with the Pump Operator to engage the pressure pump to flush system	✓
4.	Pump Operator to Open water supply valve(s)	✓
5.	Allow water to flow out of tank to the filter pot.	✓ Note any discoloration of water or excessive dirt. If water is too dirty, stop operation and inform leadership.
6.	High Pressure pump operator to ensure the needle valve is fully opened	✓
7.	High Pressure pump operator to engage pump at idle only	✓



8.	Ensure lubrication lines running to plungers are free and clear of obstructions and ensure water flow is sufficient.	✓ This must also be verified throughout cleaning process as well
9.	Activate air actuated dump valve or foot peddle to allow water to flow through all connected hose to clear them of any dirt, grit or debris.	✓
10.	3-TLX Operator to communicate with the Pump Operator to disengage pressure pump.	✓
11.	Pressure pump operator to idle down pump and disengage	✓
12.	Attach cleaning nozzle assemblies.	✓ Use proper tools – Incorrect tools can damage nozzles and cause premature failure.

Procedural Guideline: Cleaning Operation

1.	Establish effective communication with the pump operator where there is no line of sight between the Pump operator and the operator performing the cleaning.	✓ i. Where there is direct line of sight between operators, it may be possible to use a crew of only 2 workers
2.	3-TLX Operator to communicate with Pump Operator to engage pressure pump.	✓
3.	Pump operator to verify that the water valves are open	✓
4.	Pump Operator to Engage pressure pump	✓
5.	3-TLX Operator to confirm water flow and then engage foot pedal or air actuated dump system	✓
6.	Inspect for leaks along the line by having the operator engage pump and slowly raise the pressure.	✓ At no time will the pressure exceed the maximum allowable pressure of the pump and hoses being used (e.g. 10,000psi, 15,000psi, 20,000psi, 36,000psi etc.). ✓ Shutdown unit if any leaks or defects are noted. Repair or replace defective equipment. Do not attempt to repair while system is pressurized.
7.	Pump Operator to slowly raise the pressure of the system until the target cleaning pressure has been reached.	✓
8.	3-TLX Operator to start feeding the flex lance into the tubes via control panel.	✓ Adjust feed speed as needed
9.	Visually inspect the cleaning water that is exiting tube to determine if additional cleaning passes are required.	✓ Clean water exiting would suggest sufficient cleaning of the tubes have been done. Dirty water would suggest additional cleaning required
10.	Retract flex lance by operating the control panel	✓ Maneuver lever in reverse direction
11.	Repeat Steps #8 through #11 if additional cleaning passes are required on the same tube.	✓ Based on step 9
12.	Before moving to the next tube to be cleaned, flex lance must be depressurized by disengaging foot pedal or Air actuated dump valve.	✓ Ensure flex lance is completely back in the barrel before repositioning
13.	3-TLX Operator to align 3-TLX system with the next tubes to be cleaned	✓



14.	Repeat cleaning steps #8 through #12 to complete cleaning on all tubes required	✓
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Procedural Guideline: Shut Down / Job Completion

1.	3-TLX Operator to disengage air actuated dump valve or foot peddle once all tubes have been cleaned	✓
2.	3-TLX Operator to communicate with Pump Operator to initiate pressure pump shut down	✓
3.	Pump Operator to open bypass valve and reduce pressure pump RPM to idle.	✓
4.	Pump operator to disengage pressure pump.	✓
5.	Pump Operator to close water valves	✓
6.	3-TLX Operator and Pump Operator to begin draining of equipment, hoses and other system components, as required, during winter operations.	✓ Refer to the winterization procedure
7.	Remove dirty filter, drain filter pot and leave filter pot open.	✓
8.	When cleaning inspection is approved begin demobilization	✓
9.	Open all drain valves to ensure zero stored energy with in equipment, hoses and components	✓
10.	Disconnect all hoses, components and equipment and return to storage.	✓
11.	Ensure all housekeeping is completed prior to leaving the work area	✓

Procedural Guideline: Winterization

1.	If water tank is being utilized, close valve supplying water to booster pump or filter pot	✓
2.	If Direct feed is being utilized, depressurize hoses and remove	✓
3.	If possible disconnect supply line form booster pump or filter pot to ensure proper drainage	✓ Drain hose directly into sewer drain or area where ice is less likely to build up
4.	Remove water from filter pot by opening valve on bottom of the pot	✓ Drain directly into sewer drain or area where ice is less likely to build up
5.	Open top of filter pot and remove filter	✓
6.	Close valve on bottom of filter pot when all the water has been drained	✓



7.	Poor Glycol into filter pot until full	✓ when pressure pump is engaged, operator will have to keep filling the filter pot until entire system has been winterized
8.	Pressure pump operator to ensure the bypass valve is open, engage pump at idle and then close bypass valve	✓
9.	3-TLX operator to engage foot pedal or air activated dump system to ensure glycol will flow through all hoses	✓
10.	When glycol is confirmed at last hose exit, 3-TLX operator to communicate to shut down pressure pump	✓
11.	Pump operator to open bypass on pressure pump and confirm glycol is being returned to water tank to ensure bypass line is winterized	✓
12.	Pressure pump operator to shut down Pressure pump	✓
13.	Remove water from water tank by dumping at appropriate location or have a vacuum truck remove it	✓
14.	When water tank is drained, leave all valve open and all hoses drained so they won't freeze and split	✓

Safety Considerations

Minimizing Hazards During Operation

Failure to read and observe all safety considerations statements could result in severe injury or death to personnel and damage to property.

1. Operate a machine that is not completely or fully assembled could result in injury or property damage. Do not operate this machine until it is completely assembled. Inspect hoses, fittings for leaks or fatigue before each use.
2. Water under high pressure can cause severe injury.
3. Anti-withdrawal devices are required for all 3-TLX operations
4. Injury to the operator or bystanders could occur if the machine is operated without safe guards in place on the unit. When operating the machine, all safety devices must be in place including whip checks, hose stops and anti-withdrawals.
5. Machines have moving parts that can cause injury. Keep hands, feet and loose clothing away from the unit and operate with the control panel from a safe distance.
6. Always wear correct PPE when operating the unit.
7. Shut the machine OFF and confirm zero energy before servicing or completing maintenance. Failure to do so could result in injury.
8. All hoses used for high pressure must be certified for the intended pressure, tested annually and inspected each time prior to use to ensure no damage and free/clear of obstruction



Maintenance

Preventative Maintenance Program

Maintenance must occur on a regular basis to keep the equipment in working order. Follow the chart below for regular maintenance activities.

Field Level Maintenance

COMPONENT	REQUIRED CHECKS/MAINTENANCE	FREQUENCY OF MAINTENANCE
Hoses and Fittings	Inspect for worn or frayed ends.	Daily
Rail System	Inspect to verify securement	Daily
Control Panel	Inspect for damage.	Daily
Dump System	Inspect for damage.	Daily

Troubleshooting

CAUSE(S)	CORRECTIVE ACTION(S)
TLX not moving on rails	Ensure rails are level and TLX is not close to the exchanger face. Check Air Supply.
TLX only moving one way on rail	Ensure drive gear is properly aligned with the holes. Ensure Slotted rail is not damaged.
Lance lines not moving in or out.	Ensure the correct size Friction Blocks are being used for the selected lance. Check adjustment on the chain
Drive Chains not moving.	Verify air supply or air adjustment on the regulator is correct. Check for overtightened Cartridges.
TLX not responding to the control panel	Ensure all hoses and fittings are secured properly from the control panel to the TLX unit.
Tip not spinning.	Check for leaks; Ensure tip is not plugged; Ensure the required pressure/GPM is being used for the tip.



Lance line slipping or moving backwards through the TLX	Ensure back out stoppers are the correct size for the hose being used. Check/Adjust tension on Cartridges. Ensure tube being cleaned is not blocked.
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Multiple Choice Questions (Technical Quiz)

Complete the following test, and have it graded by your assessor. If any questions are answered incorrectly, your assessor will explain what the correct answer is, and why it is correct. Once you understand the correct answer, both the assessor and students initials are required to indicate that mentoring or coaching has taken place.

Question	Assessor's Initials	Student's Initials
1. 3-TLX systems can only operate at 10,000 PSI. a. True b. False		
2. Safety devices used in a 3-TLX system include? a. Hose whip checks b. Hose Stoppers c. Anti-withdrawals d. All of the above		
3. A 3-TLX is most commonly used to clean what equipment? a. Coker Drums and Vessels b. Large bore piping and Heat exchangers c. Heat exchangers and Fin Fans d. Fin Fans and Tanks		
4. 3-TLX systems require the water to be filtered. a. True b. False		
5. The 3-TLX can clean using how many Flex Lances at the same time? a. 6 b. 3 c. 5 d. 2		
6. No material /fluids over ____ °F should be loaded due to risk of burning the seals. a. 200 °F b. 100 °F c. 500 °F d. 1000 °F		



Practical Assessment – TLX Operations

This form is to be filled out by the assessor as they observe the student successfully demonstrate these items in order to be deemed competent.

Assessment Check List

#	Identify Components...	Trainee Initials	Assessor Initials
3-TLX Components for Operation			
1	3-TLX Main Lance Feeder Unit		
2	Mounting Brackets		
3	Rail System		
4	Horizontal and Vertical Drive Motors		
5	Control Panel		
6	Flex Lance tips and hoses		
7	Air actuated dump valve / Foot Pedal		
8	Bag and Absolute Filters		
9	Guide Tubes		
10	Anti-Withdrawal Devices		
#	Demonstrate...	Trainee Initials	Assessor Initials
3-TLX Pre-Job and Setup Tasks			
1	Obtain all work permits.		
2	Review/Complete Tool Box Talk, Permit, Pre-Job Meeting, FLRA, JHA etc.		
3	Perform Pre-use inspection of the tool and components checking for damage.		
4	Properly place signage and flagging		
5	Properly position and secure equipment being cleaned to prevent movement and allow safety access		
6	Ensure all hoses and fittings meet the pressure design of the job being completed		
7	Ability to install 3-TLX unit and its components correctly in the proper sequence		
8	Ability to install hoses and fittings and ensure they are properly supported, positioned and secured to avoid abrasive wear against hard/sharp surfaces and tripping hazards		



9	Ensures Safety devices are installed such as Anti-Withdrawal Device, Whip checks and hose stops		
10	Properly installs water supply hoses and fitting		
11	Ensures clean water filters are in place prior to introducing the water to the system		
12	Ability to perform a clean water flush of the system to remove dirt/debris/grit		
3-TLX Startup and Operations Tasks			
1	Displays proper communication that is clear and concise during startup, Operations and Shut Down with crew members. (And a line of sight if available)		
2	Ensures correct valve alignment for startup, operations and shut down		
3	Performs adequate checks of the systems components, fittings and hoses for leaks		
4	Ensures 3-TLX and components are in working order prior to applying pressure		
5	Ability to maneuver 3-TLX system and align for cleaning process		
6	Ability to engage pressure in controlled intervals until Max cleaning pressure is achieved and perform cleaning process		
7	Ability to perform cleaning process and adjust speed as required		
8	An understanding of when a tube requires additional cleaning passes or when it is fully cleaned by recognizing the water color.		
9	Ability to depressurize the lance and move to another tube		
3-TLX Shutdown Tasks			
1	Properly disengage pressure and shutdown water supply		
2	Properly drain equipment, hoses and components and open bypass valve		
3	Removes dirty water filters		
4	Disassembly of the 3-TLX unit, hoses, fittings and components		
5	Ensures all equipment, hoses, fittings and components are cleaned and returned to the proper storage area		
6	Area Housekeeping is completed		
3-TLX Winterization Tasks (In addition to Normal Shutdown Tasks)			
1	Timely draining is completed of all equipment, hoses and components every time the cleaning process stops for an extended period of time		
2	The ability to add glycol to the system equipment, hoses and components if the system is required stay in place during cold temperatures		



3	Verifies valves are left in the correct positions		
4	Drains system to a safety location so not to create a safety hazard		

Assessment Sign Off

All boxes must be completed before signing an employee competent.

- ☐ Expectation Letter Signed
- ☐ Minimum 100 hours of on the job training completed
- ☐ On the Job Practical Assessment Completed by an approved Assessor
- ☐ Has reviewed and understands the operator manuals for the TLX
- ☐ Reviewed and understands Procedures and Safety Documentation
- ☐ Technical review and Knowledge Exam complete
- ☐ Training documentation sent to CEDA Training Department

Assessor

I, _____ have taken the below named employee through this Assessment, and he/she has successfully demonstrated competence in the areas identified.

Signature Date

Student

I, _____ have completed this competency, including the on-job demonstration, practical assessment and multiple-choice questions. I understand the information presented and agree to follow all of the rules and procedures set out by CEDA.

Signature Date



Revision Log

Revision Date	Section Affected	Changes Made
October 21, 2021	All	Updated Template, multiple changes throughout.



Training Change Request Form

Date: _____

Location: _____

Name: _____

Contact information: _____

Email/Phone number

Description

Please use the back of this sheet to make additional comments.

Section Name: _____

Page Number: _____

Description of Problem/ Suggested Resolution:
