



July 9<sup>th</sup>, 2025

Ref. No: GRASS-001

Lance Chorney  
Sr Facilities Engineer  
**Grassland Energy Corp.**

Re: July 2025 – Internal Visual Inspections  
Pre-Purchase Inspections – Flare Knockouts

Northern Materials Engineering performed internal visual inspections on two surplus flare knockouts located at Calroc Industries in Lloydminster. The internal visual inspections were performed as part of a pre-purchase inspection. The following equipment was inspected:

- A481746 – Flare Knockout – Vessel
- SN 003387 – Flare Knockout – Double Wall Tank

There were no significant issues identified on any of the equipment that was inspected. Northern Materials Engineering recommends this turnaround report be stored in an appropriate location, for future field reference.

#### **Internal Inspection Summary**

Overall, both flare knockouts were found to be in good condition. Minor coating holidays were identified throughout both the vessel and the tank; general surface corrosion was present on the exposed metal substrate of all coating holidays. No concerns were identified with either piece of equipment that was inspected.

In discussion with the Calroc Industries representative, prior to shipment the coating holidays on any purchased equipment will be repaired. A full QC package for the coating work will be included with any purchased equipment.

Both pieces of equipment were found to be suitable to return to service once the coating holidays are repaired. Per the Grassland Energy assigned inspector, only the A481746 Flare Knockout will be purchased due to design reasons.

If you have any questions regarding this report, please contact Evan Ficko at [evan@normat.ca](mailto:evan@normat.ca) or by phone at 780-469-1164.

Best Regards,  
**Northern Materials Engineering**

Equipment Integrity Technologist  
[evan@normat.ca](mailto:evan@normat.ca)  
780-469-1164

Electronic cc: Dean Hawkins, Dan MacDonald



# Pressure Equipment Integrity Management System Internal Inspection Form – Unfired Separators

NME Form F01-04  
Version 005.01  
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## General Vessel Data

Owner:	Grassland Energy	District / Facility:	Alberta / Stock
Location (LSD) ♦:	Pre-purchase	Surface Location:	501075 Range Rd 14
A Number ♦:	481746	Serial Number ♦:	005548200
CRN ♦:	P8832.2	Vessel Type:	Separator
Description ♦:	Flare Knockout Drum	Skid / Process:	
Tag No:		Status:	Out of Service

## Coating / Anode Data

Internally Coated:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Coverage: 100%	Coating Type:	Thin Film Epoxy
Internal Anodes:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Quantity: 0	Anode Type:	N/A
New Anodes Installed:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Quantity: 0	Anode Type:	N/A

## Inspection

### External Nozzles (Viewed from outside)

Signs of internal corrosion? ☒ Yes ☐ No General surface corrosion was identified on the exposed substrate of the inlet/outlet nozzles.

Flange faces deterioration? ☐ Yes ☒ No

### Vessel Cleanliness

Cleaning adequate? ☒ Yes ☐ No

Scale/build-up remaining? ☐ Yes ☒ No

### Internal Access

Baffles/Weirs present? ☐ Yes ☒ No

Other obstructions? ☒ Yes ☐ No Inlet diverter. Internal vertical piping.

### Internal Coating

Low voltage holiday detection performed? ☐ Yes ☒ No If yes, indicate results:

Overall condition of coating: The coating was in good condition overall. Staining was present throughout the vessel from prior service conditions.

Areas of Dis-bonding, bubbles, or blistering: A handful of coating holidays were identified throughout the vessel. See below the locations of the holidays:

- Multiple holidays identified on the manway neck. Likely caused by cleaning and/or entry into the vessel.
- One coating holiday was identified on the bottom shell of the vessel. A historic coating patch was covering this holiday and was disbonded.
- Multiple coating holidays noted on the inlet nozzle flange face
- Minor coating holidays noted on the outlet nozzle flange face

Access to the inlet/outlet nozzle flanges faces was reduced due to the height of the nozzles. Inspection was performed from the ladder, approximately 6' away.

Coating Repairs (performed by, product used, ambient temp, etc.): Coating repairs were not completed at the time of inspection. Per discussion with the Calroc representative, the coating repairs will be performed in-house. QC report to be supplied if the equipment is purchased.



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A#: 481746

Vessel Description: Flare Knockout Drum

Location (LSD): Pre-purchase (SL:501075 Range Rd 14)

## Surface and Nozzles

Condition of Shell and Heads (metal substrate at holidays): The shell and heads were in good condition. The metal substrate was found to be in good condition overall. General surface corrosion was present. No pitting or corrosion of concern was identified.

Condition of nozzle openings: Access to the inlet/outlet nozzles was restricted due to the height of the vessels. Inspection was performed from a ladder approximately 6' away via camera. There did not appear to be any significant corrosion to the metal substrate on these nozzles, there appeared to be general surface corrosion present.

The drain line piping was visually accessible. The piping was uncoated; however, the drain nozzle was coated. General surface corrosion was present on the drain piping, no pitting was identified however inspection access was limited.

## Internal Attachments

Internal piping: Vertical float piping. Found to be in good condition. General staining present on the coating.

Bolting and supports: Appeared to be in good condition at the time of inspection. Intact and secure.

## Vessel Welds

Selective weld attack? ☐ Yes ☒ No If yes, describe:

NDE Crack inspection performed? ☐ Yes ☒ No If yes, indicate results:

## Images

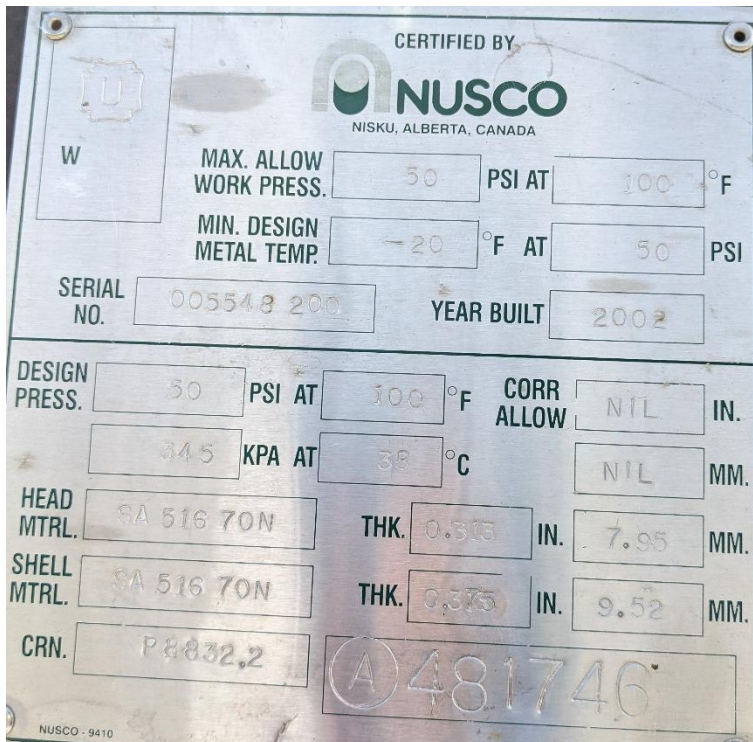


Figure 1 – Nameplate





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A#: 481746

Vessel Description: Flare Knockout Drum

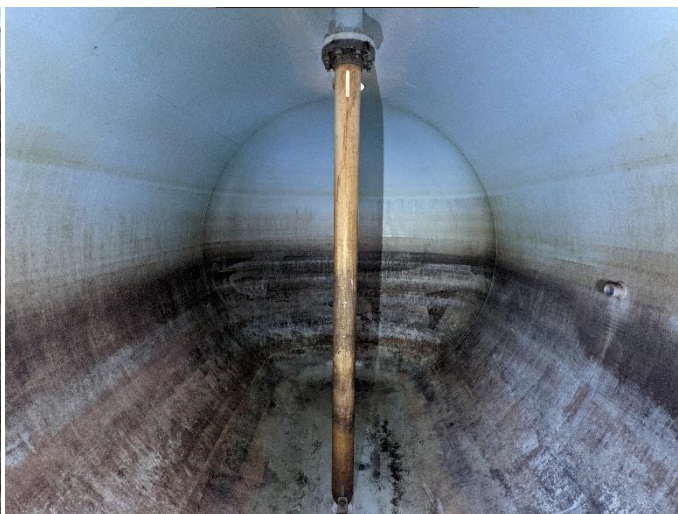
Location (LSD): Pre-purchase (SL:501075 Range Rd 14)



Figures 2 and 3 – Vessel Overviews



Figures 4 and 5 – 1.5" Nozzle Overviews from the Vessel Exterior  
Note: Left photo is of the left nozzle, right photo is of the right nozzle



Figures 6 and 7 – Internal Overviews





# Pressure Equipment Integrity Management System Internal Inspection Form – Unfired Separators

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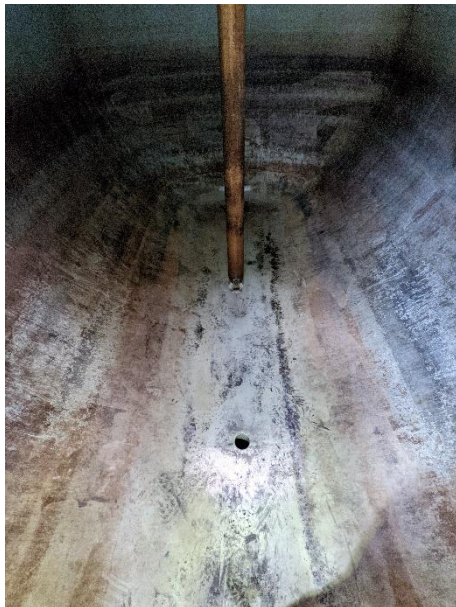
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A#: 481746

Vessel Description: Flare Knockout Drum

Location (LSD): Pre-purchase (SL:501075 Range Rd 14)



Figures 8 and 9 (Left and Center) – Bottom Shell Overviews  
Figure 10 (Right) – Drain Nozzle Overview



Figure 11 (Left) – Holiday on Bottom Shell  
Figures 12 and 13 (Center and Right) – Holidays on Manway Neck





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A#: 481746

Vessel Description: Flare Knockout Drum

Location (LSD): Pre-purchase (SL:501075 Range Rd 14)



Figure 14 (Left) – Inlet Nozzle Overview  
Figure 15 (Right) - Outlet Nozzle Overview



Figure 16 (Left) – Bottom Shell and Piping Overview  
Figure 17 (Right) – Drain Line Overview, from Vessel Exterior

Action Item(s) Identified? ☐ Yes ☒ No If yes, indicate required work below

Field Tag #: \_\_\_\_\_

If the vessel is purchased it is recommended to proceed with coating repairs (Calroc offered to complete the coating repairs). QC for any coating repairs


should be obtained with the purchase of this vessel.

The scope of this internal inspection is restricted to the items detailed above and forms part of a thorough integrity assessment for this equipment.  
Results of this inspection have determined the internal condition of this equipment to be:

- ☒ Acceptable
- ☐ Acceptable with the identified action items resolved before the associated action item's "Required By Date"
- ☐ Not Acceptable until the identified action items are resolved

## Inspector Information

Inspector Name: Evan Ficko Inspection Company: Northern Materials Engineering

Inspector Signature:  000775 ISI Inspection Date: June 8<sup>th</sup>, 2025

## Note

AB-506 grade and interval to be assigned during installation inspection.



# Pressure Equipment Integrity Management System Internal Inspection Form – Unfired Separators

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## General Vessel Data

Owner:	Grassland Energy	District / Facility:	Alberta / Stock
Location (LSD) ♦:	Pre-purchase	Surface Location:	501075 Range Rd 14
A Number ♦:		Serial Number ♦:	003387
CRN ♦:	Non-code	Vessel Type:	Tank
Description ♦:	Flare Knockout Drum	Skid / Process:	
Tag No:		Status:	Out of Service

## Coating / Anode Data

Internally Coated:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Coverage: 100%	Coating Type:	Devoe 253
Internal Anodes:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Quantity: 0	Anode Type:	N/A
New Anodes Installed:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Quantity: 0	Anode Type:	N/A

## Inspection

### External Nozzles (Viewed from outside)

Signs of internal corrosion? ☒ Yes ☐ No The outlet nozzle had disbonded coating. General surface corrosion was present on the substrate.

Flange faces deterioration? ☐ Yes ☒ No

### Vessel Cleanliness

Cleaning adequate? ☒ Yes ☐ No

Scale/build-up remaining? ☐ Yes ☒ No

### Internal Access

Baffles/Weirs present? ☐ Yes ☒ No

Other obstructions? ☒ Yes ☐ No Vertical internal piping (2) was present through the vessel shell.

### Internal Coating

Low voltage holiday detection performed? ☐ Yes ☒ No If yes, indicate results:

Overall condition of coating: The coating was in good condition overall. A historic patch on the top shell was identified, it was tightly adhered.

The coating was stained throughout the tank from prior service conditions.

Areas of Dis-bonding, bubbles, or blistering: A handful of coating holidays were identified throughout the tank. The locations are listed below:

- 2x on the inlet nozzle (one on the lip, one on the outer surface)
- 4x on the shell/head (two on the bottom shell near the drain nozzle, two on the outlet head)
- Multiple holidays noted around the lip of the top shell nozzle for the level column
- Multiple holidays throughout the outlet nozzle from the internal surface to the flange face
- Multiple holidays on the manway neck, likely from cleaning and/or entry to the tank

Coating Repairs (performed by, product used, ambient temp, etc.): Coating repairs were not completed at the time of inspection. Per discussion with the Calroc representative. Coating repairs will be performed in-house, QC report to be supplied if the equipment is purchased.



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SN: 003387

Vessel Description: Flare Knockout Drum

Location (LSD): Pre-purchase (SL:501075 Range Rd 14)

## Surface and Nozzles

Condition of Shell and Heads (metal substrate at holidays): The metal substrate of the shell and heads was found to be in good condition.

General surface corrosion was identified on all exposed substrate; however, no pitting or corrosion of concern was identified.

Condition of nozzle openings: General surface corrosion was identified on the substrate of all nozzles that had coating holidays. No pitting or corrosion of concern was identified on any of the exposed substrate. One small pit was identified in the small diameter nozzle at six o'clock. The pit was estimated to be 0.010" in depth and is not of concern.

## Internal Attachments

Internal piping: Good. General surface corrosion was present on the uncoated piping.

Bolting and supports: Bolting hardware was in good condition. The gasket on the internal flange was found to be deteriorating and could be considered for replacement before returning the vessel to service.

## Vessel Welds

Selective weld attack? ☐ Yes ☒ No If yes, describe:

NDE Crack inspection performed? ☐ Yes ☒ No If yes, indicate results:

## Images

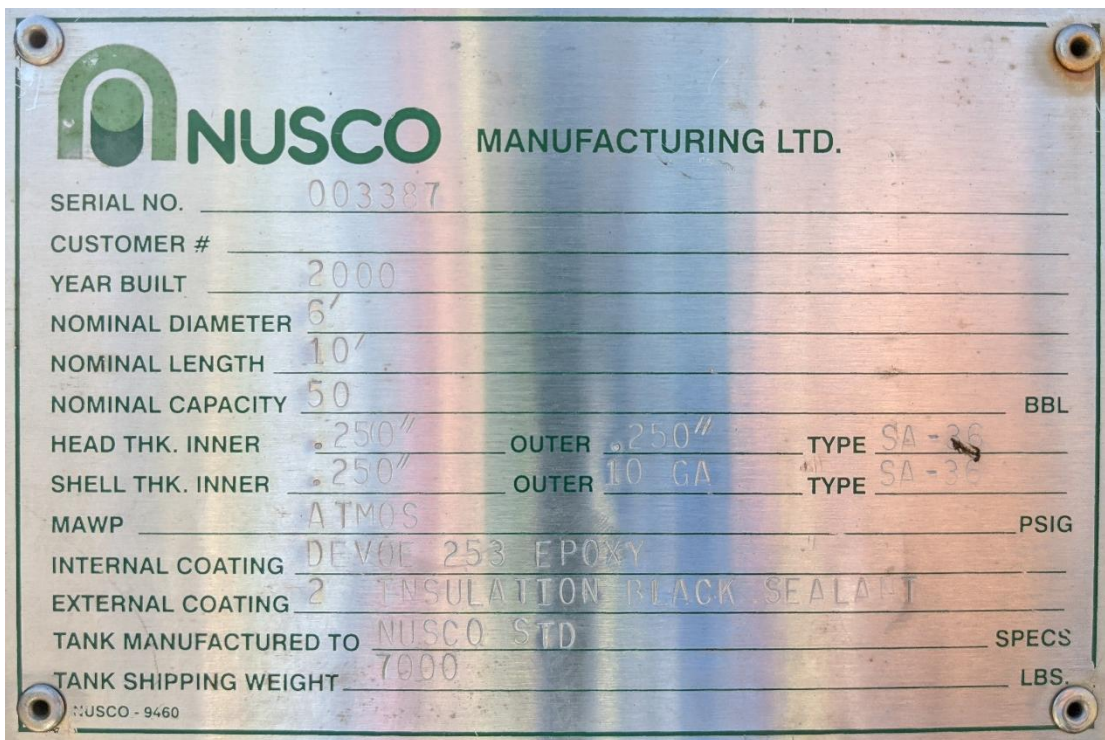


Figure 1 – Nameplate Overview





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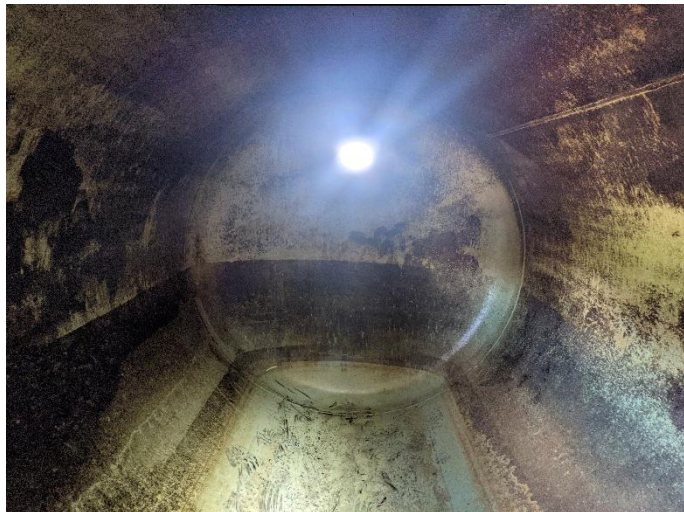
SN: 003387

Vessel Description: Flare Knockout Drum

Location (LSD): Pre-purchase (SL:501075 Range Rd 14)



Figures 2 and 3 – External Overviews



Figures 3 and 4 – Internal Overviews

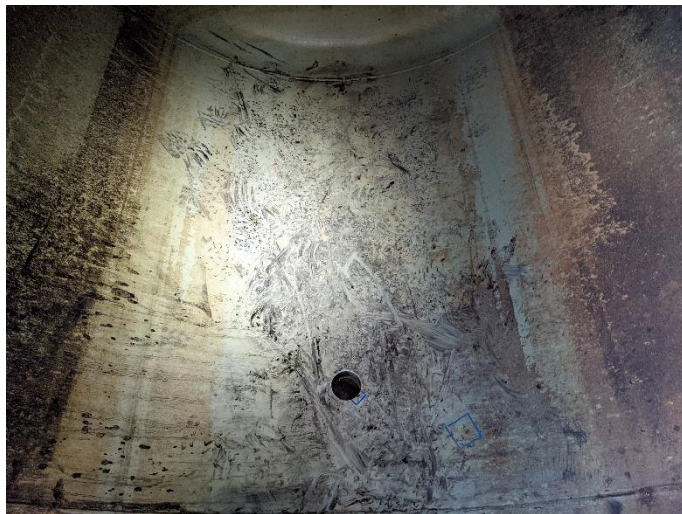


Figure 5 (Left) – Bottom Shell Overview  
Figure 6 (Right) – Drain Nozzle Overview





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SN: 003387

Vessel Description: Flare Knockout Drum

Location (LSD): Pre-purchase (SL:501075 Range Rd 14)



Figures 7 and 8 – Coating Holidays on Inlet Nozzle



Figures 9 and 10 – Coating Holidays on the Bottom Shell, Near Drain Nozzle



Figures 11 to 13 – Coating Holidays on the Level Column Nozzle





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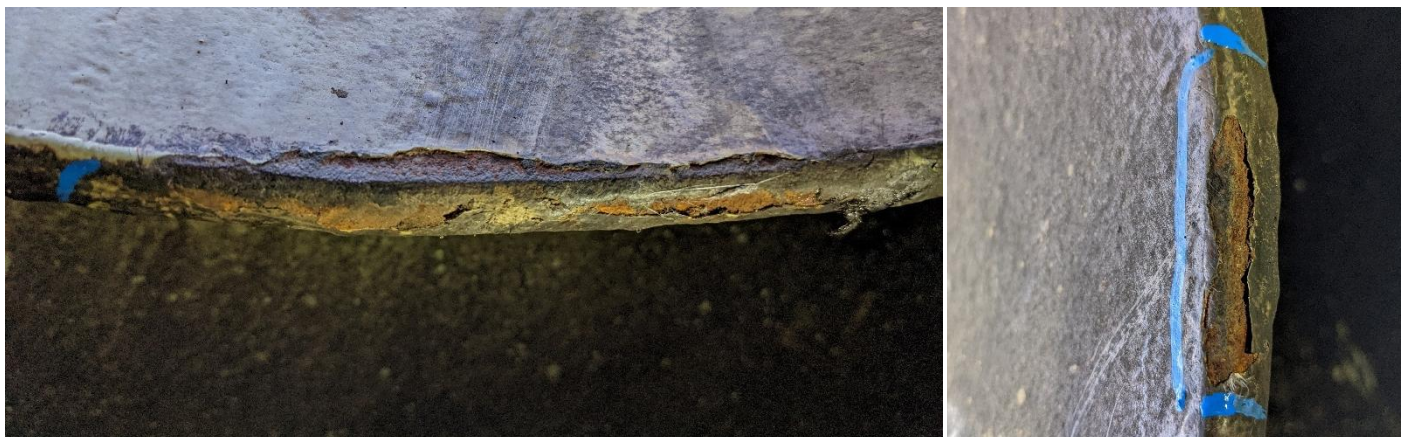
SN: 003387

Vessel Description: Flare Knockout Drum

Location (LSD): Pre-purchase (SL:501075 Range Rd 14)



Figures 14 and 15 – Outlet Nozzle Internal Overviews



Figures 16 and 17 – Manway Lip Coating Holidays



Figures 18 and 19 – Nozzle External Overview

Note: Small pit at six o'clock estimated to be 0.010" in depth based on feel





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SN: 003387

Vessel Description: Flare Knockout Drum

Location (LSD): Pre-purchase (SL:501075 Range Rd 14)



Figure 20 (Left) – Inlet Nozzle External Overview  
Figure 21 (Right) – Outlet Nozzle External Overview

Action Item(s) Identified? ☐ Yes ☒ No If yes, indicate required work below

Field Tag #: \_\_\_\_\_

If this tank is purchased it is recommended to proceed with coating repairs (Calroc offered to complete the coating repairs). QC for any coating repairs should

be obtained with the purchase of this tank.

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Results of this inspection have determined the internal condition of this equipment to be:

- ☒ Acceptable
- ☐ Acceptable with the identified action items resolved before the associated action item's "Required By Date"
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## Inspector Information

Inspector Name: Evan Ficko Inspection Company: Northern Materials Engineering

Inspector Signature:  Inspection Date: June 8<sup>th</sup>, 2025