

WP 05-WH1410

Revision 9

Adjustable Center of Gravity Lift Fixture

Technical Procedure

EFFECTIVE DATE: 02/27/09

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APPROVED FOR USE

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INTRODUCTION ^{1, 2, 3}

This procedure provides guidance for inspecting and operating the Adjustable Center of Gravity Lift Fixtures (ACGLF) at the Waste Isolation Pilot Plant (WIPP). This procedure generates quality records in the Equipment Logbook.

REFERENCES

BASELINE DOCUMENTS

- 40 CFR §264.15, "General Inspection Requirements"
- DOE Standard 1090-2004, *Hoisting and Rigging*
- Hazardous Waste Facility Permit, Waste Isolation Pilot Plant, Permit No. NM4890139088-TSDF, issued by the New Mexico Environment Department
- WP 04-AD3011, Equipment Lockout/Tagout
- EDS 2014-060 to 064
- EDS 2014400 to 430

REFERENCED DOCUMENTS

- WP 04-IM1000, Issues Management Program Processing of WIPP Forms
- EA04IM1000-1-0, WIPP Form
- WP 05-WH1101, Surface Transuranic Mixed Waste Handling Area Inspections

PRECAUTIONS AND LIMITATIONS

- Preoperational Checks are required prior to operating ACGLF on each shift.
- Prior to lifting an empty ACGLF, counterweights are rotated to 180 degrees and 360 degrees to prevent dangerous swinging of the ACGLF.
- The ACGLF is designed to lift loads using special lifting legs. Lifting loads without using lifting legs designed for the ACGLF could cause damage.
- Only personnel qualified as a Waste Handling Technician/Engineer (WHT/WHE), or trainees under the direct supervision of a qualified WHT/WHE are authorized to perform the waste handling activities specified in this procedure.

PREREQUISITE ACTIONS

- 1.0 Review Equipment Logbook for outstanding deficiencies and Action Requests (ARs).
- 2.0 Enter Equipment Number and N/A Run Hours in Equipment Logbook.

PERFORMANCE

1.0 ACGLF PREOPERATIONAL CHECKS

- 1.1 Prior to ACGLF operation at the beginning of each shift, complete Attachment 1, ACGLF Preoperational Checks and Verifications.
- 1.2 If a required inspection goes delinquent, perform the following:
 - 1.2.1 Immediately notify Site Environmental Compliance (SEC) of the delinquent inspection.
 - 1.2.2 Schedule and complete the inspection.
 - 1.2.3 Document the following in a letter to SEC within five working days:
 - Schedule for inspection
 - Reason(s) why the inspection was not performed
 - Any measures taken to offset negative impacts resulting from not performing the inspection
 - Actions to prevent further delinquencies
 - 1.2.4 SEC **GO TO** WP 04-IM1000, and ensure a WIPP Form (EA04IM1000-1-0) is initiated.
 - 1.2.5 WHE, review Equipment Logbooks on a weekly basis, generally the last day of the work week.

2.0 ACGLF OPERATION

CAUTION

The ACGLF is designed to lift loads using special lifting legs. Lifting loads without using lifting legs designed for the ACGLF could cause damage.

- 2.1 Install long or short lifting legs, as required.

- 2.2 Ensure lifting leg pins are fully inserted.
- 2.3 Position ACGLF over the load or other lifting attachments.
- 2.4 Verify lifting legs are unlocked as indicated by UNLOCK 1, 2, and 3 being illuminated.
- 2.5 Lower ACGLF and connect to Lift Mechanism.
- 2.6 Hold LIFTING LEGS No. 1, 2, and 3 switch in LOCK and ensure the following:
 - Lifting legs rotate to LOCKED position
 - LOCK 1 indicator illuminates
 - LOCK 2 indicator illuminates
 - LOCK 3 indicator illuminates
- 2.7 **IF** payloads are being removed from or placed into TRUPACT-IIs, **THEN** perform the following:
 - 2.7.1 Suspend TRUPACT-II payload assemblies just high enough to get a tilt reading.
 - 2.7.2 While looking at TILT SENSOR indicators, determine amount of load TILT.
 - 2.7.3 **IF** TILT is $> \pm 0.5$ degrees, **THEN** adjust weights to balance load to $\leq \pm 0.5$ degrees.
- 2.8 Reposition load.
- 2.9 Lower load until there is slack between ACGLF and crane hook.
- 2.10 Hold LIFTING LEGS, UNLOCK ENABLE switch in ON.
- 2.11 Hold LIFTING LEGS No. 1, 2, and 3 switch in UNLOCK and ensure the following:
 - Lifting legs rotate to UNLOCKED position
 - UNLOCK 1 indicator illuminates
 - UNLOCK 2 indicator illuminates
 - UNLOCK 3 indicator illuminates

WARNING

Failure to rotate weights to a balanced position prior to lifting an unloaded ACGLF may result in dangerous swinging of the ACGLF.

2.12 Using BALANCE ROTATION No. 1, position Counterweight No. 1 to 180 degrees.

2.13 Using BALANCE ROTATION No. 2, position Counterweight No. 2 to 360 degrees.

2.14 Raise crane to clear load.

3.0 ACGLF SHUTDOWN

3.1 Place ACGLF in designated storage position.

3.2 Place red POWER switch to OFF and verify red POWER light off.

Attachment 1 - Adjustable Center of Gravity Lift Fixture Preoperational Checks and Verification

| | INSPECTION | CRITERIA | SAT. | N/A | UNSAT. |
|--|--|---|--------------------------|--------------------------|--------------------------|
| 1. | Inspect the following for tightness, wear, and damage. | Shackles | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Bolts | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Kellum Grips | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Cables | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Lift Leg Pins | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | Gears | Inspect gears for obstructions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | Verify counterweights are in the following positions: | Counterweight No. 1 is at 180 degrees. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Counterweight No. 2 is at 360 degrees. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>NOTE</p> <p>Deficiencies that are corrected when discovered may be considered a satisfactory check. Deficiencies that can not be corrected require notification of the WHE prior to operating the ACGLF.</p> | | | | | |
| 4. | Power and Controls | Ensure electrical power cord is connected to ACGLF Control Panel. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Ensure electrical power cord is plugged into an electrical receptacle. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Ensure both cables from ACGLF are connected to control panel. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Turn RED POWER switch to ON and ensure switch illuminates. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Raise ACGLF off the floor. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. | Test Counterweight No. 1 Rotation and Indication | Hold BALANCE ROTATION No. 1 switch in clockwise (CW) position. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Ensure counterweight moves CW. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Ensure BALANCE POSITION indicates the change in counterweight position. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Ensure TILT SENSOR readouts indicate change. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Hold BALANCE ROTATION No. 1 switch in counterclockwise (CCW) position. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Ensure counterweight moves CCW. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Ensure Balance Position indicates the change in counterweight position. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Using Balance Rotation No. 1 switch, position the counterweight at 180 degrees. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Attachment 1 - Adjustable Center of Gravity Lift Fixture Preoperational Checks and Verification

| | INSPECTION | CRITERIA | SAT. | N/A | UNSAT. |
|-----|--|---|--------------------------|--------------------------|--------------------------|
| 6. | Test Counterweight No. 2 Rotation and Indication | Hold Balance Rotation No. 2 switch in clockwise (CW) position. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Ensure counterweight moves CW. | | | |
| | | Ensure Balance Position indicates the change in counterweight position. | | | |
| | | Hold Balance Rotation No. 2 switch in counterclockwise (CCW) position. | | | |
| | | Ensure counterweight moves CCW. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Ensure Balance Position indicates the change in counterweight position. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Using Balance Rotation No. 2 switch, position the counterweight at 360 degrees. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | Lifting Legs Lock | Holding Lifting Legs No. 1, 2, and 3, switch in LOCK and verify: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Lifting Legs rotate to locked position. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Lock 1 indicator illuminates. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Lock 2 indicator illuminates. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Lock 3 indicator illuminates. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. | Lifting Legs Unlock | Holding Lifting Legs UNLOCK ENABLE switch in ON. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Hold Lifting Legs No. 1, 2, and 3 switch in UNLOCK and verify. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Lifting Legs rotate to UNLOCK position. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Unlock 1 indicator illuminates. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Unlock 2 indicator illuminates. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Unlock 3 indicator illuminates. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. | Standard Waste Box Lift Fixture Adapter Checks | No obvious cracks, bends, twists, or wear. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Lift Clip Assemblies locked in proper position. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Lift Clip Assemblies operate freely, with no binding. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. | Ten-Drum Overpack Lift Fixture Adapter Checks | No obvious cracks, bends, twists, or wear. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Lift Clip Assemblies locked in the proper position. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Lift Clip Assemblies operate freely, with no binding. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Attachment 1 - Adjustable Center of Gravity Lift Fixture Preoperational Checks and Verification

| | INSPECTION | CRITERIA | SAT. | N/A | UNSAT. |
|-----|--|---|--------------------------|--------------------------|--------------------------|
| 11. | 85-Gallon Drum Lift Fixture Adapter Checks | No obvious cracks, bends, twists, or wear. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Adapter Legs manually rotate freely, with no binding. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. | Communication/ Document ACGLF Status | Initiate ARs to address any deficiencies that CANNOT be corrected by Waste Handling Operations. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Notify WHE of the operational status of the ACGLF, and of deficiencies discovered during checks and status of each (deficiencies corrected, ARs generated, etc.). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. | Individual performing inspections, record in the Equipment Logbook | Deficiencies noted. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Corrective Action Taken (debris removed, AR written, etc.) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | If a Lift Fixture Adapter is used, enter equipment number and check as satisfactory or unsatisfactory. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Enter time, date, and signature in the Equipment Log Book to document performance of preoperational checks. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. | Mode Change | IF applicable, complete appropriate sections of WP 05-WH1101, Attachment 5, Preoperational Waste Handling Mode Checklist. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |