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**Pacific Gas and
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Work Procedure: WP 357 MT-14

Effective Date: 03/25/2022 Rev. 1

Applied Technology Services (ATS)

ATS Mechanical Testing Lab Use Procedures

☐ Yes ☒ No Approved for Nuclear Quality-Related Work ■■■ ☐ Periodic Use ☒ Reference Use

1. Scope

- 1.1 This procedure describes requirements and establishes the responsibilities for safe work practices in the ATS Mechanical Testing Lab as defined in Section 5, "Definitions".
- 1.2 This procedure addresses the basic safety requirements that ensure all activities conducted in and work performed at the ATS Mechanical Testing Lab area are executed safely and in accordance with applicable site and PG&E safety standards and procedures. These basic safety requirements address:
 - 1.2.1 The use of personal protective equipment (PPE), operating equipment, and tools.
 - 1.2.2 Performing job hazard analysis and reviews.
 - 1.2.3 Reporting near hits and injuries and other related safety topics (reference the PG&E Code of Safe Practices, latest edition).

2. Target Audience

- 2.1 All ATS personnel as well as non-ATS personnel and contractors who are using the work area and equipment in the ATS Mechanical Testing Lab along with the Compression Testing Unit in the Mechanical Engineering Services Lab.

3. Safety

- 3.1 All applicable safety procedures contained in this document must be followed while in the Mechanical Testing Lab, including use of appropriate PPE.
- 3.2 Obey all posted signs, warnings, posters, and special instructions.
 - 3.2.1 Any violation of these rules and/or unsafe or improper use of equipment or tools in the mechanical testing lab will not be tolerated and may result in disciplinary actions as determined by the ATS Supervisor.
- 3.3 Job Safety Analysis shall be used at the beginning of each project/day before performing non-routine or otherwise hazardous work in the Mechanical Testing Lab.

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3.3.1 Prior to beginning work, a Job Safety Analysis (JSA) must be completed to document specific work planned and all applicable safeguards are in place to perform the job safely.

- a. On the JSA form, potential hazards and controls should be checked as applicable for the work being performed. The back of the JSA form may be used to document more detailed safety plans or controls identified to eliminate or minimize the risk.
- b. Verify JSA form is the latest edition found on the ATS SharePoint. Found here; <https://pge.sharepoint.com/sites/AtsQaP/Shared%20Documents/Forms/Shared%20Documents.aspx?RootFolder=%2Fsites%2FAtsQaP%2FShared%20Documents%2FForms%20%28Controlled%29&FolderCTID=0x0120000CB15675ED9DDF41AC1EAC758118B202>

3.4 For Routine work, ATS Personnel shall utilize the Two-Minute Rule

3.4.1 The Two-Minute Rule is a human performance safety tool that requires the individual performing the work to review potential hazards and error precursors at the work location prior to performing the work.

3.4.2 For further information, reference Job Safety Analysis.

3.5 For Non-routine work, ATS personnel shall utilize the ATS Work Planning Procedure (SP PLAN-01).

3.6 All Contractors shall meet the requirements of the ATS Contractor Safety Procedure (SP CSP-01).

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4. Discussion

- 4.1 This procedure addresses the basic safety requirements to ensure all activities conducted in the ATS Mechanical Testing Lab are executed safely and in accordance with applicable site and PG&E safety standards and procedures.

5. Definitions

- ## 5.1 ATS Mechanical Testing Lab

For the purpose of this procedure, the ATS Mechanical Testing Lab includes equipment in both the Main Building High Bay and the north end of Room 166. The main equipment include:

- Tinius Olsen 440 KIP Vertical Universal Force Machine
- Tinius Olsen 20 KIP Vertical Universal Force Machine
- MTS 100 Kip Horizontal Tensile Force Machine
- MTS 55 Kip Vertical Universal Force Machine
- Tinius Olsen 300 KIP Vertical Compression Force Machine

Reference the 342-31 “ATS Machine Shop Use” Procedure for the requirements and responsibilities for safe work practices for the ATS Machine Shop equipment that includes the vertical saw, horizontal saw, drill press, grinder, sander, mill, and lathe.

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5.2 ATS Personnel

ATS employees as well as non-ATS personnel and contractors who are using the work area and equipment in the ATS Mechanical Testing Lab.

5.3 Visitors

Must follow all safety requirements unless the Visitors are specifically exempted as requested by the unit supervisor and engineering controls are put in place. This exemption is approved by an ATS Manager in writing.

5.4 Crane Zone

The area over which the Mechanical Testing Lab crane is capable of operating.

5.5 ATS Hot Work Permit

Complete this document per ATS Procedure SP HOT-01 for any heat producing jobs that could ignite combustible materials or flammable atmospheres.

5.6 Job Safety Analysis (JSA)

ATS Form 491-15.4 is found on the ATS Quality SharePoint. An electronic format can be found on the Pronto app. The Form is used to track the identified hazards and controls that will be used to mitigate an incident. This document will be used during the Tailboard meeting.

[https://pge.sharepoint.com/:w:/r/sites/AtsQaP/Shared%20Documents/Forms%20\(Controlled\)/ATS%20Job%20Safety%20Analysis/ATS%20Form%20491-15.4%20Rev.%203.docx?d=w89853c267a3342148b8ed29910cf6fae&csf=1&web=1&e=26WhbJ](https://pge.sharepoint.com/:w:/r/sites/AtsQaP/Shared%20Documents/Forms%20(Controlled)/ATS%20Job%20Safety%20Analysis/ATS%20Form%20491-15.4%20Rev.%203.docx?d=w89853c267a3342148b8ed29910cf6fae&csf=1&web=1&e=26WhbJ)

5.7 Tailboard

A safety meeting with all personnel involved with the work in an area or job site. The meeting is used to discuss all identified hazards and the controls to be used to mitigate any identified hazard. This is also a meeting for all workers to speak up, ask questions and or inform of changes in work scope.

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5.8 Non-Routine Work

Testing Activities for the mechanical testing lab that are considered atypical and require the completion of an SP PLAN-01 Testing Work Plan Form along with communication of testing start and stop to ATS on-site employees. Examples of atypical work includes:

- 5.8.1 Testing completed outside of ATS Mechanical Testing Lab Equipment's permanent protective barriers.
- 5.8.2 ATS Hot Work Permit
- 5.8.3 Lockout Tagout is required per ATS Procedure SP LOTO-01.
- 5.8.4 Testing identified as atypical by ATS Supervisor or ATS Technical Lead.

6. Responsibilities

6.1 ATS Supervisor

- 6.1.1 Implement and enforce the requirements contained in this procedure.
- 6.1.2 Authorize personnel to perform tasks and operate specific pieces of equipment.
- 6.1.3 Assign ATS Technical Lead.
- 6.1.4 Evaluate near hits and injuries and other related safety topics with ATS Technical Lead and relevant ATS Personnel to identify hazards that can be eliminated.
- 6.1.5 Approve Task Specific Qualifications recorded on per AP QPR-05 Personnel Training and Qualification Procedure.

6.2 ATS Technical Lead

- 6.2.1 Designated by ATS Supervisor of the Responsible Unit(s).
- 6.2.2 Provide technical and safety oversight to testing.
- 6.2.3 Serve as the subject matter expert and technical resource for the training of ATS Personnel.

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6.2.4 Support ATS Supervisor in implementation of the qualification process of ATS Personnel to operate in the Mechanical Testing lab equipment per WP 357 MT-15 Mechanical Testing Lab Qualification Program.

6.2.5 Managing schedule of equipment (prefer using Microsoft Teams).

6.2.6 Complete Monthly ATS Work Area Safety Inspections.

a. ATS Work Area Safety Inspection Form:

[ATS Quality Program - ATS Safety Inspection Form.pdf - Shared Documents \(sharepoint.com\)](#)

6.2.7 Keep testing facility and equipment organized and clean.

6.2.8 Schedule periodic maintenance of shop tools and equipment.

6.2.9 Recommend and manage upgrades to equipment and lab facilities.

6.2.10 Consumables ordering.

6.2.11 Assuring that contractors or vendors performing work in the Mechanical Testing Lab area are complying with this procedure and the requirements of the ATS Contractor Safety Procedure (SP CSP-01).

6.3 ATS Personnel

6.3.1 Perform work in the ATS Mechanical Testing Lab in accordance with this procedure and any other applicable site and Company safety procedures or standards.

6.3.2 Only operate equipment that the individual is specifically qualified to use.

6.3.3 Must actively participate in the safety discussion in recognizing hazards for the work that is being discussed.

6.3.4 Proper use of PPE.

6.3.5 Practicing good housekeeping when using Mechanical Testing Lab area.

6.3.6 Ensuring that all work areas are maintained in a clean and orderly condition.

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7. Instructions

7.1 Qualifications

- 7.1.1 Mechanical Testing Lab Equipment Qualifications is outlined in WP 357 MT-15 Mechanical Testing Lab Qualification Program.
- 7.1.2 Prior to using any of the equipment in the ATS Mechanical Testing Lab listed in Section 5.1, each person must meet with the Supervisor or ATS Technical Lead to provide adequate background that they are qualified to use each piece of equipment they intend to operate. This qualification must be in the form of:
 - a. Read and Understand this Procedure.
 - b. Instructions on the process of operating the specific Mechanical Testing Lab Equipment by either the OEM, Expert level or ATS Materials Engineer with qualifications verified by the MCF&A Supervisor.
 - c. For each specific task, a person's proficiency shall be evaluated by an Expert Level Operator or ATS Materials Engineer with qualifications verified by the MCF&A Supervisor.
 - 1. Training requirements and definition of Expert, Skilled, and Novice skill levels are documented on WP 357 MT-15 Mechanical Testing Lab Qualification Program.
 - d. For task specific qualifications, approval must be recorded per AP QPR.5F2 "ATS Qualification Form – Task Specific Qualification" and kept on file on the ATS Quality Program SharePoint site.

7.2 Work Area Protection

- 7.2.1 Hazards shall be reduced in the work area by using Engineering Controls such as permanent and temporary blast shields.
- 7.2.2 Hazards shall be identified and mitigated as part of the test plan.
- 7.2.3 When non-routine or high-risk testing is being completed or as determined appropriate, temporary work barricades and signage shall be used to identify areas where work is being performed or to identify temporary hazards. The barriers may include blast shields, cones, barrier tape, and safety signs.

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7.2.3 (continued)

- a. Signage shall be posted in prominent areas to communicate and warn individuals of workplace hazards prior to entering the lab or identified hazard zone.
- b. Email Communication to ATSAllEmployees@pge.com shall be sent to individuals on site.
- c. Signage should be posted when hazards exist and removed when hazards no longer exist.

7.2.4 Areas marked as "Keep Clear" should be kept clear of equipment, parts, or other items.

7.2.5 A clear area of three feet shall be maintained in the front of electrical panels

7.3 Material Receipt, Staging and Storage

- 7.3.1 ATS Technical Lead shall be contacted regarding materials that are dropped off along with the completion of a material acceptance form (Attachment 1) located to the right of the double doors to the East of the Mechanical Testing Lab.
- 7.3.2 Test specimens are to be labeled and stored per ATS Administrative Procedure AP CTL-02, "Control of Material and Equipment".
- 7.3.3 Mechanical Testing Lab should not be used for long-term storage of testing supplies, pipes, components, or other project related items. For Materials that need longer term storage, Laydown yard north of the covered pipe yard shall be used.
- 7.3.4 Components and parts temporarily stored in the Mechanical Testing Lab area should be labeled with the name of the responsible person and a contact phone number. The open paved space north of the High Bay doors may be used for staging.

7.4 Personal Protective Equipment

7.4.1 Eye Protection

- a. Safety glasses are required in the mechanical high bay while testing is being performed or as detailed in the JSA.

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7.4.1 (continued)

- b. All safety glasses, face shields, and goggles shall be Company-approved.
- c. Depending on the work being performed, additional eye/face protection and/or PPE may be required. This will be detailed in the JSA.
 - 1. Temporary blast shields are also available
- d. Observers can also view testing from the windows above the lab on the second floor of the ATS Main Building.

7.4.2 Head Protection

- a. Hard hats shall be worn anywhere an overhead hazard exists or as defined in the JSA.
- b. Hard hats are required when the crane is in operation in the Mechanical Testing Lab High Bay. See Section 7.8, "Crane Operation".
- c. Any individual operating the forklift or supporting a forklift operation shall wear a hard hat and safety vest.

7.4.3 Foot Protection

- a. Protective leather boots shall be worn when working or walking through the Mechanical Testing Lab High Bay and other lab areas. No sneakers, tennis shoes, street shoes. Protective footwear must consist of all Full leather and must cover the entire foot area at least up to the ankle.
- b. Protective toe shoes should be worn when identified as a hazard mitigation in the JSA (heavy equipment or rigging).

7.4.4 Hand protection

- a. Suitable gloves should be used for handling hot objects or sharp-edged items, recommended by the item's Safety Data Sheet (SDS) or ATS Chemical Hygiene Plan.

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7.4.5 Respiratory Protection

- a. When Safety Data Sheets (SDS) are available for test specimens, review for possible air quality hazards and recommended PPE.
- b. Respiratory Protection shall be utilized when air quality hazards exist or when identified in the JSA. Contact a PG&E Safety Professional or Industrial Hygienist for Respiratory Selection and a Lab Ventilation Plan.
 1. ATS Welding Team and PG&E Rental have Portable Air Scrubbers available. Contact a PG&E Industrial Hygienist for appropriate sizing and filter recommendations.
- c. When unknown off gassing from a component is identified, work is to be stopped while a PG&E Safety Professional or Industrial Hygienist is contacted for necessary precautions.

7.4.6 During tours or similar events, there may be an exception made for the PPE requirements of Section 7.4.1, 7.4.2 and 7.4.3:

- a. IF, there is no work requiring PPE occurring during the event,
- b. THEN, A responsible unit supervisor, manager, or director may approve an exception to the PPE requirements by posting an appropriate temporary sign during the event. The posting shall be removed immediately after the event has ended.

7.5 Performing Work in the Mechanical Testing Lab

7.5.1 Work should be coordinated and scheduled with the ATS Technical Lead. No one is authorized to perform work without confirmation from the ATS Technical Lead or the ATS Supervisor.

- a. ATS Technical Lead, ATS Materials Engineer, or Project Leads shall add a task to Microsoft Team Lab Work Scheduler.

7.5.2 Test design parameters shall be defined prior to test with involvement of an ATS Materials Engineer and the ATS Technical Lead. (e.g., Attachment 4, "Mechanical Testing Design Parameters")

7.5.3 Keep all body parts clear of the point of operation of equipment.

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7.5.4 A brush, or a vacuum is generally preferred for removing chips, shavings, etc. from the work area. Never use your hands.

7.5.5 Any violation of these rules and/or unsafe or improper use of equipment or tools in the mechanical testing lab will not be tolerated and shall result in disciplinary actions as determined by the ATS Supervisor.

7.5.6 Calibrated Tools and Equipment shall be signed out of the "tool logbook" for each project.

7.6 Lab Equipment Operation

7.6.1 Lab equipment shall only be operated by an authorized individual with specific equipment training and knowledge.

a. Specific Qualifications shall be documented with AP QPR.5F2 forms on the ATS Quality Program SharePoint for each:

1. Tinius Olsen 440 KIP Vertical Universal Force Machine
2. Tinius Olsen 100 KIP Vertical Universal Force Machine
3. MTS Horizontal Tensile Force Machine
4. MTS Vertical Universal Force Machine
5. Tinius Olsen 300 KIP Vertical Compression Force Machine

b. Training for equipment operation shall be documented in accordance with AP QPR-05, "Personnel Training and Qualification".

7.6.2 For safety reasons, no one can operate Lab Equipment without some level of oversight. Oversight should include at a minimum:

- a. ATS Personnel with a basic understanding of the equipment.
- b. A discussion of the JSA including the work plan, hazards, and controls.
- c. Novice skill level operators require a Skilled, Expert, ATS Technical Lead or ATS Materials Engineer with qualifications verified by the ATS Supervisor to perform an observation at the start of the testing and periodically during the testing.

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7.6.2 (continued)

- d. Additional requirements may be determined by the ATS Technical Lead or Supervisor on a case-by-case basis depending on a variety of factors including type of job, level of experience, the need for assistance and general safe work procedures.

7.6.3 The appropriate PPE shall be worn for protection from potential hazards that may be encountered for the given equipment being operated.

7.6.4 Defective or broken equipment or tools shall be tagged, removed from service, and reported to the ATS Technical Lead or the ATS Supervisor.

7.6.5 Operator shall stop work if they do not completely understand all technical and safety aspects of the task they intend to perform.

7.6.6 Operator shall be familiar with power shutoff procedures.

7.6.7 Testing fixtures

- a. Shall be inspected by the Operator prior to use
- b. New test fixture designs shall be reviewed and approved by a qualified engineer.

7.6.8 Testing Plan

- a. ATS Technical Lead and project engineering shall develop and document test parameters prior to testing including but not limited to:
 1. Test Type
 2. Maximum test load force
 3. Expected test load force
 4. Required measurements
 5. If applicable, ATS Procedure or industry standard being used as guidance.

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7.6.8 (continued)

6. If testing is non-routine, then an ATS Work Plan Form shall be utilized per SP PLAN-01.

7. Review Safety Data Sheets (SDS) for possible additional safety requirements when they are available for test specimens.

b. An example is Attachment 3 - Mechanical Testing Lab Plan.

c. Attach Testing Plan to Microsoft Team Lab Work Scheduler.

7.6.9 Mechanical Testing Lab Job Aid (Attachment 2) is located at each operator location.

a. Test parameters shall be determined and written on job aid and on the white board near the work.

b. Job Aid shall be used as a reference during testing to remind the operator of the testing process and highlight safety hazards and controls.

7.7 Portable Power Tools

7.7.1 Portable power tools shall only be used by individuals trained on the job in the use of the specific tools and shall follow the manufacturers' safety operating procedures.

7.7.2 All power tools shall be inspected prior to use and only used for their intended design.

7.7.3 The appropriate PPE shall be worn when using any hand tool or power tool.

7.7.4 All equipment shall be operated with protective guards or other safeguards in place. These shall not be removed from portable power tools or equipment unless approved by the unit supervisor and specifically addressed in the JSA.

7.8 Crane Operation

7.8.1 Cranes shall be operated only by an authorized individual with training and knowledge required to operate the Mechanical Testing Lab crane safely.

a. Qualifications shall be documented on the ATS Quality Program SharePoint.

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7.8.1 (continued)

b. Training for crane operators shall be documented in accordance with AP QPR-05, "Personnel Training and Qualification" and includes:

1. Completion of PG&E Rigging and Hand Signaling Training (EQIP-0143 and ELEC-0688WBT).
2. ATS Technical Lead or other qualified crane operator shall provide an operational and safety class followed by a proficiency evaluation.
3. ATS Supervisor shall document qualification on the ATS Quality Program SharePoint.

7.8.2 The ATS Personnel operating the crane shall verify if an inspection of the crane had been completed that day on the clipboard next to the crane rigging. If no inspection was performed that day, the ATS Personnel operating the crane shall perform an inspection of the crane before use of the crane.

a. Attachment 4 - ATS Overhead Crane Daily Inspection Form

7.8.3 The ATS Personnel operating the crane is responsible to:

- a. Notify other individuals in the area that the crane will be operated and for posting necessary barriers to prevent others from inadvertently walking into the crane zone.
- b. Ensure no individuals are under a load.
- c. Attend the crane while the load is suspended, unless suspended over a barricaded area, blocked, or otherwise supported.
- d. Ensure the suspended load does not exceed the rated load capacity of the crane as labeled on the crane body and controller.

7.8.4 Rigging associated with the crane operations shall only be performed by individuals trained and qualified to rig (EQIP-0143). In addition:

- a. Only Company-approved rigging shall be allowed.
- b. Rigging components shall be inspected prior to use to ensure all rigging components are in good working condition.

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7.8.4 (continued)

- c. At no time shall the working load exceed the limits of any rigging component.
- d. Individuals operating the crane or supporting a crane operation with a load shall always maintain a position where there is no risk of an injury in the event that one of the rigging components fails or control is lost (Code of Safe Practices, 1028[c]).

7.8.5 Individuals shall wear gloves if handling the load or slings, wire ropes, or chokers, or if there is a potential for pinch points or sharp or abrasive objects.

7.8.6 If necessary, tag lines should be used to assist in guiding the load.

7.8.7 ATS Supervisor shall coordinate and document quarterly crane inspections.

7.9 Forklift Operation

7.9.1 Forklifts shall be operated only by an authorized individual with training (EQIP-0068) and knowledge required to operate the forklift.

7.9.2 Operation of a forklift in and around the Mechanical Testing Lab and associated areas shall comply with "TLS Mobile Equipment Safe Driving Rules" and this procedure.

7.9.3 A hard hat and Hi-Vis safety vest shall be worn when operating the forklift or supporting a forklift operation. In addition, a safety vest shall also be worn by individuals operating the forklift or supporting a forklift operation.

7.9.4 Training for forklift operation shall be documented in accordance with PG&E My Learning.

7.9.5 During a forklift operation, individuals shall wear gloves if handling the load or slings, wire ropes, or chokers, or if there is a potential for pinch points or sharp or abrasive objects.

7.9.6 If necessary, tag lines should be used to assist in guiding the load.

7.9.7 At no time shall the working load exceed the rated load capacity of the forklift.

7.9.8 Posted speed limits shall be observed.

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7.9.9 The maximum speed limit is 5 MPH in the areas outside the Mechanical Testing Lab that are open, well lit, and dry.

7.9.10 When environmental conditions present other hazards, or when operating the forklift inside the Mechanical Testing Lab High Bay, the maximum speed is 3 MPH.

7.10 Manlift Operation

7.10.1 Manlift shall be operated only by an authorized individual with training and knowledge required to operate the Mechanical Testing Lab manlift safely.

a. Completion of PG&E Manlift Training (EQIP-0071) and PG&E Fall Protection Authorized User Training (SAFE-0455).

b. Reviewed and understands the specific Manlift manufacturer's manual.

c. Is familiar with the normal operation and emergency descent procedure for the specific Manlift.

d. Qualifications for manlift operation shall be documented in accordance with PG&E My Learning.

7.10.2 Operation of a Manlift in and around the Mechanical Testing Lab and associated areas shall comply with the Manlift manufacturer's manual and this procedure.

7.10.3 Fall Protection Harness with a lanyard with a maximum length of 36" shall be utilized as instructed in the manufacturer's manual and SP FALL-01.

7.10.4 Hard hats shall be worn when operating the manlift or supporting a manlift operation.

7.10.5 Non-operating personnel shall stay 6 feet away from manlift during all operations.

7.10.6 At no time shall the working load exceed the rated load capacity of the manlift.

7.10.7 The ATS Personnel operating the manlift shall verify that an inspection of the manlift had been completed that day on the clipboard attached to the platform frame. If no inspection was performed that day, the ATS Personnel operating the manlift shall perform an inspection of the manlift before use of the manlift per the manufacturer's manual.

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7.10.7 (continued)

- a. Attachment 5 - ATS Mechanical Testing Lab Manlift Pre-Use Inspection and Checklist Form

7.10.8 For safety reasons, no one can operate Mechanical Testing Lab Manlift without some level of oversight. Oversight should include at a minimum:

- a. ATS Personnel within proximity that are trained in descent tool operation from the ground per the manufacturer's manual.

7.10.9 ATS Technical Lead or delegate shall ensure quarterly and annual maintenance is completed that meets manufacturer manuals minimum requirements.

7.11 Emergency Plan, Near Hits, and Reporting Injuries

7.11.1 IF an emergency arises while working in the Mechanical Testing Lab,

- a. DIAL 866-5911 (Company phone) and report the emergency to a member of the Emergency Response Team (ERT).

7.11.2 Emergency Plan

- a. In the event of a general or major emergency while working in the Mechanical Testing Lab, ATS personnel shall stop work, place the work in a safe condition, and follow the directions of the local Emergency Response Team members in accordance with the ATS Emergency Plan.
- b. The ATS Emergency Plan and the SRTC Emergency Response Guide can be found on the ATS website under Safety.

7.11.3 Near Hits

- a. All near hits related to safety that occur in the Mechanical Testing Lab shall be reported in accordance with the PG&E corporate near hits program.
- b. Near hits shall also be entered into CAP in accordance with AP QPR-02, "Corrective Action Program (CAP)".



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7.11.4 Reporting Injury

- a. IF the injury or illness requires immediate medical care to stabilize the condition,

THEN call either 866-5911 (for ATS Emergency Response Team) or 9-911.
- b. IF medical care is not necessary to stabilize the condition,

THEN proceed to the next step.
- c. Report all injuries or illness immediately to one of the Mechanical Testing Lab work supervisors.
- d. Call the PG&E 24/7 Nurse Report Line at (888) 449-7787 to report the injury or illness and receive direction on medical care.

7.12 General Housekeeping

7.12.1 Expectations for All ATS Personnel working and operating equipment in the Mechanical Testing Lab.

- a. Proper job planning should be used to ensure that sufficient time is allocated to allow for the proper clean-up of the area.
- b. All work areas shall be maintained in a clean and orderly condition, including offices, labs, kitchen areas, workshops, worktables, and associated equipment. Keep the shop floor clean, dry, and free from trip hazards.
- c. Upon completion of a job in a work area, the work area should be left in a clean and orderly manner. i.e., “better than you found it” philosophy.
- d. Work tools, parts and components should be neatly stored in their designated storage areas.
- e. Report any broken, damaged, missing, or malfunctioning equipment to the ATS Technical Lead or ATS Supervisor.

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7.12.2 Annual Maintenance shall be completed by the ATS Technical Lead

- a. Equipment must be powered down when cleaning, or oiling. Any maintenance that requires the equipment to be locked out and tagged out should follow ATS Safety Procedure LOTO-01 – ATS Lockout/Tagout (LOTO).

7.12.3 ATS Technical Lead shall maintain and secure testing fixtures to ensure they still meet load requirements.

7.13 Equipment Calibration

7.13.1 Prior to use, equipment and tools with ATS-ICR Stickers shall be verified that they are documented as calibrated in the METBENCH/MOX database.

7.13.2 Equipment Calibration shall be delegated by ATS Supervisor and meet requirements of TP MTE-01, "Measuring and Test Equipment".

- a. Manufacturer specifications and industry best practices are to be utilized as a default for calibration procedures.
- b. Calibration of equipment and tools shall be tracked through METBENCH/MOX.

8. Governing Documents

8.1 N/A

9. Records

9.1 All safety records for required equipment maintenance (e.g., crane) and personnel training and qualifications shall be controlled in accordance AP CTL-01, "Control of Records and Documents".

10. Compliance Requirement/Regulatory Commitment

N/A

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11. References

- 11.1 PG&E Code of Safe Practices
- 11.2 AP CTL-01, "Control of Records and Documents"
- 11.3 AP QPR-02, "Corrective Action Program (CAP)"
- 11.4 AP QPR-05, "Personnel Training & Qualifications"
- 11.5 WP 357 MT-15 "Mechanical Testing Lab Qualification Program"
- 11.6 Applied Technology Services (ATS) Emergency Plan
- 11.7 SRTC Emergency Response Guide
- 11.8 TLS Mobile Equipment Safe Driving Rules
- 11.9 SP HOT-01, "Hot Work Procedure"
- 11.10 TP MTE-01, "Measuring and Test Equipment"
- 11.11 ATS Chemical Hygiene Plan

12. Appendices

N/A

13. Attachments

- 13.1 Attachment 1 - Mech Lab Materials Acceptance Form
- 13.2 Attachment 2- Mechanical Testing Lab Job Aid
- 13.3 Attachment 3 - Mechanical Testing Lab Plan
- 13.4 Attachment 4 - ATS Overhead Crane Daily Inspection Form
- 13.5 Attachment 5 - ATS Mechanical Testing Lab Manlift Pre-Use Inspection and Checklist Form

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14. Document Recession

14.1 WP 357 MT-14 Rev. 0, "ATS Mechanical Testing Lab Use Procedure"

Approved By [REDACTED], Supervisor, Materials Corrosion & Failure Analysis

Document Owner [REDACTED], Sr. Materials Testing Engineer, Materials Corrosion & Failure Analysis

Document Contact [REDACTED], Sr. Materials Testing Engineer, Materials Corrosion & Failure Analysis

Revision Notes

Revision Number	What Changed?
1	<ul style="list-style-type: none"> • Adds Manlift safety and inspection requirements • Add Attachment 5, ATS Mechanical Testing Lab Manlift Pre-Use Inspection and Checklist form • Clarify Non-routine test requirements • Include Respiratory PPE requirements



Mechanical Testing Lab Material Acceptance Form

Applied Technology Services
Pacific Gas and Electric Company
3400 Crow Canyon Rd,
San Ramon, CA 94583

Material Owner /Test Lead	LanID	Client Contact	Date	SWIMS
Material Description (Quantity, Type, Color, Markings, etc.)				
Material Location Description				

Lab Contacts:

██████████	Sr Materials Testing Engineer	925-719-6265	W1W4@pge.com
██████████	Engineering Technician II	925-204-5305	AALD@pge.com
██████████	Supervisor	925-967-8091	T4MA@pge.com

Lab Address:

PG&E Applied Technology Services (ATS)
3411 Fostoria Way
Danville, CA 94526
ATTN: Mechanical Testing Lab



Mechanical Testing Lab Job Aid

WP 357 MT-14
Attachment 2, Rev. 0
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Applied Technology Services
Pacific Gas and Electric Company
3400 Crow Canyon Rd,
San Ramon, CA 94583

Step	Task	Hazards	Controls
A	Fixture Installation (Once)		
A1	Review desired Ultimate Load required and testing plan with Lead on job MAX LOAD: _____	- Exceedance of test limits	- Review JSA - Test limits should be obtained from the vendor/manufacturer and reviewed by engineering - Document Testing Parameters on White Board - Ask for help
A2	Select a proper fixture using the ultimate desired load		
A3	STOP - Visually inspect fixture for any defects	Flaws or Defects	If fixture is suspect request a NDE inspection
A4	Install fixture in test machine	- Pinch Points - Slip Trip and Fall - Ergonomics	- Take 5 and Review test Plan - Housekeeping - Ask for help - PPE (Gloves, Safety Glasses) - Three-way communication
B	Prepare Specimen (Repeat)		
B1	Label specimen if possible and fill out a test ID card		Be sure labeling is consistently used and relevant to job name
B2	Remove any loose paint, material, etc.	Objects can dislodge and cause safety or environmental hazards	Reduce possible objects
		Verify paint is not lead based before removal	Follow approved procedure for removing lead paint
C	Test Specimen (Repeat)		
C1	Install/Attach "Test Specimen" to fixture. Document test specimen with photos and a "logbook" entry	- Stored Energy - Ergonomics - Sharp objects	- Follow all PG&E PPE and Industrial Ergo rules as applicable - Three-way communication
C2	STOP - Verify "test specimen" and fixture is secure in machine (do not rely on your hand grip or a simple tool)	Use proper techniques applicable to specimen type to ensure the test specimen is secure	- Three-way communication - Ask for help - Use Questioning Attitude
C3	Set test Machine Parameters	- Unintended machine movement - Stored Energy/Avoid the Bite	Follow all PG&E and Basic Cal-OSHA safety rules for rotating and moving machine safety
C4	Pre-Load Specimen LOAD: _____	- Stored Energy - Flying Debris - Unintended machine movement - Ergonomics	- Secure Test Equipment - Close Barriers & Non-Operators to maintain clearance of equipment - Ensure Emergency Shutoff Button is accessible - PPE (Safety Glasses) - Three-way Communication
C5	STOP - Run Test		
C5	Remove Test Specimen Document Data. Log data in a "logbook", take pictures with ID card	- Stored Energy - Ergonomics - Flying Debris - Sharp objects	- Take 5 and review JSA if applicable - Ask for help - PPE (Gloves, Safety Glasses)
E	Fixture Decommission (Once)		
E1	Remove and Clean Fixture	- Pinch Points - Slip Trip and Fall - Ergonomics	- Take 5 and review JSA if applicable - Housekeeping - Ask for help - PPE (Gloves, Safety Glasses)

Mechanical Test Plan: XXX Conductor Testing

Summary

Mechanical Testing Lab was requested to perform tensile testing on Cu conductor samples to determine the ultimate strength of samples. This is a monotonic linear load to failure method.

SWIMS #:

SAP #:

Sample Breakdown:

- Single Strand Cu. w/ splices:
 - 2 samples total; (1) sample for full conductor testing that has two splices (single strand to multi-strand). (1) sample for single strand testing. Will need to cut single strands to proper GL.

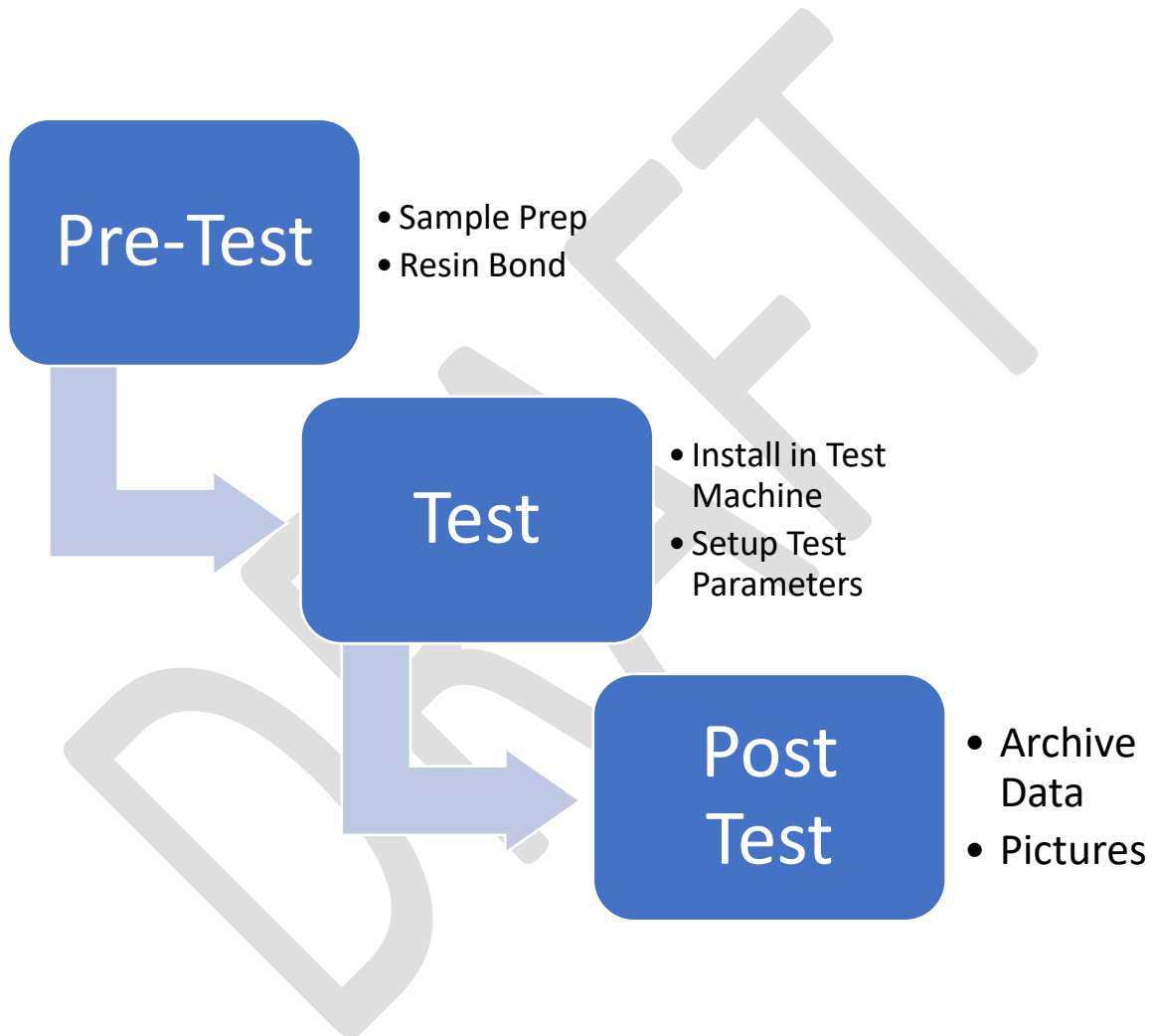
Method of Testing:

- Procedures, Codes & Standards:
 - ATS WP 342-32 Rev.1
- Testing Machine:
 - Vertical MTS. Force measurement tolerance $\pm 1\%$ of read
 - Sample lengths & expected breaking strength will determine.
- Grip Type:
 - Wedge style mechanical grips for attachment to single stranded sections.
- Control Variables:
 - Control logic; Displacement
 - Pacer Rate; 0.25-inch per minute
 - Mechanical lab standard.
 - Preload; Set to 100 lbf
- Gauge Length (GL):
 - Physical measurement as reference only
 - GL is measured from fitting end to end at preload.
 - Zero displacement set at preload.

Reportable Items:

- Ultimate measured force (lbf)
- Data archive of raw displacement/force measurements. Set to 20Hz Data rate.
- Number of strands & diameter measurements for Stress Strain calculations.
- Before/after test pictures.

Mechanical Testing Flow Chart



Pictures:

<p>As Received / Pre-Test Pictures Label</p>	<p>As Received / Pre-Test Pictures Samples XX</p>
 <p>Proposed Testing Machine Vert. MTS (Grips not Shown)</p>	<p><i>Intentionally Left Blank</i></p>

- | | | | |
|------------------------------|--|------------------|--------------|
| Shop Lead/Supervisor: | | Location: | MET High Bay |
|------------------------------|--|------------------|--------------|

General Observations
Rigging Stored Properly
Rigging Stored Clean


Pass	Fail
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Comments/Actions Taken	

Shop Lead/Supervisor/Manager:

LAN ID:

Date: _____

			
ATS MECHANICAL TESTING LAB MANLIFT PRE-USE INSPECTION and CHECKLIST			
Operator / Inspector:			Date:
Unit Type: JLG FT70 LiftPod Manlift			
#	Inspection Item / Description	Pass / Fail / NA	
1	Rear Wheels - Check for any debris stuck to or around wheels. Make sure axle bolts are fastened.		
2	Base Frame - Check for Cracks or corrosion, especially around the mast-stump base. Check Level indicator is clean, secure and responds to movement.		
3	Platform Emergency Lowering Tool - Check that the platform emergency lowering tool is in place on the base frame and in good working order.		
4	Mast Assembly - No cracks or corrosion, especially around base of mast no excess wear, Kinks, nicks or damage; Slide pad running surfaces smooth and unobstructed; free of dirt or debris.		
5	Platform Latch Assembly - With Platform not mounted to mast, inspect the mast pin mounts and their connections for any signs of damage. If no damage is present to the mounts, with platform mounted to mast, check the latch assembly is engaged with bottom of mast pin mount when released.		
6	Adjustable Leveling Feet/Locking Castor Wheel - Check for any debris stuck to or around the mechanism. Check for damage. Non-skid pads on bottom of foot must be in good working order.		
7	Swivel Castor Mechanism - Engage handle is not bent or broken. Check for any debris stuck to or around mechanism. Castor Wheel swivels freely.		
8	Manual Descent Crank - Ensure it is present and securely attached in platform.		
9	Platform Assembly and Gate - Check mounting pins are not loose platform railing is undamaged; self-closing entry gates are in proper working order; no cracks or corrosion visible.		
10	Base - Step on Base to Ensure the swivel castor mechanism fully retracts and base sits on leveling feet.		
11	Adjustable Leveling Feet or Castors - Check both move freely up and down for machine leveling.		
12	Platform Gates - Check that both close properly after entering platform.		
13	Cordless Drill Operation - Check that the drill power button when released stops all mast movement and drill battery is fully charged.		
14	Mast Drive Enable - When using cordless drill with the hex drive bit, check that the drive gear must be pushed down to engage the mast drive gears and will disengage when released.		
15	Mast Operation - Enter the platform and operate the mast up and down 2 or 3 feet using the cordless drill, check for smooth operation.		
Workplace Inspection			Check to Confirm
		Yes	No
1	Clear of any Drop-offs or holes?		
2	Clear of any debris, bumps and floor / ground obstructions?		
3	Clear of overhead obstructions?		
4	Clear of overhead power lines?		
5	Clear of pedestrians / vehicle traffic?		
6	Clear of any possible wind and weather conditions?		
7	Clear of any other hazardous locations?		
Comments or Notes:			
<p>Hard copy of this inspection must be readily available for OSHA and Facility audit.</p> <p>See Manufacturer Operation Manual for more information on Inspection and maintenance requirements.</p> <p>If lift is found to fail any aspect of the inspection, remove from service and inform Supervisor.</p> <p>ATS JLG FT40 Manlift are not PG&E Fleet maintained. Service is through third party.</p>			