Scaffold Erection and Use

Overview

Purpose

The purpose of this standard practice is to establish guidelines, in addition to those set forth by MIOSHA, for safe erection and use of scaffolding at the Detroit Refinery.

Scope

The scope of this standard practice applies to all companies that the Detroit Refinery contracts to build scaffolds and all contractors and MPC employees that use scaffolding at the Detroit Refinery.

1.0 References

1.1 Regulatory References

The table below lists the regulatory references used with this document.

Number	Description
MIOSHA-STD-1309	Part 12 – Scaffolds and Scaffold Platforms

2.0 Scaffold Erection Requirements

2.1 General Scaffold Erection Requirements

2.1.1 Scaffolds shall meet MIOSHA minimum requirements and be designed by a Qualified Person.

2.1.2 Scaffolds shall be erected, moved, dismantled or altered by only trained Scaffold Builders under the supervision and direction of a Competent Person qualified for such work.

2.1.3 A Competent Person shall determine fall protection measures for employees erecting or dismantling scaffolds.

2.1.4 Scaffold Guardrail Requirements

2.1.4.1 Scaffold working surfaces 6 feet or more above grade – Guard rails and toe boards required on all open sides.
2.1.4.2 Scaffold working surfaces between 4 feet and 6 feet above grade – Guard rails only required when platform is less than 45 inches wide in its least dimension.
2.1.4.3 Scaffold working surfaces less than 4 feet above grade – No guard rails required.

2.1.5 All scaffolds and scaffold components shall be capable of supporting its own weight and at least four times the maximum intended load applied or transmitted to it.

2.1.6.1 The scaffold company shall identify the duty rating (i.e. light, medium, or heavy duty) along with the nominal load rating of a scaffold on the scaffold's inspection tag.

2.1.7 All scaffolds shall be fully decked or planked, except for walkways used during scaffold erection and dismantling or obstructions extending through the scaffold.

2.1.8 Scaffolds should be constructed in a manner that does not create obstructions (e.g. angled bracing at base of scaffold), such as where there is the potential for someone to hit their head or trip. If these types of obstructions are unavoidable, then they shall be flagged with caution tape and the hazard shall also be documented on the inspection tag.

2.1.9 Swing gates shall be installed at all ladder access points.

2.1.10 Scaffolds with multiple decks/platforms that have varying fall protection requirements shall be erected in a manner that provides a separate means of access and inspection tags for those decks/platforms that do not require fall protection.

2.1.11 Scaffold components manufactured by different manufacturers shall not be mixed during construction.

2.1.12 Scaffolds shall not be erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might come closer to exposed and energized power lines than as follows:

Un-insulated Lines Voltage	Minimum Distance	Alternative
Less than 50,000 volts	10 feet	None
More than 50,000 volts	10 feet plus 4 inches for every 10,000 volts over 50,000	2 times the length of the line insulator, but never less than 10 feet.
Insulated Lines Voltage	**Minimum Distance**	**Alternative**
Less than 300 volts	3 feet	None
More than 50,000 volts	10 feet plus 4 inches for every 10,000 volts over 50,000	2 times the length of the line insulator, but never less than 10 feet.

2.1.12.1 Scaffolds and materials may be closer to power lines than specified above where such clearance is necessary for performance of work and only after the utility company or electrical system operator has been notified of the need to work closer and the utility company or electrical system operator has de-energized the lines, relocated the lines, or installed protective coverings to prevent accidental contact with the lines.

2.0 Scaffold Erection Requirements Continued

2.2 Scaffold Ladders

2.2.1 Scaffold ladders shall extend at least 3'-6" above the work platform for safe access. CLIMBING SCAFFOLD BRACES IS PROHIBITED (except during authorized scaffold building and dismantling). Landing platforms shall be provided at least every 30 feet.

2.2.2 The use of tandem scaffold ladders (i.e. a ladder section on either side of an obstruction, such as a fixed guard rail, that requires the user to transition between ladders while climbing) is prohibited.

2.2.3 Ladders shall be installed with cages, "back bars", or approved alternative fall protection as per the following requirements:

2.2.3.1 Any ladder longer than 21 feet (measured from landing to landing).

2.2.3.2 Any ladder positioned at an elevation of 21 feet or greater above ground level (e.g. subsequent ladder sections used to access scaffold decks that extend beyond the first 21ft ladder section from grade).

2.2.3.3 Whenever a ladder comes within 6ft of a fixed guardrail system and/or extends 6ft or more off a fixed platform or structure.

2.0 Scaffold Erection Requirements Continued

2.3 Critical Scaffolds

2.3.1 All Critical Scaffolds require the following:

2.3.1.1 A unique Critical Scaffold identification tag hung next to the inspection tag that identifies it as a Critical Scaffold.

2.3.1.2 A detailed erection plan shall be developed by a Competent or Qualified Person, then signed off on by a Competent Site Supervisor from the scaffold company for each critical scaffold.

2.3.1.2.1 The form template used to document the erection plan shall be provided by the scaffold company.

2.3.1.2.2 Completed erection plan forms for Critical Scaffolds shall be retained by the scaffold company for at least one year after they are initiated and shall be provided to the Detroit Refinery upon request.

2.3.1.2.3 If the Critical Scaffold is modified after being erected, then the erection plan shall be updated to reflect the changes and re-signed by a Competent Site Supervisor.

2.3.1.3 A Competent Site Supervisor from the scaffold company shall also conduct a field inspection and sign off on the Critical Scaffold identification tag after the scaffold has been erected to approve the scaffold for use.

2.3.1.2.1 If the Critical Scaffold is modified after being erected, then the Competent Site Supervisor shall conduct another field inspection and sign and hang a new Critical Scaffold identification tag.

3.0 Scaffold Use Requirements

3.1 General Scaffold Use Requirements

3.1.1 Each employee that accesses a scaffold must be trained as a Scaffold User.

3.1.2 Each employee on a scaffold more than 6 feet above a lower level shall be protected from falling to that lower level by a guard rail system and/or PFAS.

3.1.3 Scaffolds shall not be moved while employees are on them.

3.1.4 Personnel may not work on a scaffold that is covered with snow, ice, or other slippery material except to remove the slippery material or mitigate the problem. For ice removal, salt should be used to as opposed to calcium chloride to prevent the scaffold planks from becoming slippery.

3.1.5 Work on or from scaffolds is prohibited during lightning storms or high winds. See RSW-SAF-001-DT General Safety Rules for more information.

3.1.6 Debris shall not be allowed to accumulate on platforms.

3.1.7 Makeshift devices such as, but not limited to, boxes and barrels, shall not be used on top of scaffold platforms to increase the working level height of employees.

3.1.8 Ladders of any kind shall not be used on scaffolds to increase the working level height of employees, except on large area scaffolds where the following criteria has been satisfied.

3.1.8.1 The platform units shall be secured to the scaffold to prevent their movement.

3.1.8.2 The ladder legs shall be on the same platform or other means shall be provided to stabilize the ladder against unequal platform deflection.

3.1.9 Materials should not be stacked higher than the toe-board.

3.1.9.1 If materials must be stacked above the toe-board, then additional guarding shall be installed on the scaffold guardrails to prevent dropped materials (i.e. netting, plywood, etc.).

3.1.9.2 All tools and materials should be removed from the scaffold deck and brought to grade as soon as the work task is complete.

3.1.10 Scaffold Users shall ensure that the combined weight of all personnel, tools, and materials does not exceed the load/duty rating of the scaffold that is marked on the Scaffold Inspection Tag.

4.0 Training

4.1 Scaffold User Training Requirements

4.1.1 Training shall be provided to ensure that a Scaffold User will be able to know and understand the fall protection requirements, inspection process and requirements, and the limitations of the scaffolding systems that are utilized at the Detroit Refinery.

4.1.2 MPC and Leased Employees shall receive one or more of the following:

(a) New Operator Training (BOT)
(b) New Maintenance Employee Training
(c) HESS Boot Camp
(d) Scaffold User WBT

4.1.3 Contract companies performing work that involves the use of scaffolding will receive site specific Scaffold User training via the Detroit Refinery's Online Safety Orientation training.

4.1.4 Training records are maintained by the Refining Training & Development Department.

4.0 Training Continued

4.2 Competent and Qualified Person Training Requirements

4.2.1 Competent Persons shall have experience as a Scaffold Builder and receive Scaffold Competent Person Training from one or more of the following recognized agencies:

a) National Center for Construction Education and Research (NCCER)
b) Scaffold and Access Industry Association (SAIA)
c) Scaffold Training Institute (STI)

4.2.2 Qualified Persons shall meet the training requirements of a Competent Person and be capable of performing the calculations necessary to properly design and certify various scaffold configurations.

5.0 Inspections and Audits

5.1 Inspection and Audit Requirements

Apply the following requirements for inspections and audits:

5.1.1 All scaffolds and scaffold components that are to be used during a given shift shall be inspected for visible defects by a Competent Person before each work shift and after any occurrence that could have affected the scaffolds' integrity. All scaffolds shall have an initialed and dated scaffold inspection tag attached near the base of the access ladder by the scaffold erector. The scaffold tag shall be green, yellow or red.

Tag Color	Requirement
Green	A completed scaffold; safe to work on.
Yellow	Scaffold is complete but requires additional safety precautions. **Example**: No guardrail – 100% tie-off.
Red	Scaffold is incomplete or unsafe and should not be used under any circumstances.

5.1.2 When marking whether fall protection is required on the scaffold tag, the Competent Person from the scaffold company shall use a means of marking that is unable to be altered (i.e. hole punch with a unique pattern).

5.1.3 All permanent scaffolds will be inspected on a quarterly basis. The tag used will be a round yellow tag.

5.1.3.1 Maintenance Plan #110147122 has been created to ensure that these quarterly inspections are completed for all MPC owned permanent scaffolds as well as those that are owned by the scaffold company.

5.1.4 Scaffold companies must conduct routine, documented audits of their Competent Persons to ensure that they are following the proper scaffold inspection process and inspection criteria.

Appendix A: Terms and Definitions

A.1 Competent Person

A ***Competent Person*** is someone who has been trained to receive this designation. A Competent Person is capable of identifying existing and predictable workplace hazards or working conditions which may be hazardous or dangerous to employees. A Competent Person has the authority to take prompt corrective measures to eliminate these hazards and conditions. Additionally, this person must meet the training requirements listed in Section 4.2.1.

A.2 Critical Scaffold

A ***Critical Scaffold*** is any scaffold that can be defined by any one or a combination of the following scaffold types:

- Hanging scaffolds (i.e. supported from overhead structure)
  - Hanging scaffolds that have more than four support points (large scaffolds)
  - Hanging scaffolds that have more than one deck
- Cantilevered scaffolds (i.e. all or a portion of the scaffold that is supported by kick outs that are attached to a nearby structure or scaffold, rather than vertical scaffold legs)
  - Cantilevered scaffolds with a cantilever or kickout that is more than 50% in width of the base scaffold
  - Cantilevered scaffolds with more than one deck
  - Cantilevered or kickout scaffolds on base scaffolds that are free standing
- All suspended scaffolds (i.e. suspended from rope or cable)
- Internal scaffolds (i.e. scaffolds within a confined space and/or those that require the use of energy isolation)
- Rolling scaffolds with a base to height ratio greater than 2 to 1 or greater than 10 feet in height
- Scaffolds that will be enclosed or tarped.
- Scaffolds used as an anchorage for rigging or fall protection.
- Heavy load scaffolds
  - Scaffolds of large size or heavy loads that result in leg loads greater than 1500 lbs.
  - Scaffolds rated at higher than 25psf
  - Scaffolds used for storage or support of equipment

A.3 Qualified Person

A ***Qualified Person*** is someone who, by possession of a recognized degree or certificate of professional standing, or who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work and is knowledgeable with the requirements of this procedure and related standards. Additionally, this person must meet the training requirements listed in Section 4.2.2.

Revision History

Document Revision History

Complete the following table for each document revision.

Revision number	Description of change	Written by	Approved by	Effective date
0	New standard practice	J. Stefko	Safety Steering Committee	6/4/2019