1.0 PURPOSE

1.1 To elevate awareness to the potential for falling objects, and the damage and injury that can be prevented by an evaluation of our areas, recognition of the hazards, and implementing established procedures. To provide guidance for both management and workers to recognize the hazards and select the most appropriate preventative actions.

2.0 SCOPE

2.1 This procedure applies to all persons, including all Marathon employees, visitors and contractors, working on Marathon Petroleum Company LLC, Michigan Refining Division, property.

3.0 GUIDELINE

3.1 Responsibilities

3.1.1 Management is responsible for implementing and enforcing this procedure.
3.1.2 The *Coordinators, Contract Supervisors and all front line supervisors* are responsible for planning tasks and monitoring work areas in a way that reduces the potential for workers to be exposed to hazards from falling objects.
3.1.3 The *MRD Safety Department and Contractor Safety Representatives* are responsible for monitoring compliance with this procedure, and for working with project field supervision to ensure that hazards are regularly identified and eliminated or controlled.

3.2 Injury Prevention Strategy – In order to prevent injury from falling tools and materials, the following strategies will be employed.

3.2.1 Management expects a high priority for frequent recognition and elimination of falling object hazards.
3.2.2 Rely on daily task planning (Job Safety Analysis / Safety Task Assignment) to make quality choices regarding how best to avoid these hazards, and accomplish the task.
3.2.3 Frequent communication between field supervision, safety personnel and project management to control these hazards.
3.2.4 Regular formal focused safety inspections.

3.3 Special Injury Prevention Strategies Considered for Turn-Around Work and Major Construction Projects

3.3.1 Turn-Around and Major Construction Project environments with limited “real estate” or work areas generally require a higher level of protection from falling objects for workers engaged in their work tasks. Marathon expects these factors to be considered in an effort to provide a safe working environment.

3.3.1.1 Housekeeping
3.3.1.2 Barricading
3.3.1.3 Overhead protection or netting
3.3.1.4 Effective work coordination and scheduling
3.3.1.5 Human factors (fatigue, inattention, lack of pre-planning)

3.4 Dropped Tool Hazards and Controls

3.4.1 Working Below

3.4.1.1 Personnel working below areas where overhead work is in progress shall inform the contractor and workers above of their presence. Where overhead work is in progress and there is a potential for falling materials, barricading shall be erected per SAF-043 Barricade Procedure and be removed at job completion.

3.4.1.2 If work is to be performed from scaffolds over areas where employees must walk or work below, scaffolds shall have complete toe boards, netting, and / or covered walkways installed.

3.4.2 Demolition

3.4.2.1 When piping is to be demolished, special attention must be given to securing and rigging the material to be removed.

3.4.2.2 When sheet metal, wall board or panels, or plating is to be cut out, a hole shall be drilled or cut to allow for cables and shackles to be attached in order to eliminate the potential to drop the material when the cut is complete. If this is not feasible, some other adequate and equally effective means shall be considered.

3.4.2.3 Equipment rigged for demolition must be secure, level, and have all attachments removed or secured.

3.4.2.4 Insulation shall be evaluated for integrity and properly abated or secured if necessary before demolition.

3.4.2.5 For additional requirements concerning demolition please review SAF-046 Demolition.

3.4.3 Hoisting and Lifting

3.4.3.1 Should tools and equipment need to be raised / lowered to or from an upper work area this work will be performed by a crane wherever feasible. If use of a crane is not feasible, the material will be raised using a rope with the tools and equipment securely tied or in a canvas bag.

3.4.3.1.1 Only manufactured leather or canvas tool bags designed for rigging shall be used. Plastic or metal buckets with wire handles shall not be used for hoisting or lifting.

3.4.3.2 Lifting areas must be barricaded to prevent unintentional access beneath the suspended load per SAF-043 – Barricade Procedure. When utilizing a crane, to hoist materials and tools to elevated work areas, the ground person(s) / spotter(s) shall ensure that workers are not under suspended loads during the lift.

3.4.3.3 The area to be barricaded must be large enough to account for the potential for tools and material to bounce off of or deflect from piping and structures in the event they should fall.

3.4.3.4 Gin wheels may be installed at fixed locations by the contractor to utilize them.

3.4.3.4.1 Gin wheels and ropes used for hoisting and lifting must be used within manufacturer requirements and inspected by the user for wear, damage, and weathering.

3.4.3.4.2 Ropes used on Gin wheels shall be at a minimum 5/8” manila material. Ropes used as a continuous loop shall be spliced only

once, and a tag or load line attached, but be free from other splices or repairs. Ropes attached in a continuous loop shall be inspected upon use.

3.4.3.4.3 Ropes shall be taped at the ends to prevent unraveling.

3.4.4 Housekeeping / Unsafe Conditions

3.4.4.1 Good housekeeping is required to prevent the accumulation of material and trash on elevated work platforms, which is an unsafe condition. At a minimum a daily cleanup of scrap, trash, tools and excess materials will take place. Workers are encouraged to “clean as you go”.

3.4.4.2 Workers shall only take sufficient supplies, materials, and tools for the work activity to be accomplished for that shift, or to stage for the next shift. Tools, materials, and trash shall be stacked and organized neatly away from the edges of platforms and scaffolding.

3.4.4.3 Holes and openings in decks and platforms shall be managed in accordance with SAF-066 Fall Protection Procedure. Fire blankets or other adequately constructed coverings shall be utilized over floor penetrations, chafing rings, and other small openings in order to prevent dropping smaller objects, i.e. nuts and bolts.

3.4.4.4 Special attention shall be given to cleaning up of smaller objects such as bolts that could be dropped or kicked through smaller openings, and tin or plywood that could be blown off by wind gusts. Small objects such as nuts and bolts shall be carried in approved containers and not in cardboard boxes that can break or be degraded by weather.

3.4.4.5 Materials used for construction activities such as boards, plywood, sheet metal, and other material that can be blown off by high winds or gusts shall be adequately secured to prevent displacement.

3.4.4.6 Skid pans or dumpsters shall be utilized to eliminate trash as needed. Use of Skid pans at elevated work areas shall be considered where trash or material may accumulate, and their presence does not congest the work area or create a trip hazard.

3.4.4.6.1 There may be situations where, because of limited space, a large workforce, wet processes, or other factors, that a more frequent cleanup effort will be needed.

3.4.5 Tripping Hazards

3.4.5.1 Eliminating trip hazards on elevated work platforms will help to reduce the potential for falling objects.

3.4.5.1.1 Avoid using scaffolds, platforms, and decks as a convenient route for extension cords and welding leads unless there is no other route available. Cords and leads shall be routed overhead, out of walkways.

3.4.5.1.2 Tripping hazards that cannot be avoided or removed shall be made visible by drawing attention to the hazard. Use of high visibility barricade tape, paint or adhesive tapes can be used on these hazards to warn personnel of their presence.

3.4.5.1.3 Position materials, equipment and tools in the least obstructive position as space allows.

3.4.6 Tool Lanyards

3.4.6.1 The use of tool lanyards shall be considered in conjunction with barricading and other methods of protection where overhead work and steel erection is to be performed. Tool lanyards shall be required whenever workers below are not protected from dropped objects by a deck or scaffold. Tool lanyards are only for use on “hand” tools.

3.4.6.1.1 Wrist-style tool lanyards are available through the warehouse part # 73556111.

3.4.6.1.2 Thirty-two inch carabiner-style tool lanyards are available through the warehouse part # 73556109.

3.4.6.2 Heavier tools i.e. magnetic drills, shall have a manufactured lanyard to prevent them from falling in the event of loss of power. Lanyards shall be attached in a manner to ensure that they cannot become entangled by moving parts.

3.4.6.3 Impact guns and air tools with “Chicago” style connections shall be pinned with clips and/or be equipped with locking mechanisms and a rope shall be attached to the airline to prevent dropping of the tool where workers below are not protected from falling objects. Impact guns used on elevated work platforms shall use retention clips for all sockets and drives.

3.4.7 Safety Nets

3.4.7.1 Safety nets for dropped material shall be considered, during the planning phase, for congested work areas. However, when the other aspects of this procedure have been implemented and found not effective, safety nets shall again be considered.

3.4.8 Material Storage

3.4.8.1 All construction materials shall be neatly stacked away from edges and handrails of work platforms and scaffolding. Material piles shall be stable and secured to prevent dislocation by wind or gusts. Whenever material is stored or stacked on elevated work platforms, snow fence, walls, or netting shall be utilized on handrails.

3.4.8.2 Gang boxes shall be located at elevated work platforms where feasible to eliminate the need to take excess tools to work areas. Gang boxes shall be located as close to the work as practical without creating a trip hazard or obstructing walkways.

4.0 DEFINITIONS

4.1 Carabiner - A metal loop with a locking spring or screw gate used to quickly connect and disconnect safety equipment.
4.2 Dropped - To allow material to fall from one level to a lower elevation.
4.3 Falling object – Any material i.e. tools, work supplies, piping or metal that is being demolished or removed, that is dropped or blown off of an elevated work area.
4.4 Gang boxes – Large locking metal tool boxes used for storage of supplies and equipment.
4.5 Gin wheel – A single pulley that utilizes a rope to raise and lower tools and supplies from elevated work areas.

4.6 Hand Tools - A device for performing work on a material or a physical system using only hands. Hand tools are used by manually employing force.

4.7 Skid pan - A metal dumpster that has been fabricated to be attached to by a lugger truck and moved from area to area, or raised to elevated work platforms by specialized manufactured four way metal slings.

4.8 Spotter - An individual that is assigned the responsibility of maintaining barricades, and preventing personnel from crossing barricades or entering an area when there is a danger of dropped tools, materials, or sparks.

4.9 Tool lanyard - A manufactured tether that connects "hand" tools to the wrist, structure, or to the tool belt to prevent tools from falling if they are dropped. The lanyard may loop over the tool or be connected by an adhesive wrap. A carabiner may be used to attach the lanyard to the tool belt or support structure

5.0 REFERENCES

5.1 Michigan Refining Division Safety Rules and Procedures, SAF-043 – Barricade Procedure
5.2 Illinois Refining Division - MSAT2-002 – Prevention of Dropped Tools and Materials Procedure
5.3 Michigan Refining Division Safety Rules and Procedures, SAF-066 – Fall Protection Procedure
5.4 Michigan Refining Division Safety Rules and Procedures, SAF-046 – Demolition Procedure

6.0 ATTACHMENTS – Appendix A – Dropped Tool / Overhead Material Pre-Work Checklist

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7.0 REVISION HISTORY

Revision number	Description of change	Written by	Approved by	Effective date
0	Original Procedure	S. Windom	J. Marra	08-06-10
1	Scheduled review no changes	S. Kumpar	S. Windom	10-03-13
2	Updated header per RGD-1051-DT, corrected dates in footer	F. Ebbert	J. Rabideau	10-31-15
3	Scheduled review no changes	J. Stefko	J. Rabideau	10-17-16

Appendix A

Dropped Tool / Overhead Material Pre-Work Checklist

Elevated Work:

1. **SCAFFOLD SETUP:**
   - □ Toe Boards Complete
   - □ Netting Installed
   - □ Covered Walkways Installed Below (Optional)

2. **DEMOLITION:**

   Piping**:**
   - □ Contents Bled / Drained / Purged
   - □ Detailed Rigging Plan in Place
   - □ Weight of Load Identified
   - □ Rigging Adequate for Load
   - □ Center of Gravity Identified
   - □ Load is Level
   - □ Tag Lines Installed
   - □ Rigging Secure to Prevent Sliding (movement)

   Sheet Metal, Wall Board or Panels, or Plating:
   - □ Hole Cut or Drilled for Rigging
   - □ Detailed Rigging Plan in Place
   - □ Weight of Load Identified
   - □ Rigging Adequate for Load
   - □ Center of Gravity Identified
   - □ Load is Level
   - □ Tag Lines Installed
   - □ Softeners Installed to Protect Rigging

   Equipment:
   - □ Detailed Rigging Plan in Place
   - □ Weight of Load Identified
   - □ Rigging Adequate for Load
   - □ Softeners Installed to Protect Rigging
   - □ Center of Gravity Identified
   - □ Load is Level
   - □ Tag Lines Installed
   - □ All Attachments Removed or Secured

3. **HOISTING & LIFTING:**

   Crane:
   - □ Area Under Lift Large Enough for Bouncing Tools & Properly Barricaded
   - □ Ground Person / Spotter In Place
   - □ No Persons Under Suspended Load During Lift

   Tools / Canvas Tool Bag:
   - □ Ropes Inspected for Wear, Damage, & Weathering & In Good Condition
   - □ Rope Securely Tied to Tool
   - □ Approved / Designed for Rigging Leather or Canvas Tool Bag is Used

- □ Rope Not Exposed to Sharp Edges
- □ Area Under Lift Large Enough for Bouncing Tools & Properly Barricaded

Gin Wheels:

- □ Wheels Properly Installed at Fixed Locations
- □ Minimum 5/8" Manila Rope is Used
- □ Ropes Inspected for Wear, Damage, & Weathering & In Good Condition
- □ Ropes Taped at Ends to Prevent Unraveling
- □ Continuous Loop Ropes Have Only One Splice Point
- □ Continuous Loop Ropes Inspected Before Each Use

4. HOUSEKEEPING:

General:

- □ Work Platform Free of Scrap, Trash, Excess Tools & Materials
- □ Tools & Materials Stacked & Organized Away From Edge of Platform or Scaffold
- □ Holes/Deck Openings Properly Covered to Prevent Dropping Small Objects
- □ Small Objects (i.e. Nuts & Bolts) Stored/Carried in Approved Containers
- □ Materials Properly Secured to Prevent Displacement by High Winds or Gusts
- □ Snow Fence, Wall, or Netting Installed Where Materials are Stored/Stacked
- □ Skid Pan/Dumpster Does Not Congest Work Area or Cause Trip Hazard
- □ Elevated Gang Box Near Work Location & Not Causing Trip Hazard or Walkway Obstruction

Trip Hazards:

- □ Cords & Lead Not Routed on Scaffold, Platform, or Deck Unless Necessary
- □ Cords & Lead Routed on Scaffold, Platform, or Deck is Elevated Out of Walkway
- □ Fixed Trip Hazards Made Visible by Using Hi-Viz Tape, Paint, or Adhesive Tape
- □ Material, Equipment, & Tools Do Not Create Obstruction or Trip Hazards

5. TOOL RESTRAINT:

- □ Tool Lanyards Used for Overhead Work / Steel Erection
- □ Tool Lanyards Used Along With Proper Barricading Under the Work Area
- □ Tool Lanyards Only Used on Hand Tools
- □ Tool Lanyards Used When Workers Below Are Not Protected by Deck or Scaffold (Required)
- □ Heavy Tools (i.e. Mag Drills) have Manufactured Lanyard Properly Installed While in Use
- □ Heavy Tool Lanyards Installed So They Can Not be Entangled in Moving Parts
- □ "Chicago" Style Connections Properly Pinned & Equipped w/ Locking Mechanism
- □ Rope Attached to Air Line to Prevent from Falling to Lower Level
- □ Impact Guns Have Retention Clips in Place for All Sockets & Drives
- □ Safety Nets for Dropped Material Considered & Used When Possible

Below-Elevated Work:

1. COMMUNICATION:

- □ Joint Job Site Visit Conducted Prior to Start of Work
- □ Contractor Below Informed Elevated Crews of Their Presence

2. BARRICADING:

- □ Joint Job Site Visit Conducted Prior to Start of Work
- □ Barricading Installed Per SAF-043 Barricading Procedure
- □ Barricading Removed at Job Completion