DROPPED OBJECTS PROGRAM

SUBPART A - PURPOSE

Historically, dropped objects have played a principal role in oil and gas incidents. This situation should not be tolerated or allowed to continue. Berry Bros. General Contractors, Inc. (**BBGCI**) must eliminate this type of incident.

The purpose of this Dropped Object Prevention Sample Plan is to establish corporate-wide guidelines for eliminating dropped objects when working at height. This prevention plan is intended to significantly reduce both hazards and serious injury and risks to employees that dropped objects can pose. This plan should help mitigate dropped objects by ensuring that workers are properly trained to secure tools at height and understand correct procedures.

SUBPART B - SCOPE

This program describes the management of objects that could fall and harm people or damage property during operations performed on all facilities under **BBGCI** operational control.

These dropped object hazards could arise from employees working at heights or where they may be exposed to a dropped object by working below other personnel, tools, equipment and platforms.

SUBPART C - GOALS & OBJECTIVES

The objective of this program is simple guidance to eliminate dropped objects through:

1. Identification and understanding of potential workplace dropped objects hazards
2. Creation of a dropped objects work group
3. Understanding the various levels of protection that are available to prevent dropped objects
4. Selecting and supplying the right level of mitigation
5. Raising the overall awareness of dropped objects

The contents of this booklet apply to all **BBGCI** personnel, contractors and subcontractors working on sites under **BBGCI** operational control.

SUBPART D - DEFINITIONS

Primary Drop System - systems which serve as the tool's primary form of drop prevention and typically include the worker's hand placement or grip on the tool.

Secondary Drop System - serve as a backup in the event the primary system fails, and are utilized to prevent damage from a dropped or falling object after it has fallen. Secondary systems may include guardrails with toe-board and mesh netting, screens, floor/hole coverings, and tool canopies that have side protection.

Drop Hazard - Any tool, material or object that has an opportunity to fall from elevation to a lower level causing potential for damage to property, injury or death.

SUBPART E - RESPONSIBILITIES

Management/Supervision

1. Communicating the expectation that dropped objects will be eliminated within the work area and ensuring that this plan and associated procedures are implemented.
2. Coordinating assessments to ensure implementation and effectiveness of the procedure.
3. Ensuring employees have appropriate equipment and materials to implement the procedure effectively.
4. Ensuring workers have necessary opportunity for required training.

Health and Safety

1. Communicating this procedure and supporting information to applicable employees.
2. Conducting assessments to evaluate the procedure's effectiveness.
3. Conducting necessary training with applicable employees.

All Employees

1. Notifying his or her supervisor of any drop hazards within their scope of work.
2. Conducting work only after all drop hazards have been eliminated or property mitigated.
3. Stopping work if hazardous conditions prevent the job from being done safely.
4. Immediately reporting any dropped or fallen objects.
5. Including potential drop hazards in Job Hazard Analyses and Pre-job Planning

SUBPART F - WHAT CREATES DROPPED OBJECTS

1. Poor housekeeping
2. Scrap and debris left aloft
3. No inspection
4. No equipment maintenance
5. Poor designs

6. Weather
7. No restraints
8. No planning
9. Load miscalculation
10. Lack of risk assessment
11. Errors in space requirements
12. Instability
13. Ineffective control of equipment or tools taken aloft
14. No lanyards on tools used at height
15. Improperly secured or inappropriate loads
16. No regular inspection procedures
17. Becoming blind to changes in activity (dynamic risk assessment)
18. Carrying equipment while at height

SUBPART G – DROPPED OBJECTS IMPACT FORCE CHART

Even a small object falling from a height can cause serious or fatal injuries. In the chart below you can see the force of impact from an 8 lb. wrench at various heights.

Impact of an 8.3 lb. (3.6 kg) dropped wrench*

Drop Height		Speed		Impact Force	
Feet	Meters	MPH	KPH	Lbs.	Newtons
5	1.5	12	19	166	738
10	3	17	27	332	1477
25	7.6	27	43	830	3692
50	15.2	39	63	1660	7384
100	30.5	55	88	3320	14768
200	61	77	124	5540	29536
300	91	95	152	9960	44304
400	122	109	175	13280	59072
500	152	122	196	16600	73840

*Assumes a 3 in. (7.6 cm) deceleration distance for purposes of this calculation of impact force.

SUBPART H - RECOMMENDED MITIGATION CONTROLS

Tool Lanyards/Tethers

An extension made of durable materials that is designed to prevent an object from being dropped. These will typically utilize a connection point on either end of the tether for securing an object to a worker or stationary item.
Any BBGCI employees working with hand tools at heights must have their tools accompanied with either a lanyard or a tethering system to prevent any dropped objects from falling down to the ground or a lower working level.

Tool Belts, Holsters and Pouches

For some tools and objects, a tool holster or tool pouch may be appropriate. Tools used in these holsters should weigh less than or equal to the manufacturer stated load-rating.

D-Rings on fall protection harnesses which have been designated by the manufacturer for use as a tool connection point are a good option. Tool Belts designed with tether points are also a good option.

Any BBGCI employees that are working at heights with multiple tools, must have some type of belt or pouch to hold these tools rather than laying them on the elevated platform where a risk of dropping can occur.

Tool Buckets

For the safe transportation of tools and materials, buckets may be utilized only if they are manufactured with a closure system which allows the user to secure the contents of the bucket from potential spills.

SUBPART I - SECONDARY SAFETY SYSTEMS

Dropped Object Buffer Zones

Dropped Object Zones are to be clearly marked with barricades or caution/danger tape to restrict access. Only employees directly engaged in the activity conducted overhead will be admitted into a Dropped Object Zone.

Dropped Object Zones are required when there may be a potential for high employee traffic in the area of overhead work, whether it be from a man-lift or simply employees at an elevated platform. The barricaded buffer zone must extend 15 feet in either direction of the overhead work being performed.

Toe Boards

When being used as a secondary drop system, toe boards will be erected along the edge of overhead work in order to protect employees below. Toe boards will be capable of withstanding a force of at least 50 lbs. in any downward or outward motion. Toe boards will be at least 3 ½ inches tall with no greater than ¼ inch clearance over the working surface.

Guardrail Systems

If guardrail systems are to be engaged as a secondary drop system, they will need to be inspected to ensure any openings are not large enough for tools or materials to pass through.

SUBPART J – SAFE HABITS TO PREVENT DROPPED OBJECTS

Housekeeping

Trash and waste should be kept in appropriate bins which are to be located in convenient locations across the workplace. When working at heights, these are to be stored in transport buckets with closure systems, pouches, etc. with an ability to be closed and prevent spillage until the material can be properly stored in a waste bin. Employees should “clean as you go” and maintain an orderly work area, resulting in a lower chance for dropped material. Tools and other materials should also be kept in an organized, orderly fashion.

Tools and Material Storage

Where tools or materials are stacked higher than the edge of the toe boards, screening or paneling will be constructed from the working surface to the top of the guardrail or mid-rail. This will be done for a sufficient distance to ensure these objects will not have an opportunity to become drop hazards. Unless guardrails with screening or paneling has been erected, materials should not be stored within four feet of the leading edge. All stacked materials should be stable and self-supporting.

Tool and Material Handling

Positive tool transfer should be utilized by employees. When transferring a tethered tool from one employee to another, “100% tie off” should be engaged. The tool should be tethered to the passing employee. Prior to handing off, the receiving employee should connect their tether to the tool as well. After positive connection has been completed, the passing employee may disconnect their tether from the tool. By utilizing this passing method, the tool never has an opportunity to become a drop hazard.

Equipment Inspection

All drop prevention systems shall be inspected prior to use. Excessively worn or damaged tools or materials must be immediately removed from service and replaced.

SUBPART K - PRE-JOB RISK ASSESSMENT

Complete a pre-job risk assessment such as a JSEA before beginning any job/task, with the following goals in mind:

1. Identify any dropped object hazards before starting a job or task and communicate these at a toolbox talk.
2. Include discussions on tools and equipment in the JSA.
3. Ensure all personnel are involved in the discussion, understand the associated hazards and implement the mitigation.

SUBPART L - TRAINING

All employees who may create or be exposed to drop hazards during their work will go through the proper training which shall include:

1. The nature of drop hazards and dropped objects in the workplace
2. Correct procedures and equipment use for drop prevention
3. Purpose and application of applicable Primary and Secondary Drop Systems
4. Proper storage and handling of equipment and materials at height
5. Reporting requirements for incidents and near misses

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Approved By: _Joe Berry & Safety Committee