Best Management Practices (BMP) plan for containment of spent blast abrasive and associated materials from surface preparation and coating operations – for oil and natural gas exploration and production facilities in the Gulf of Mexico

NPDES PERMIT # GMG290388

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1.0 GENERAL REQUIREMENTS

1.1 BMP Scope and Overall Objectives

This Plan covers Apache’s surface preparation and coating operations in the Gulf of Mexico OCS. It addresses offshore exploration, production and development operations including fixed and floating facilities and MODUs. These facilities must be inspected periodically and maintained in order to assure structural integrity and minimize pollution risks. Maintenance of an offshore facility necessarily includes surface preparation and coating activities. Containment and capture practices for surface preparation and coating activities are organized according to Zones 1 through 3 on the offshore facility as set forth in Section 4.0.

The measures addressed in this Plan should not jeopardize safety, efficient operation of the facility, or result in an unreasonable economic burden.

This Plan was developed to comply with the BMP Plan requirements found at Part I, Section C.6 in NPDES General Permit GMG290388, *The NPDES General Permit for New and Existing Sources and New Dischargers in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category for the Western Portion of the Outer Continental Shelf of the Gulf of Mexico.*

The objective of this Plan is to establish Best Management Practices that are to be followed to safely prevent and minimize, to the maximum extent practicable (MEP), the discharge of spent blast abrasive, paint chips, and paint overspray to the surrounding waters. Additionally, any maintenance waste which is captured must be properly packaged and shipped to shore for disposal. This Plan defines practices to contain and capture maintenance waste, including but not limited to spent blast abrasive and associated materials, to the MEP, during maintenance coating operations on offshore facilities and MODUs.
1.2 Items Addressed by this Plan

1.2.1 Abrasive Blasting

Abrasive blasting is used for cleaning surfaces such as steel, usually to remove scale, rust, old paint or other material before applying a protective coating. It involves using a stream of abrasive material, propelled at high speed by compressed air or water to clean, abrade, etch, or otherwise change the original appearance or condition of the surface.

Spent blast abrasive will contain the residue of the substrate cleaned, including the coating removed, if any. In some instances, the spent blast abrasive may be considered a federal or state regulated hazardous waste, and should be evaluated and/or tested to determine its regulatory status. Appropriate training and maintenance programs will help assure that all equipment operates properly and waste generation is minimized.

Spent blast abrasives generated during this process will be collected to the MEP on pads, trays, skids, decking, or other surfaces within the containment area and packaged for off site disposal. Spent abrasives that are not able to be contained will result in an unavoidable minimal discharge to the environment.

Refer to Section 5.0 for additional information regarding abrasive blasting.

1.2.2 Water Blasting

Water blasting may be utilized as an alternative method to abrasive blasting for surface preparation.

Refer to Section 6.0 for additional information regarding water blasting.

1.2.3 Surface Coating

Three types of wastes from coating operations are generated. These include paint residues, paint overspray and coating supplies that can no longer be used. This BMP Plan only addresses the paint residues and the paint overspray. The supplies utilized during the coating process that must be disposed, should be handled in accordance with owner/operator specific waste management procedures and applicable regulatory requirements.

1.2.3.1 Coating Residues

Coating residues that are mixed with spent blast abrasives must be contained or controlled to the MEP.
1.2.3.2 Paint Overspray

Paint overspray is defined as the material emitted by the spray guns that does not adhere to the surface of the material being coated and results in minor quantities of discharges. Effective control of paint overspray discharges requires the proper selection and operation of spray painting equipment to minimize overspray. When practical the use of airless sprayers should be used to minimize overspray.

1.2.3.3 Coating Supplies

Typical supplies that must be disposed of properly when spent include such items as brushes, protective clothing, masks, empty cans, solvents, rags, etc. These items must be collected in a storage area for appropriate disposal.

Refer to Section 6.0 for additional information regarding Surface Coating.
2.0 DEVELOPMENT AND IMPLEMENTATION

The development of this BMP Plan is based on requirements for BMP plans in NPDES General Permit GMG290000. In addition, this Plan is based on the following regulatory requirements, industry codes, practices and guidelines:

- U.S. Coast Guard - U.S. Coast Guard (46 CFR Subchapter I-A) - The purpose of this subpart is to carry out the regulatory and enforcement aspects of marine safety.
- American Petroleum Institute - The American Petroleum Institute (API) has developed and provided a series of Recommended Practices for the offshore industry to use as guidelines for consistent, effective operation and implementation of management options. Specifically, API Bulletin 91, First Edition, June 2007, was used in developing this plan.
- National Association of Corrosion Engineers International (NACE) - NACE International is a professional technical society dedicated to protecting the environment, promoting public safety, and reducing the economic impact of corrosion by advancing the knowledge of corrosion engineering and science. NACE International has become the largest organization in the world committed to the study of corrosion. NACE standards are used as guidelines to gauge the prepared condition of the surface to be coated.
3.0 GENERAL BMP

3.1 Good Housekeeping

Maintaining clean and orderly work areas (i.e., good housekeeping) during normal operational procedures and during the handling of potential pollutants minimizes leaks, spills, and releases to waste streams. These good housekeeping practices are included in BMP Plan training in order to maintain a continued awareness of good housekeeping practices. Their implementation is verified by daily visual inspections and through periodic use of the Inspection Form located in Appendix B.

Good housekeeping practices include, but are not limited to, the following:

- Focusing on keeping work areas clean and neat
- Cleaning up leaks and spills promptly
- Inspecting work areas and pathways to detect potential problems
- Storing materials properly
- Labeling materials properly
- Conducting preventive maintenance on equipment

Existing or other documents, practices and procedures relating to Good Housekeeping are incorporated by reference as listed in Appendix F.

3.2 Preventive Maintenance

Preventive maintenance is performed to keep equipment related to the operation in proper working order. This reduces minor losses of materials from equipment related spills or leaks. It also assures effective application of for surface preparation and coating operations (for example, changing nozzles). Some preventive maintenance practices could also be considered good housekeeping (for example, keeping valves and fittings from leaking). However, this plan does not make a strict distinction between the two.

Existing or other documents, practices and procedures relating to Preventative Maintenance are incorporated by reference as listed in Appendix F.

3.3 Record Keeping

A copy of this BMP should be maintained at the jobsite. The records of inspections, training and modifications to the plan will be maintained at Apache’s Gulf of Mexico Region’s Houston office or in the electronic files that can be accessed from these offices after the surface preparation and coating operations have ceased. This data is available to the EPA or its authorized representative for inspection upon request.
Existing or other documents, practices and procedures relating to Record Keeping are incorporated by reference as listed in Appendix F.

3.4 Inspections

Routine visual inspections are performed daily as part of conducting surface preparation and coating operations ensuring that plan objectives and operational procedures are being followed. Corrective actions will be taken as required. While these inspections are not documented they may lead to improvements in the plan.

Documented inspections are conducted daily and focus on stored materials (new and spent), equipment, and work areas with the potential to pollute. The documented inspections are conducted with the use of the Inspection Forms which are easily used by personnel. In addition, the checklist is a method of recording observations for record keeping and revisions to the plan. Revisions to the plan would include changes required to address new problems, or simply implementing new ideas to improve the plan.

Personnel conducting documented inspections are required to sign the inspection form. Blank Inspection Forms are found in Appendix B. Completed Inspection Forms are maintained at the job site, and subsequently transferred to Apache’s Houston office for file retention.

Existing or other documents, practices and procedures relating to Inspections are incorporated by reference as listed in Appendix F.

3.5 Evaluation and Reevaluation

The EH&S Department is charged with the responsibility of monitoring the success of this BMP Plan. The Plan will be reevaluated once every 5 years, at a minimum, and amended within 3 months if warranted. The BMP Plan documentation generated from inspections and lessons learned from safety/pollution incidents, will be routinely reviewed and evaluated to verify that the BMP Plan is effective in achieving the objective of safely minimizing the discharge of spent blast abrasive, paint chips, and paint overspray to the surrounding waters.

The procedures and the tools used to implement the BMP Plan are periodically reviewed to determine effectiveness, and if necessary, changes will be made for improvement.

All personnel associated with surface preparation and coating operations are given the opportunity to further improve the BMP Plan. A standard BMP Plan Feedback Form has been developed for this purpose and is located in Appendix B. Completed Feedback Forms are given to the onsite Person in Charge of surface
preparation and coating operations and forwarded to the EH&S Department for periodic review. Questions regarding feedback can be directed to the EH&S Department.

3.6 Plan Modification

A list of circumstances that will trigger modification of this BMP Plan includes, but is not limited to, the following:

- Whenever there is a change in surface preparation or coating operations having a significant effect on the potential for discharge of spent blast abrasive, paint chips, and paint overspray
- Anytime the BMP is determined to be ineffective in achieving the objectives of the BMP
- Whenever the routine inspections reveal a need to modify procedures or equipment to further reduce the potential to release spent blast abrasive, paint chips, and paint overspray to the receiving water
- After a significant release resulting from a failure of controls outlined in the BMP Plan

3.7 Training

Initial BMP training is given to appropriate facility personnel and contractor supervisors for the purpose of informing these personnel of the components and objectives of this plan. The initial training consists of an introduction to this BMP Plan, the basic requirements of the Plan, objectives of the Plan, and the purpose of the plan.

Intermittent training is done on an as needed basis in the event that there is a change in facility or contractor personnel, a recurring problem, or a significant BMP Plan modification.

Training documentation consists of signing the BMP Plan Training Documentation Form (located in Appendix B) by appropriate personnel performing the work. Training records are maintained at Apache’s Houston office or in the electronic files that can be accessed from this office after the surface preparation and coating operations have ceased.

Existing or other documents, practices and procedures relating to Training are incorporated by reference as listed in Appendix F.

3.8 Work Permits

When special conditions are present as appropriate and in accordance with the procedures established by Apache, work permits or authorization should be secured from the operator. These work permits should specify the timing and
duration of the work and any special conditions associated with the work such as lock out/tag out, confined space, and similar conditions. These work permits should be obtained prior to the initiation of each project.

3.9  General Safety

3.9.1  Safety Program

The Apache safety management process/system should be followed for all operations conducted in accordance with this plan. All contractors should be made aware and must comply with the safety management program established by the owner/operator.

3.9.2  Job Preparation

Pre-job safety meetings that include all affected personnel, including contractors should be held to review responsibilities for the operation(s) to be performed. Such meetings should address the communication aspects of the job, including crew changes.

3.9.3  Proper Ventilation

Proper ventilation of an area where blast abrasives or coatings are being utilized or applied will assist in minimizing the potential for worker exposure or overspray.

3.9.4  Marked Exits

When conducting abrasive blasting or coating activities, accesses to stairs or emergency exits should be clearly marked and a clear pathway to the exit routes should be maintained. The use of highly visible exit signs or special tarps with exit signs is recommended.

3.9.5  Safety Practices for Coating Systems

Properly used and maintained spray guns and shrouding will greatly minimize coating overspray concentrations, but will not completely eliminate overspray from the air workers breathe. Personal Respiratory Protective Equipment (PRPE) is recommended (Photos 1 and 2 found in Appendix E) as is a Respiratory Protection Program that contains all pertinent elements such as worker evaluation, selection of appropriate air-purifying or supplied-air respirators, fit-testing, training and maintenance as required by Occupational Safety and Health Administration (OSHA) regulations found at 29CFR 1910.94.
3.9.6 **Safety Practices for Abrasive Blasting**

Engineering, administrative, and housekeeping controls should be in place to minimize discharges and exposure of personnel. Engineering controls consist of appropriate design elements to minimize airborne discharges. Administrative controls, such as limiting a worker's time in areas where blast abrasives are being utilized should be considered. Good housekeeping techniques are important and should include techniques such as routine clean-up and removal of the spent blast abrasive.

3.9.7 **Duty to Report**

Unsafe and potentially dangerous conditions should be mitigated to their lowest acceptable risk, if possible, or reported to the supervisor in charge for corrective action.
4.0 ZONE DESCRIPTIONS AND CONTAINMENT CONTROL OPTIONS

For the purposes of this document, the techniques utilized to contain or control discharges associated with the coating or blasting processes are in relation to the exterior areas of the structures/vessels/MODUs in the three zones as described below and generally following demarcation examples in Figures 1 – 3, located in Appendix D.

Zone 3 – Refer to Figures 1 – 3 for demarcation of Zone 3 for the appropriate installation type. The following operational controls should be used to the MEP in this zone to minimize the amount of discharges from the blasting and coating operations:

- equipment operational controls,
- cessation of operations during adverse weather conditions,
- pressure regulation,
- proper coating selection to decrease frequency of coating,
- proper coating selection to minimize overspray,
- application of the optimum number of coats.
- blast abrasive washing

In addition to the operational controls utilized in Zone 3, containment options should be used to the MEP. These options include techniques such as:

- external containment,
- sealed seams at joints for external containment,
- housekeeping,
- clean pads, trays, skids, decking or other surfaces,
- self contained abrasive blaster where appropriate,
- plugs or filters for drains,
- timely removal of spent abrasives, removed materials or water,
- routinely inspect/replace blasting nozzles

These operational controls are discussed in more detail in Section 5.0, Section 6.0 and Section 7.0 of this document.

Zone 2 – Refer to Figures 1 – 3 for example demarcations of Zone 2 for the appropriate installation type. Zone 2 will generally encompass the area below Zone 3 extending to the water line and includes areas above Zone 3 (e.g., flare boom, crane boom, rig frame, etc.) The following controls should be used to the MEP to minimize the amount of discharges from the blasting and coating operations:

- equipment operational controls,
- collection of maintenance waste to the MEP,
- cessation of operations during adverse weather conditions,
pressure regulation,
• proper coating selection to decrease frequency of coating,
• proper coating selection to minimize overspray,
• application of the optimum number of coatings,
• blast abrasive washing

In addition to the operational controls utilized in Zone 2 optional practices include techniques such as:

• housekeeping,
• clean pads, trays, skids, decking or other surfaces
• self contained abrasive blaster where appropriate
• routinely inspect/replace blasting nozzles

These operational controls are discussed in more detail in Section 5.0, Section 6.0 and Section 7.0 of this document.

Zone 1 – Refer to Figures 1 – 3 for example demarcations of Zone 1 for the appropriate installation type. Zone 1 will generally encompass the area below the waterline. This BMP does not address surface preparation and coating applications in Zone 1.
5.0 ABRASIVE BLASTING BMP

Blast abrasive is procured according to known and documented specifications. Selection criteria include cutting ability and health and safety aspects. In general, this technique includes using compressed air to propel blast abrasive through nozzles for the purpose of removal of coating, rust, etc. The spent blast abrasive should be contained and collected to the MEP, then either disposed or reused, dependent on the type of blast abrasive.

5.1 Types of Blast Abrasive

There are many types of blast abrasive. The specific need should be evaluated when selecting the type of blast abrasive to use. Sand is the most commonly used blast abrasive and is readily available in many particle size grades to suit various job needs. It may be pre-washed to reduce the amount of fines. Other alternatives include slag, minerals, metallic or others such as glass. The type of product to be used should be evaluated on a case-by-case basis to determine cost-effectiveness and whether it can achieve the required performance standards.

For each blast abrasive used, a MSDS should be obtained and reviewed to determine the potential risk to human health and the environment as well as the recommended PRPE requirements and disposal option for the spent blast abrasive.

5.2 Unused Blast Abrasive

Unused blast abrasive (Photo 3) should be dispensed, or transferred, from the product containers in a contained area. (Photo 4) The transfer process should be conducted in such a manner to minimize spillage and dust discharges to the MEP. (Photo 5) Any spillage should be recovered for reuse or disposed as appropriate.

5.3 Control and Containment of Spent Blast Abrasives

Abrasive blasting control measures should consist of some type of operational control, barrier, containment structure or a combination of these techniques in order to prevent discharges from the work area to the MEP.

5.3.1 External Containment

External containment should be used where practicable and safe to confine discharges due to abrasive blasting. (Photo 6, 7, 8, 9 and 10) The containment structure should be placed as close as practicable to the immediate blast area to minimize the area of impact. It should consist of walls, ceiling, flooring and closable ingress/egress as appropriate with either a rigid or flexible frame. Exits should be clearly marked and readily identifiable. (Photo 11, 12 and 13) The containment or control technique should be established to assure containment to the MEP.
5.3.2 Sealed Joints

The walls, ceiling, and flooring of the containment structure should have overlapping seams to minimize escape of spent blast abrasive to the MEP. (Photo 14, 15, 16, 17 and 18)

5.3.3 Routine Inspection/Replacement of Air Nozzles

Air nozzles should be maintained in proper operational condition in order to maintain optimum flow rates and air pressure levels during abrasive blasting. (Photo 19) A properly functioning air nozzle will minimize discharges of spent blast abrasive. (Photo 20 and 21)

5.3.4 Housekeeping

Maintain a clean working area in order to assure that excessive spent blast abrasive is not accumulated. The spent blast abrasive should be collected on a regular basis and not left to accumulate over the course of a job. (Photo 22)

5.3.5 Washed Blast Abrasive

As appropriate, blast abrasive should be washed at least two times to minimize the amount of fines in the blast abrasive.

5.3.6 Self Contained Abrasive Blaster

The use of a self contained abrasive blasting unit that re-circulates the blast abrasive can be utilized on large flat surfaces. (Photo 23) This technique, which has limited application, reuses the blast abrasive thus minimizing the potential for discharge.

5.4 Packaging of Spent Blast Abrasive

Once collected (Photo 24) the spent blast abrasive should be stored in a container appropriate to the type of spent blast abrasive. (Photo 25)

5.5 Storage of Spent Blast Abrasive

Spent blast abrasive should be stored in contained areas designated for storage. Periodic inspections of this storage area should be conducted in order to assure that the spent blast abrasive is properly controlled/contained.
5.6 Disposal of Spent Blast Abrasive

Spent blast abrasive must be transported off-site for disposal in accordance with applicable regulations. Any spillage during transportation of the spent blast abrasive should be evaluated to determine if a Reportable Quantity (RQ) has been released. If a RQ has been released, notification must be made to the regulatory authority.

5.7 Blasting Frequency

Blasting operations should be conducted at the frequency identified in the Apache’s maintenance program or in response to findings from periodic or annual surveys that are performed.

5.8 Weather Conditions

Careful attention should be paid to weather conditions, if the work area is subject to rain and wind. If heavy rains or high winds are in the forecast, the Person in Charge of the operation should determine if weather conditions pose a threat to the safety of personnel or render the containment systems ineffective. During these conditions abrasive blasting operations must not occur.

Existing or other documents, practices and procedures relating to Abrasive Blasting are incorporated by reference as listed in Appendix F.
6.0 WATER BLASTING BMP

6.1 Water Blasting Techniques

Water blasting techniques are utilized to achieve various degrees of surface cleanliness. Water blasting techniques utilized include water blasting operating at blast pressures ranging from 5000 to 15,000 psi, and ultra high pressure water blasting with blast pressures greater than 15,000 psi.

6.2 Discharge Reduction Measures

Water blasting control measures should consist of operational controls, barrier or containment or a combination of these techniques in order to minimize discharges from the work area to the MEP.

6.2.1 External Containment

External containment should be used where practicable and safe to confine discharges. The containment structure should be placed as close as practicable to the immediate blast area to minimize the area of impact. The containment or control technique should be established to assure containment to the MEP. (Photo 26)

6.2.2 Routine Inspection/Replacement of Water Blasting Nozzles

Water blasting nozzles should be maintained in proper operational condition in order to maintain optimum water pressure/flow levels during blasting.

6.2.3 Operational Controls

Operational controls include periodic checks of the pumps, operating blast nozzles at the manufactures suggested pressure, etc. Proper operation of water blasting equipment can minimize the amount of blasting water being used, thus reducing the amount of water collected as the result of the blasting.

6.2.4 Plugs/Filters for Drain Systems

Plugs/filters should be used to isolate or protect drainage lines to assure blasting water is not introduced to the wastewater treatment system, unless the system is appropriately designed. (Photo 27 and 28)

6.2.5 Housekeeping
Any blasting water collected in a containment area should be removed in as timely a manner as practicable in order to minimize the possibility of overtopping of the containment.

6.2.6 Blasting Frequency

Blasting operations should be conducted at the frequency identified in the Apache’s maintenance program or during periodic or annual surveys that are performed.

6.2.7 Weather Conditions

Careful attention should be paid to weather conditions, if the work area is subject to rain and wind. If heavy rains or high winds are in the forecast, the Person in Charge of the operation should determine if weather conditions pose a threat to the safety of personnel or render the containment systems ineffective. During these conditions water blasting operations must not occur.

Existing or other documents, practices and procedures relating to Water Blasting are incorporated by reference as listed in Appendix F.
7.0 SURFACE COATING BMP

Coatings and coating supplies are selected based on documented performance history, surveys, and manufacturer’s literature.

7.1 Application Method

Coatings should be applied using the manufactures recommendation.

7.2 Types of Coatings

The type of coating utilized should be selected based upon the intended use.

7.3 Discharge Reduction Options

Coating control measures should consist of operational controls, barriers, containment, or a combination of these techniques that minimizes discharges from the work area to the MEP.

7.3.1 External Containment

External Containment should be used where practicable, and safe, to confine discharges. The containment structure should be placed as close as practicable to the immediate blast area to minimize the area of impact. Potential external containment structures could include items such as tarps or sheeting to the MEP. (Photo 29, 30 and 31)

The containment or control should be maintained in accordance with the approved design throughout the course of surface preparation in order to assure containment to the MEP.

7.3.2 Pressure Regulation

Manufacturer specifications should be followed to determine the optimum pressure to apply the coating. These specifications should be followed in order to maximize the application efficiency, thus reducing discharges.

7.3.3 Coating Selection

Coating selections should be considered as a method to minimize discharges. Coatings are continually being upgraded to allow for extended life. Selection of a coating with an extended life minimizes the frequency of coating application, thus reducing discharges.
7.3.4 Coating Applications

Manufacturer recommendations for the number of coats to be applied should be followed. Additional layers of coatings do not necessarily increase the duration between reapplying the coating, but will increase the discharges associated with application of the coating.

7.3.5 Weather Conditions

Careful attention should be paid to weather conditions, if the work area is subject to rain and wind. If heavy rains or high winds are in the forecast, the Person in Charge of the operation should determine if weather conditions pose a threat to the safety of personnel or render the containment systems ineffective. During these conditions coating operations should not occur.

7.4 Disposal of Spent Coating Supplies

As the result of the coating operations, used material will be generated, such as brushes, buckets, protective clothing, protective masks, etc. This used material should be collected, properly stored, and disposed of in accordance with established regulations.

Existing or other documents, practices and procedures relating to Surface Coating are incorporated by reference as listed in Appendix F.
8.0 WASTE MINIMIZATION PRACTICES

In order to minimize the amount of excess material remaining after completion of the abrasive blasting or coating, the amount of supplies needed for a project should be carefully evaluated and surplus materials minimized. Following manufacturer recommendations for preparation of the surface to be coated and for the application of the coating will assure that waste generated as the result of such operations will be minimized.

Existing or other documents, practices and procedures relating to Waste Minimization are incorporated by reference as listed in Appendix F.
APPENDICES
Work areas where blasting and surface coating are occurring were inspected to assess their potential for discharging spent blast abrasives, paint chips and paint overspray (either directly or indirectly) to the Gulf of Mexico. The assessment included a review of equipment and operations in the area to determine if pollution potential is being effectively minimized by the BMP Plan. The assessment included pollution prevention measures (e.g., safety devices, containment systems, etc.), good housekeeping (e.g., drains free of debris, drums and cans properly labeled and stored, deck clean, etc.), and preventive maintenance (storage containers in good condition, containment in good condition, etc.)

**Work Permits and General Safety**

<table>
<thead>
<tr>
<th>Items to Check</th>
<th>Action Items</th>
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<tbody>
<tr>
<td>Has the proper work permit(s) been obtained and approved?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Has the pre-job safety meeting occurred?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Does the work area contain the proper ventilation?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Are all stairway access points clearly marked?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Are all emergency exits clearly marked?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Is there a clear pathway to the exit routes?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Do personnel have available the proper PRPE?</td>
<td>Yes No</td>
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</tbody>
</table>

**Good Housekeeping**

<table>
<thead>
<tr>
<th>Items to Check</th>
<th>Action Items</th>
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<tbody>
<tr>
<td>Are all work areas clean, neat and orderly?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Have all spills and leaks been promptly cleaned up?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Are storage areas kept clean, neat and orderly?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Are storage containers stored properly?</td>
<td>Yes No</td>
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<tr>
<td>Are the storage containers properly labeled and identifiable?</td>
<td>Yes No</td>
</tr>
<tr>
<td>Has all equipment been properly maintained per manufacturer’s requirements?</td>
<td>Yes No</td>
</tr>
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</table>
### Control and Containment – Abrasive Blasting

<table>
<thead>
<tr>
<th>Items to Check</th>
<th>Action Items</th>
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<tr>
<td>Do drains contain filters or plugs?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>Do external containment structures enclose the work area to the maximum extent practicable?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>Are external containment structures placed as close as practicable to the immediate blast area to minimize the area of impact?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>Do joints in walls, ceiling and flooring have overlapping seams?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>Are air nozzles maintained for optimum flow rates and air pressures levels?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>Is accumulated spent blast abrasive cleaned up and collected on a regular basis to prevent excessive amounts?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>Is blast abrasive washed a minimum of two times to minimize the amount of fines?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>Will weather conditions render the containment system ineffective?</td>
<td>Yes  No</td>
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</tbody>
</table>

### Control and Containment – Water Blasting

<table>
<thead>
<tr>
<th>Items to Check</th>
<th>Action Items</th>
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</thead>
<tbody>
<tr>
<td>Do drains contain filters or plugs?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>Do external containment structures enclose the work area to the maximum extent practicable?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>Are external containment structures placed as close as practicable to the immediate blast area to minimize the area of impact?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>Do joints in walls, ceiling and flooring have overlapping seams?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>Are water nozzles maintained for optimum flow rates and water pressure levels?</td>
<td>Yes  No</td>
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<tr>
<td>Is accumulated blast water cleaned up and collected on a regular basis to prevent excessive amounts?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>Will weather conditions render the containment system ineffective?</td>
<td>Yes  No</td>
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**Control and Containment – Surface Coating**

<table>
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<tr>
<th>Items to Check</th>
<th>Yes</th>
<th>No</th>
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<tr>
<td>Are coatings applied using manufacturer’s recommendations?</td>
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<td>Is the type of coating used appropriate for its intended use?</td>
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<tr>
<td>Do drains contain filters or plugs?</td>
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<tr>
<td>Do external containment structures enclose the work area to the maximum extent practicable?</td>
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<tr>
<td>Are external containment structures placed as close as practicable to the immediate coating area to minimize the area of impact?</td>
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<tr>
<td>Do joints in walls, ceiling and flooring have overlapping seams?</td>
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<td>Are pressure regulators used?</td>
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<td>Is the manufacture’s specified optimum pressure being used to apply coatings?</td>
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<td>Will weather conditions render the containment system ineffective?</td>
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**Additional Comments and Recommendations**
APPENDIX B

BMP PLAN
TRAINING DOCUMENTATION FORM
BMP PLAN TRAINING DOCUMENTATION FORM

Facility: Area/Block_________________ OCS G-__________ Platform_________

Date: ___________________

Given By: __________________________________ (Trainer)

Topics Discussed: ___________________________________________________________

<table>
<thead>
<tr>
<th>NAME</th>
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APPENDIX C

DEFINITIONS AND ACRONYMS
DEFINITIONS

The following definitions are provided to help clarify and explain the use of certain terms in this BMP Plan. Users should recognize that some of the terms utilized in this BMP Plan may have meaning in other documents that may be similar, but not identical to the meaning in this BMP Plan.

**Abrasive Blasting** - the operation of cleaning or preparing a surface by forcibly propelling a stream of abrasive material against the surface.

**Containment System** - the cover panels, screens, tarps, scaffolds, plywood, supports, and shrouds used to enclose an entire work area or coating removal tool. The purpose is to minimize or prevent the spent blast abrasive generated during surface preparation from entering into the environment, and to facilitate the controlled collection of the spent blast abrasive for disposal.

**Contractor** - any person or company that contracts or subcontracts to provide services to the facility owner/operator.

**Discharge** – any spilling, leaking, pumping, pouring, emitting, emptying, or dumping, but excludes

1. discharges in compliance with a permit under Section 402 of the Clean Water Act,
2. discharges resulting from circumstances identified and reviewed and made part of the public record with respect to a permit issued or modified under Section 402 of the Clean Water Act, and subject to a condition in such permit, and
3. continuous or anticipated intermittent discharges from a point source, identified in a permit or permit application under section 402 of the Clean Water Act, which are caused by events occurring within the scope of relevant operating or treatment systems. [33CFR 153.103(g)]

**Maintenance Waste** – Materials collected while maintaining and operating the ship, including, but not limited to, soot, machinery deposits, scrapped paint, deck sweepings, wiping wastes, and rags. [33 CFR 151.05]

**MARPOL 73/78** - the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating to that Convention. (33CFR.151.05)

**Maximum extent practicable (MEP)** - For the purpose of this document, the MEP is a level of implementing best practices in order to achieve a performance standard which takes into account available technology, cost effectiveness and other essential issues such as human safety. MEP allows flexibility in the way to meet the performance standards and may vary based on site conditions.

**On Site** – The same or geographically contiguous property.

**Operator** - the individual, partnership, firm, or corporation having control or management of operations on the lease or a portion thereof. The operator may be a lessee, designated agent of the lessee, or holder of rights under an approved operating agreement.
**Owner** – any person holding title to or, in the absence of title, other indicia of ownership of a unit; however, this does not include a person who holds indicia of ownership primarily to protect a security interest in the unit and does not participate in the management or operation of the unit. (33CFR140.10)

**Person** - an individual, association, partnership, consortium, joint venture, private, public, or municipal firm or corporation, or a government entity. (33CFR140.10)

**Ship** – For the purpose of this BMP Plan, a ship includes fixed and floating facilities and MODUs used for offshore exploration, production and development operations.

**Shroud** - a device that is designed to enclose or surround the blasting activity to minimize the atmospheric dispersion of fine particulates and direct that material to a confined area for subsequent removal and disposal.

**Spent blast abrasive** – Blast abrasive that has been used and as the result of that use is no longer useful for its intended purpose.

**Unit** - any OCS facility, vessel, rig, platform, or other vehicle or structure, domestic or foreign.

**Water blasting** - any abrasive blasting using high-pressure liquid as the propelling force for surface preparation.

**ACRONYMS**

- **API** - American Petroleum Institute
- **BOEM** - Bureau of Ocean Energy Management
- **BSEE** - Bureau of Safety and Environmental Enforcement
- **MEP** - Maximum extent practicable
- **MODUs** - Mobile Offshore Drilling Units
- **MSDS** - Material Safety Data Sheet
- **NACE** - National Association of Corrosion Engineers
- **PRPE** - Personal Respiratory Protective Equipment
- **PSI** - Pounds per Square Inch
APPENDIX D

FIGURES
ZONES OF OFFSHORE FACILITIES
FIGURE 1 – ZONES OF A PLATFORM
FIGURE 2 – ZONES OF A JACKUP DRILLING RIG
FIGURE 3 – ZONES OF A SEMI-SUBMERSIBLE DRILLING RIG
APPENDIX E

REFERENCE PHOTOS
Photo 1. Personal protective equipment

Photo 2. Personal protective equipment including supplied air
Photo 3. Unused blast abrasive.

Photo 4. Containment below the blast abrasive pressure vessel
Photo 5. Transfer of unused blast abrasive to pressure vessel

Photo 6. Blast abrasive external containment being installed
Photo 7. Blast abrasive external containment being installed

Photo 8. Blast abrasive external containment
Photo 9. Blast abrasive external containment

Photo 10. Blast abrasive external containment
Photo 11. Overlapping walls with designated entrance to the blasting area

Photo 12. Overlapping walls with designated exit to the blasting area.
Photo 13. Emergency exit in blasting area

Photo 14. Overlapping walls with designated exit to the blasting area.
Photo 15. Containment Area Flooring Plywood flooring

Photo 16. Overlapping containment wall secured together in the blasting area
Photo 17. Plywood flooring in containment area.

Photo 18. Close-up of sealed joints between plywood flooring in containment area.
Photo 19. Blast Pot pressure gauge

Photo 20. Used and new blast abrasive nozzle
Photo 21. Blast abrasive nozzle gauge

Photo 22. Housekeeping inside the blasting containment area.
Photo 23. Self contained blast abrasive unit.

Photo 24. Collection of spent abrasive in containment area.
Photo 25. Spent abrasive storage

Photo 26. Water blasting showing containment structure and personal protective equipment.
Photo 27. Plug to isolate drainage line

Photo 28. Plug installed to isolate drainage line.
Photo 29. Paint containment structure

Photo 30. Paint containment structure
Photo 31. Painting in contained area
APPENDIX F

LIST OF DOCUMENTS
INCORPORATED BY REFERENCE
LIST OF DOCUMENTS INCORPORATED BY REFERENCE

The following documents, practices and procedures relating to Good Housekeeping; Preventative Maintenance; Record Keeping; Inspections; Training and Waste Minimization and Management are incorporated by reference:

- GMG290000 - The NPDES General Permit for New and Existing Sources and New Dischargers in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category for the Western Portion of the Outer Continental Shelf of the Gulf of Mexico, October 2012.
- MARPOL Annex V - MARPOL Annex V regulations (33 CFR 151, subpart A)
- 29 CFR 1910.94 – Occupational Safety and Health Administration Program Respiratory Protection Regulations