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VISTA CHEMICAL COMPANY - ABERDEEN PLANT

PROCESS SAFETY MANAGEMENT MANUAL

PART J: MANAGEMENT OF CHANGE PROCEDURE

APPROVED BY:

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DATE:

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1.0 SCOPE

This procedure establishes a system for managing process changes at the Aberdeen Plant. Included in this procedure are requirements and authorities for making changes to process chemicals, technology, equipment, and procedures. Implementation of this procedure will fulfill the requirements specified in OSHA Process Safety Management of Highly Hazardous Chemicals, 29 CFR 1910.119, paragraph (1). (See Attachment "D").

2.0 PURPOSE

This procedure is being implemented to ensure that any change to the process chemicals, technology, equipment, or procedures is analyzed for potential safety hazards and approved. A Pre-Startup Safety Review (see Aberdeen Plant Pre-Startup Safety Review Procedure) will be conducted on all physical changes to ensure the Management of Change (MOC) and other OSHA Process Safety requirements have been met prior to start-up.

3.0 DEFINITIONS

3.1 CHANGE

Any modification to the process chemicals, technology, or equipment that is not a replacement in kind (see Definition 3.2); any modification to the process safety information; any modification to the operating procedures.

a. Examples of changes include:

- Piping revisions;
- Installation of experimental/temporary equipment;
- Permanently de-commissioning equipment;
- Change in any control device, program, or software;
- Changes in instrument control action, range, fail position, or alarm set point if any of these fall outside the specified ranges established by the operating or other written procedures;
- Changes to relief valves or relief system settings, back pressure, or materials of construction;

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- Changes of materials, or materials of construction for items such as pipe, gaskets, packing seals, equipment, pressure gauge, diaphragms, valves, etc;
- New addition of or removal of a valve;
- Temporary hoses or connections to process piping that is not a normal work practice;
- Change in operating procedures - both permanent or for a test run for any specific job task or job classification;
- Change in "safe operating limits" as specified in operating procedures;
- Raw material specification changes;
- Inventory level changes, if outside maximum intended amount specified in the process safety information or operating procedures.

3.2 REPLACEMENT IN KIND

A replacement in kind is a replacement of plant equipment which satisfies the design specification. Examples are replacement of a motor with an identical motor of a different brand name, replacement of a pipe spool, etc.

3.3 EMERGENCY CHANGE

A modification to process chemicals, equipment, technology, or procedures which must take place immediately to avoid:

- a. personal injury
- b. equipment damage
- c. environmental impact
- d. community complaint
- e. severe economic penalty

The procedures for an emergency change are described in section 4.3. For changes done on an emergency basis, the same thought processes and Management of Change Authorization (MOCA) form must be completed as for a pre-planned change. The primary difference is that a lower level supervisor may be required to accept the responsibility for a change when decisions must be expedited.

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3.4 INITIATOR

The initiator is an employee who facilitates the beginning of a change to the plant process. The initiator can be any employee with knowledge of the plant process, including operators, maintenance personnel, lab technicians, engineers, and their supervisors.

4.0 PROCEDURE FOR MANAGEMENT OF CHANGE

4.1 RESPONSIBILITY

The recognition of change is the responsibility of every person involved in any phase of work taking place in the plant. If a person realizes that work, which constitutes a change, is taking place without proper documentation, it is that person's responsibility to stop the work and initiate a MOCA.

4.2 PROCEDURES

The following description of the MOC process for the Aberdeen Plant utilizes the Management of Change Authorization (MOCA) form. The MOCA form for Aberdeen is Attachment A. The MOCA form is divided into three sections and is completed as follows:

4.2.1 MOCA SECTION A

4.2.1.1 The MOC process starts with an initiator (Process Engineer for AFE project) that has identified a need for a change. The initiator completes Section A of the MOCA excluding the initiator's supervisor signature. The type of change should be indicated. For temporary changes, a definite termination date should be indicated. Test runs are examples of temporary changes. An emergency change will be discussed in paragraph 4.3. The description, technical basis, and justification may require the attachment of drawings, Class "A" design, calculations, etc. These should be attached to the MOCA.

4.2.1.2 Upon completion of Section A of the MOCA, the initiator submits the MOCA form to his supervisor for review. After completion of review, the initiator's supervisor signs Section A. The MOCA and attachments are then delivered to the appropriate 2nd level Supervisor (e.g., Vinyl Operations Supervisor, Maintenance Superintendent, etc.) to complete Section B of the MOCA form.

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4.2.2 MOCA SECTION B

The 2nd level Supervisor is required to decide whether to continue with the change. This is done by reviewing the technical merit and justification for the change.

4.2.2.1 If the 2nd level Supervisor determines that the change should not be made, he writes "Not Approved" across the MOCA form and returns the form to the initiator.

4.2.2.2 If the 2nd level Supervisor believes the change should be made:

- i. He reviews the Process Safety Management (PSM) Requirements listed in Section B with his supervisor (appropriate Department Head). All blocks are checked either "Yes" or "No" in the table.
- ii. After all blocks in the PSM Requirements have been filled out, the Department Head gives the MOCA form to the MOCA Coordinator. The MOCA Coordinator then assigns a MOCA number and registers it in the MOCA status summary. The MOCA is now ready for review and hazard analysis as required.

4.2.3 REVIEW AND APPROVAL OF THE CHANGE

The MOCA shall be reviewed and approved in the following manner:

4.2.3.1 The MOCA shall be given to the MOCA Coordinator for handling.

4.2.3.2 The MOCA Coordinator contacts the Department Heads that are responsible for each element marked "yes" in Section B of the MOCA.

4.2.3.3 The Department Heads shall designate individuals to review and complete the items marked "Yes" in Section B. The designated individuals will be given a copy of the MOCA form. The original MOCA will be retained and filed by the MOCA Coordinator.

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- 4.2.3.4 The Process Hazard Analysis (PHA) should be completed before any other required PSM reviews/updates. Upon completion of the PHA, a cost estimate should be developed and the change reviewed with the appropriate Department Head. If the appropriate Department Head agrees to proceed with the change, he will sign the MOCA and the other required PSM updates/reviews should be completed. If the change is not justified due to cost, it shall be so noted and returned to the initiator.
- 4.2.3.5 The designated individuals shall complete the PSM items as assigned and return the information to the MOCA Coordinator.
- 4.3.3.6 After completion of all items marked "Yes" in Section B, the construction will take place, a Pre-Startup Safety Review will be conducted, and the change can be implemented (started up).

4.2.4 SECTION C - TEMPORARY CHANGES

Changes that are temporary must have approval to return the plant to the original conditions or to extend the change beyond the closure date. Temporary change closure dates are logged by the MOCA Coordinator on the MOCA Status Summary (Attachment "B") and the MOCA is sent to the appropriate Department Head on the closure date.

4.3 EMERGENCY CHANGES

Emergency changes are defined in the Definitions Section 3.2. The initiator for emergency changes can be any employee but is typically the Operations Shift Supervisor. The Shift Supervisor must make a determination whether the change is needed on an emergency basis.

- 4.3.1 Section A of the MOCA is completed in the same way as described in paragraph 4.2.1 except that the emergency change block is checked.

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- 4.3.2 The next step for the emergency change requires the initiator, Shift Supervisor, process or operations engineer (if available), and mechanical/maintenance engineer (if available) to brainstorm the potential hazards of the change and alternatives to the change. Higher level management may be contacted as appropriate at the discretion of the Shift Supervisor. The results of the brainstorming meeting must be documented by the Shift Supervisor and attached to the MOCA form. The documentation shall include the names of the people in the meeting. As a minimum, the Abbreviated Pre-Startup Safety Review Checklist (Attachment "C") should be filled out and signed before start-up of the change. If the results of the meeting indicate the change is needed immediately, is safe, and no reasonable alternatives are available, the change should be started up.
- 4.3.3 It is anticipated that a consensus of opinion will be obtained. If not, the change should not be made and other support people consulted on the change.
- 4.3.4 After completion of the brainstorming meeting, the emergency MOCA is submitted to the 2nd level Supervisor. After this, the MOCA will be handled like a normal MOCA as described earlier.

5.0 MANAGEMENT OF CHANGE FORM (MOCA)

This section explains in detail the information required to complete each blank on the MOCA form in Attachment "A".

5.1 SECTION A

- i. Descriptive title - Include equipment numbers where possible and an indication of the change that is occurring (e.g. service change, standard operating condition change, routing change).
- ii. MOCA No. - A MOCA numbering system has been developed for the Aberdeen Plant. This system contains a unique number to facilitate tracking and control of the Management of Change documentation. The numbering system has characters for process identification (e.g. "OM" for "Old Module", etc.), a unique sequence number (e.g. 001, 002, 003, etc.), and the year (92, 93, etc.). The MOCA Coordinator is responsible for providing and maintaining the MOCA numbering system.

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- iii. Initiator - The name of person originating the MOCA.
- iv. Supervisor - "1st level" (immediate supervisor) approval. This approval is the confirmation that what is indicated on the form is a change and requires completion of the "MOC" process.
- v. Origination date - The date the MOC is initiated.
- vi. Type of change - Check either the "emergency", "permanent" or "temporary" box. An emergency change is a change that must be done immediately to avoid personnel injury, equipment damage, environmental impact, community complaint or severe economic penalty. A permanent change is one which will remain indefinitely. A temporary change has a definite point in time when it will be removed, extended, or returned to its original state.
- vii. Description, Technical Basis and Justification - Describe exactly what the change is and why the change is being made. If there is not enough space provided for a complete description, an attachment should be added to the form. Identify the specific documents (i.e., standards, codes, process design, inspection memos) that provide the engineering basis for the change. These documents should be attached if they are not part of readily accessible standard reference materials or otherwise easily located to facilitate review. In addition, specific technical details of the change must be included, such as changes in rates, timing of work, and composition of materials.

5.2 MOCA SECTION B

Process Safety Management Requirements - Items marked "Yes" must be completed or the process started to update drawings, permanently update operating procedures, etc., prior to start-up with supporting documents attached (e.g. red-line P&ID's, etc.). Master files should not be updated until construction is complete. The appropriate Department Head is responsible for determining which requirements must be fulfilled. The following is meant to aid in the decision to mark "Yes" or "No" in the blanks by each requirement.

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- 5.2.1 **Safety and Health Review** - The person(s) completing this form should determine if there may be safety or health impacts which should be reviewed by the Safety Department and if so should mark the form "Yes".
- 5.2.2 **Environmental Review** - The person(s) completing this form should determine if there may be environmental impacts which should be reviewed by the Environmental Coordinator and if so should mark the form "Yes".
- 5.2.3 **Process Safety Information** - If there is any alteration or modification to the process design basis, mechanical design basis, P&ID, materials handled, or anything which changes any Process Safety Information, and should be marked "Yes".
- 5.2.4 **Process Hazard Analysis (PHA)** - Some form of PHA is required for all changes. This section always has a "Yes" answer.
- 5.2.5 **Operating Procedures** - If there are any changes to the operating procedures or changes to items referenced in the operating procedures; this item must be marked "YES".
- 5.2.6 **Mechanical Integrity** - If there are any changes to any Mechanical Integrity procedures, equipment records, inspection records, piping plan drawings, etc., this must be marked "Yes".
- 5.2.7 **Training** - Whenever the way a job is performed is modified as a result of a change, training is required and this item must be marked "YES".
- 5.2.8 **Approval to Proceed with Change** - A signature here indicates that the PSM requirements have been appropriately defined, a PHA has been conducted, the cost of the change has been estimated, and proceed with the change is given. This signature is the Department Head over the area in which the change will take place. It should be noted that this signature is not approval to start-up. Approval to start-up the change is obtained in the Pre-Startup Safety Review.

5.4 COMPLETION OF PSM REQUIREMENTS

This section discusses each requirement, describing what it is, when it should be addressed, and who is responsible for it. These requirements must be met when the item is checked "Yes" as the MOCA form is completed.

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- 5.4.1 **Safety and Health Review** - This step is to ensure the feasibility of the change as it relates to safety and health hazards. The Safety Director is responsible for designating individual(s) to complete this review.
- 5.4.2 **Environmental Review** - This step is to ensure the feasibility of the change as it relates to environmental hazards. The Environmental Coordinator is responsible for completion of this review.
- 5.4.3 **Process Safety Information (PSI)** - PSI contains information such as hazards of materials, equipment data, process design and operating conditions, etc. Revisions should be shown clearly. This may be most easily accomplished by attaching a copy of the revised Process Safety Information document to the MOCA form (e.g. "red-line" P&ID, marked-up specification sheet, etc.). The Chief Process Engineer is responsible for ensuring Process Safety Information is updated. Process, Mechanical, and Controls Engineering input should be utilized as appropriate to update Process Safety Information.
- 5.4.4 **Process Hazards Analysis (PHA)** - A PHA is a series of thought processes which enable a thorough review of the operating hazards in the plant. The type of PHA used in MOC may be as simple as a screening process or as comprehensive as a HAZOP. A PHA of some form is required for all changes at the Aberdeen Plant. The Department Head over the area in which the change will take place is responsible for defining the degree of review required for each change. (The Aberdeen Plant PHA Execution Policy should be consulted to determine which hazard analysis technique is appropriate). The information gathered during the PHA review must be attached to the MOCA form to provide documentation.
- 5.4.5 **Operating Procedures** - Operating procedures must be updated if any change occurs in any process or equipment referenced in the procedures. A marked-up copy of the operating procedure should be attached to the MOCA. The appropriate Department Superintendent over operations is responsible for revisions to the operating procedures.
- 5.4.6 **Mechanical Integrity Procedures** - Mechanical Integrity procedures need to be updated if any change occurs to any facilities or equipment referenced in the procedures. A marked-up copy of the procedure should be attached to the MOCA

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form. The Mechanical Superintendent is responsible for revisions to the mechanical integrity procedures.

- 5.4.7 Training - Every affected person must understand what the change is and why it is being made. They must be informed and trained on new procedures, new safety and health considerations, and any other related alterations to their working environment. The supervisor of the affected employees has the responsibility to see that employees understand and are able to perform work associated with the change in a safe manner. All training must be complete with documentation before final approval for start-up can occur. The appropriate Department Head is responsible for ensuring training is complete.

- 5.5 TEMPORARY MOCA EXTENSION/CLOSURE APPROVAL - Section C of the MOCA form should be filled out per the following:

For temporary changes (as indicated on the MOCA Form) when:

- 5.5.1. The change is removed and the system is returned to its original configuration.
- 5.5.2 The change is made permanent. Documentation must be updated per the PSM Requirements.
- 5.5.3 The change will remain temporary, but the deadline needs to be extended.

- 6.0 COMMUNICATION - Accurate and complete communication of information is an important element in an effective MOC procedure.

- 6.1 The Department Head responsible for implementation of the change is responsible for the following communication:

- 6.1.1 Keeping the initiator informed on status and final outcome;
- 6.1.2 Communicate work load/backlog to other Department Heads and Plant Management;
- 6.1.3 Informing all affected parties of the change and timing for the change.

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6.2 The MOCA Coordinator is responsible for the following communication:

- 6.2.1 Transfer of all of the MOC data to the permanent PSM files; (The MOC data must be kept until the next Process Hazard Analysis of that unit to provide the review team a record of the changes).
- 6.2.2 A tracking system to follow the status of the MOCA from initiation to closure.

An example of a status summary report is included in Attachment "B".

ATTACHMENT "A"
MANAGEMENT OF CHANGE AUTHORIZATION FORM (MOCA)

SECTION A: CHANGE INITIATION - TO BE FILLED OUT BY INITIATOR

Descriptive Title: _____ MOCA No: _____

Initiator: _____ 1st Level Supv.: _____ Date: _____

Type of Change: ☐ Emergency ☐ Permanent ☐ Temporary - Date of Closing Notice Due: _____ AFE/W.O. No.: _____

Description: _____

Technical Basis: _____

SECTION B: PSM REQUIREMENTS - TO BE FILLED OUT BY 2ND LEVEL SUPERVISOR

PROCESS SAFETY MANAGEMENT REQUIREMENTS (attach supporting documents)	Yes	No
Safety and Health Review		
Environmental Review		
Process Safety Information		
Process Hazard Analysis	X	////////
Operating Procedures		
Mechanical Integrity Procedures		

Approval to Proceed with Change:
 (Do Not Sign Before Completion of PHA and Cost Estimate)

Department Head: _____ Date: _____

Title: _____

SECTION C: TEMPORARY CHANGESTemporary MOCA Extension/Closure Approval:Type of Closure: ☐ Returned to original condition; ☐ Made permanent, all MOCA requirements met:Extension: ☐ Temporary Change Extended to __ / __ / __

Reason for Closure or Extension: _____

Recommendations: _____

APPROVAL: Department Head: _____ Date: _____

Title: _____

ATTACHMENT "B"

MOCA STATUS SUMMARY

MOCA No.	Title	Origination Date	Initiator	Closure Notice Due	Closure

ATTACHMENT "C"

ABBREVIATED
PRE-STARTUP SAFETY REVIEW CHECKLIST

"FOR EMERGENCY CHANGES ONLY"

DESCRIPTION	YES	NO	N/A
Have instrument loops, shutdowns, alarms, and interlocks been checked and are they functioning as designed?			
Have safety systems such as relief valves, deluge, gas monitoring, and fire protection systems been checked and are the safety systems functioning as designed?			
Has rotating equipment been checked for rotation, alignment, and lubrication?			
Have all piping, tanks, and vessels been properly hydrotested or tested per an alternative method?			
Has all equipment such as valves, dampers, louvers, etc. been operated and is this equipment functioning as designed?			
Are all start-up screens, orifice plates, filter elements, catalysts etc. in place and ready for operation?			
Have all isolation blinds been pulled?			
Have all operating personnel on shift been informed of the change?			

Review Completed By (change Approved for Start-Up):

SIGNATURE	DATE

ATTACHMENT "D"
OSHA 29 CFR 1910.119, paragraph (1)

MANAGEMENT OF CHANGE

1. The employer shall establish and implement written procedures to manage changes (except for "replacements in kind") to process chemicals, technology, and equipment; and changes to facilities.
2. The procedures shall assure that the following are addressed prior to any change.
 - i. The technical basis for the proposed change;
 - ii. Impact of the change on safety and health;
 - iii. Modifications to operating procedures;
 - iv. Necessary time period for the change; and,
 - v. Authorization requirements for the proposed change.
3. Employees involved in the process shall be informed of, and trained in, the change in the process as early as practicable prior to its implementation.
4. If a change covered by this paragraph results in a change to the process safety information, such information shall be updated accordingly.
5. If a change covered by this paragraph results in a change to the operating procedures, such procedures shall be updated accordingly.