FACILITY OR OPERATIONAL CHANGE REVIEW AND AUTHORIZATION PACKAGE

Step 1 Description of Proposed Change Change No. _____

_____

_____

_____

_____

Production Representative _____

Step 2 Assessment of Potential Hazard

Change Type (refer to SECTION I of attached "Assessment of Potential Hazard" checklist). _____

Risk Level (refer to SECTION IV of attached "Assessment of Potential Hazard" checklist). _____

Will other formal risk assessment techniques be applied? _____

If so, what technique will be applied? (Note 1) _____

At what point of implementation will this be done? _____

Step 3 Endorsement to Proceed with Design

	Signature	Date
Department Head	_____	_____

Step 4 Endorsement to Proceed with Installation

		Signature	Date
Engineering Manager	(Note 2)	_____	_____
Technology Manager	(Note 2)	_____	_____
Plant EP Department	(Note 3)	_____	_____
Department Heat		_____	_____

Step 5 Endorsement to Proceed with Start-up

		Signature	Date
Department Head		_____	_____
Plant EP Department	(Note 3)	_____	_____
Plant S/H Department	(Note 4)	_____	_____
Assistant Plant Manager	(Note 5)	_____	_____

Note 1 Level 1: None recommended.
Level 2: PRS or "What if?" analysis recommended.
Level 3: FMEA or HAZOP recommended.
Level 4: FMEA or HAZOP *and* Consequence Analysis recommended.
Note 2 Mandatory for type [I] [J] [K] [L] [O] [R] and Level 4.
Note 3 Mandatory for type [I] [J] [M].
Note 4 Mandatory for type [H] [I] [J] [R] [S].
Note 5 Mandatory for type [I] [J] [K] [L] [O] [R] [S] and Level 4.

ASSESSMENT OF POTENTIAL HAZARD

SECTION I – CHANGE TYPE

Indicate which of the following may be applicable to the type of change proposed (Check *all* that may apply.):

Equipment Installation or Revision
[A] Install or revise a vessel or heat exchanger
[B] Install or revise piping/valves
[C] Install or revise rotating or mechanical equipment
[D] Install or revise instrumentation (hardware or software)
[E] Install or revise electrical systems
[F] Install or revise underground piping or sewers
[G] Install or revise a pressure or vacuum relief device
[H] Install or revise a building or structure

Process Change
[I] Introduce a new chemical
[J] Reintroduce a chemical after 2-year absence
[K] Change process parameter outside of safe operating envelope
[L] Change chemical service of an operating system
[M] Change quantity, composition, frequency of emissions or waste streams
[N] Change standard or emergency operating procedure
[O] Change affecting Operational Safety Standard or COP

Unit/Equipment Status Change
[P] Shut down for 6 months or more
[Q] Restart after 6 months or more

Facility Installation or Revision
[R] Major Capital Project
[S] Working Budget Project
[T] Engineering Work Order
[U] Departmentally engineered

SECTION II – DEGREE OF HAZARD

Provide a "Yes" or "No" answer to each of the following questions regarding the degree of potential hazard:

____ 1. Does the change introduce or affect a significant source of potential chemical, mechanical, thermal, or electrical energy?
____ 2. Does the change result in any increase in inventory of toxic, flammable, or reactive materials? (Consider raw materials, intermediates, additives, catalysts, products, and by-products.) If so, by what percent will the inventory increase?
____ 3. Will the changed process system contain any materials known or suspected to be thermally, chemically, or physically unstable?
____ 4. Does the change significantly increase the potential for personnel exposure to a hazardous material?
____ 5. Is there an Operational Safety Standard associated with the process system undergoing the change, or could a process incident in the process system undergoing the change result in a significant negative community impact?

Hazard Rule

Two or more "Yes" answers *or* a hazardous inventory increase of 25% or greater (Question 2) constitutes a "High" Degree of Hazard.

The degree of hazard is HIGH ☐ LOW ☐

SECTION III – SIGNIFICANCE OF PROPOSED CHANGE

Provide a "Yes" or "No" answer to each of the following questions regarding the significance of the proposed change:

____ 1. Could the change take the process or system outside previous limits of normal operation (that is, outside the well-understood and documented "safe operating envelope") during steady-state or transient conditions?
____ 2. Does the change introduce new molecules? (Consider raw materials, intermediates, additives, catalysts, products, and by-products.)
____ 3. Does the change reorder or alter the processing sequence (with the same process and equipment)?
____ 4. Does the change significantly impact the energy balance or mass balance?
____ 5. Does the change alter, affect and/or bypass a safety device or a critical control system or component?
____ 6. Does the change necessitate significant or unique training for operators or technical personnel, or is substantial operator interface needed for normal and/or emergency operation of the existing system?
____ 7. Does the existing system handle reactively incompatible materials in the same equipment during different sequences or campaigns? (Consider raw materials, intermediates, additives, catalysts, products, and by-products.)

Significance Rule

A "Yes" answer to Question 1, a "Yes" answer to Question 2, *or* "Yes" answers to any two other questions constitutes a "High" Significance.

The significance of change is HIGH ☐ LOW ☐

SECTION IV – RISK LEVEL

Using the degree of hazard and significance of change results from Sections Il and III above, determine the risk level of the proposed change:

	Significance of Change LOW	Significance of Change HIGH
Degree of Hazard	Level 1	Level 2
	Level 3	Level 4

The risk level of the proposed change is _____

Note
The methodologies below specify the thought process recommended for the perceived level of hazard and significance of the change. They do not prescribe the required depth of the review in terms of number of persons and specialized skills of the reviewers. When multiple causes exist for an undesirable event, or when a single scenario results in a major hazard event, a detailed risk assessment study with specialized assistance should be considered.

Level 1: Checklists (Design Review and Pre-Start-up Review)
Level 2: Checklists and "What if?" or PRS
Level 3: Checklists and FMEA or HAZOP
Level 4: Checklists and FMEA or HAZOP with Consequence Analysis