Equipment/Process Safety Assessment Form

The pre-startup review must be completed, signed by the **Project Lead, **Electrical Engineer and a member of the **Safety Department/SSR, and returned to Corporate Safety before the asset is placed in-service.

<table>
<thead>
<tr>
<th>Project Lead (Please Print):</th>
<th>Capital Project Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Asset Number:</td>
<td>Cost Center:</td>
</tr>
</tbody>
</table>

Equipment Description:  
Reason for Assessment:

**Project Leads are to complete the assessment form, at each phase, to the extent possible PRIOR to scheduling the review with the Safety Dept/SSR.**

**Phase 1**  
Complete this section before parts fabrication or before ordering

<table>
<thead>
<tr>
<th></th>
<th>Print:</th>
<th>Initial:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Project Lead</td>
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<tr>
<td>* Elec. Engineering</td>
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<tr>
<td>Mach. Des/Fac. Eng./Other</td>
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<tr>
<td>* Safety Dept/SSR</td>
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</tbody>
</table>

**Phase 2**  
Complete this section before the equipment/process leaves the builder or purchasing off-the-shelf

<table>
<thead>
<tr>
<th></th>
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</table>

**Phase 3**  
Complete this section after the equipment/process has been installed prior to starting up the machine

<table>
<thead>
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<td></td>
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</tbody>
</table>

**Asset Tag**  
Section Not Required for previously tagged equipment

<table>
<thead>
<tr>
<th>Date Tag Applied</th>
<th>Equipment Manufacturer serial number (Write NONE if no serial number)</th>
<th>Equipment In-Service date</th>
</tr>
</thead>
</table>

Return the Completed Safety Assessment Checklist to the "Corporate Safety" mail box. Keep a copy for your records.
The Project Lead is responsible for identifying & documenting all potential hazards and associated risks

<table>
<thead>
<tr>
<th>Hazard Abbreviation</th>
<th>Description</th>
<th>Protective Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>example: CI, CS</td>
<td>Exposed Cutting Head</td>
<td>Hard guard</td>
</tr>
</tbody>
</table>

### Hazard Definitions

<table>
<thead>
<tr>
<th>Hazards (hazardous situations)</th>
<th>Includes but is not limited to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI - Caught In</td>
<td>In-running nip point, rotation, nip point, rotation, entanglement, drawn-in, trapping</td>
</tr>
<tr>
<td>CB - Caught Between</td>
<td>Crush, pinch</td>
</tr>
<tr>
<td>CS - Cutting or Severing</td>
<td>Shearing, cut by blades, knives, sharps</td>
</tr>
<tr>
<td>SB - Struck By</td>
<td>Impact hazard, stabbing, puncture, flying debris</td>
</tr>
<tr>
<td>CT - Contacted By</td>
<td></td>
</tr>
<tr>
<td>CW - Contact With</td>
<td></td>
</tr>
<tr>
<td>CO - Caught On</td>
<td>Snag, catch points</td>
</tr>
<tr>
<td>SA - Struck Against</td>
<td>Against stationary object</td>
</tr>
<tr>
<td>AB - Abrasion or Friction</td>
<td>Scratch</td>
</tr>
<tr>
<td>FB - Fall to Below</td>
<td></td>
</tr>
<tr>
<td>FS - Fall to Same Level</td>
<td></td>
</tr>
<tr>
<td>ES - No Means of E-stopping</td>
<td></td>
</tr>
<tr>
<td>E - Electrical</td>
<td>Live parts, faulty conditions, electrostatic</td>
</tr>
<tr>
<td>N - Noise</td>
<td></td>
</tr>
<tr>
<td>B - Burning</td>
<td>Thermal</td>
</tr>
<tr>
<td>C - Cold</td>
<td></td>
</tr>
<tr>
<td>EC - Exposed to Corrosive Material</td>
<td></td>
</tr>
<tr>
<td>ET - Exposed to Toxic Material</td>
<td></td>
</tr>
<tr>
<td>SP - Spill, Splash</td>
<td></td>
</tr>
<tr>
<td>FI - Fluid Injection or Ejection</td>
<td></td>
</tr>
<tr>
<td>V - Vibration</td>
<td>Hand held, whole body</td>
</tr>
<tr>
<td>O - Overexertion/Strain</td>
<td>Lifting, pushing, pulling</td>
</tr>
<tr>
<td>R - Radiation</td>
<td>Infrared, UV, x-ray, gamma ray, laser</td>
</tr>
</tbody>
</table>
Machine Guarding Notes:

YES  N/A

1. Are in-running nip points, pinch points, rotating shafts, flywheels, chains, chain drives, sprockets, gears, belts, ropes, pulleys guarded?

2. Are point of operation hazards (cutting, milling, shearing, bending, shaping, boring, pressing operations, etc.) guarded?

3. Have sharp corners on equipment been eliminated or guarded?

4. Are signs posted warning of identified hazards (see hazards noted in question #1)?

5. Is machinery designed for a fixed location securely anchored?

6. Are floors, surfaces, and platforms four feet or more above adjacent floor or ground level guarded by standard railings?

7. Are interlocked barrier guards provided where minor tool changes and adjustments to the machinery will be routine and repetitive?

8. Are guards designed so that they do not create additional hazards?

9. Is the machine guarding method designed so that guards do not need to be removed for minor servicing tasks such as lubrication?

10. Is the method of guard-attachment secure? Does removal of fasteners require the use of a special tool for guard removal?

11. Have size change, tool change, part loading, nail/staple loading, part jamming, maintenance and other tasks associated with the machine been evaluated for potential hazards?

12. Have all guarding issues been appropriately addressed (this may include items other than those outlined above)?
**Recommended protective measure(s):**

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Electrical Protective Measure(s)</th>
<th>Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>example: 1, CS</td>
<td>Two-handed control</td>
<td>Serious</td>
</tr>
</tbody>
</table>

**Catastrophic:** Death or permanently disabling injury or illness that would prevent return to work. This category may also include serious injuries to many people.

**Serious:** Severe debilitating injury or illness. Such as injury might prevent return to work at the same job, but would permit return to work at some point.

**Moderate:** Significant injury or illness requiring more than first aid. Although lost time may result, the injured party would be able to return to work at the same job within a short period of time.

**Minor:** No injury or slight injury requiring no more than first aid. This would mean little or not lost time.

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**Optional Section**

### Two-handed control

Define when the two-hand must be maintained.

Are 2nd persons protected from point of operation hazards?

Other notes:

### Scanners

Document what non-hazardous motion, if any, can occur while the associate is within the device.

What is the distance from the edge of the scanner to the nearest unguarded hazard?

Note the following values/information: Sensing field use (perimeter or point of operation): ________, Resolution (perimeter = 70 mm, point of operation = 30 mm): ________ mm, Response time (120 mS): ________ mS , Number of multiple sampling fields (no changes from factory default of 2): ________

### Light curtain

Document what non-hazardous motion, if any, can occur while the associate is within the device.

What is the distance from the light curtain to the nearest unguarded hazard?

Other notes:

### Interlocks

Define tasks which will routinely be performed through the interlocked gate(s).

Are tasks being performed through the interlocked gate 1) Routine  2) Repetitive 3) Integral to the use of equipment for production AND is the associate protected from unexpected activation?

### Safety mats

Document what motion, if any, can occur while the associate is standing on the device.

What size of a mat is needed to protect the operator from the nearest hazard.

Other notes:

### Presence sensing "tape" switches

Document the location of the switches.

Will all movement stop upon contact of the switches?  Are the hazards eliminated?
Electrical Notes:

YES N/A

1. If location of equipment/wiring has been classified as a hazardous location, do the electrical design, wiring, and components meet NFPA/OSHA standards for that classification?

2. Does control circuitry for safety functions match hazard severity?

3. Are signs posted warning of identified electrical hazards?

4. Are interlocked barrier guards provided where minor tool changes and adjustments to the machinery will be routine and repetitive?

5. Are interlocked guards installed so that machinery does not automatically restart when the guard(s) is replaced?

6. Are controls provided on each machine for the operator to initiate an Emergency-Stop from each machine without leaving their position at the point of operation (e-stops, safety cables, etc.)?

7. Have provisions been made to prevent machines from electrically restarting upon restoration of power?

8. Are two-hand controls and two-hand trips protected (for ex: ring guards) against unintended operation and are they arranged to require the use of both hands concurrently?

9. Where two-hand controls/two hand trips are used on machinery with more than one operator, is such machinery provided with a separate set of controls for each operator?

10. Are motor start buttons and treadles (foot pedals) physically protected against unintended operation?

11. Are working clearances around electrical equipment sufficient (clear access to electrical equipment)?

12. When possible, are controls that initiate the machine cycle located within clear view of the danger zone on the equipment?

13. Are stop functions designed correctly (NFPA 9.5.2)?

14. Are live electrical parts located in enclosures or completely covered in insulation?

All items above were reviewed based on design and visual review of machinery. The following items noted below also included an actual test to verify the correct implementation of design.

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>TEST/ITEM</th>
<th>BY WHOM</th>
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Form # F22SH014  Rev: AE  Page 5 of 8
Lockout/Tagout

Notes:

Questions to consider: When will equipment need to be locked out by production associates; part jams, changing and cleaning parts, bit changes, adjustments, lubrication, cleaning (6S), and other situations where associates may need access into the machine. Frequency of LOTO by production associates?

3. Are hydraulic systems designed to bleed fluid back to the tank or otherwise relieve stored pressure while performing maintenance/servicing operations?

4. Are blocks, wedges, pins, etc. provided where necessary to control hazardous energy posed by elevated machine members, gravity, etc.?

5. Has a machine-specific lockout/tagout procedure been developed, documented, and posted at the machine that outlines the specific steps for the isolation of the machinery from it’s energy sources, the release of any stored energies, and the steps necessary to verify that the machinery is effectively locked out?

6. Have electrical disconnects and shut off valves used in lockout/tagout procedures been identified by tags and referenced in machine-specific procedures when their location is not immediately obvious?

7. Have all lockout issues been appropriately addressed (this may include items other than those outlined above)?

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**Form # F22SH014** | **Rev: AE** | **Page 6 of 8**
Industrial Hygiene

YES N/A
1. Has noise exposure been measured? If noise levels are unknown, the Safety Department/Site Safety Representative must be contacted to perform noise monitoring.

___ ___
2. If noise monitoring indicates TWA noise levels equal to or greater than 85 decibels, have signs been posted indicating that hearing protection is required?

___ ___
3. Has a chemical review/approval been completed and MSDS sheets been supplied for any new chemicals used in the process?

___ ___
4. Has air sampling been performed to make sure that dusts, fumes, vapors, gases, and mists that result from use of the equipment are below OSHA permissible exposure levels? Has adequate local exhaust ventilation been provided for the control of contaminants?

___ ___
5. Are bonding and grounding devices available to use during transfer of flammable liquids?

___ ___
6. Are eye wash stations available and easily accessible where corrosives and other materials that are hazardous to the eyes and skin are used?

___ ___
7. Have all confined space hazards in the project been addressed, entrance procedures written, by the Environmental Engineering Coordinator?

___ ___
8. Have hazards posed by extremes in temperature (heat/cold) been controlled/eliminated?

___ ___
9. Have potential hazards posed by lasers/radiation been controlled/eliminated?

___ ___
10. If necessary, have employees been informed of personal protective equipment requirements (respiratory protection, gloves, faceshields, goggles, etc.)?

___ ___
11. If the equipment is milling equipment, is it controlled by a dust collection system (either hooked to an externally venting filter system or an internally venting fabric filter)? (Note: all milling equipment must be controlled by dust collection equipment to comply with the Bayport facility air permit.)

___ ___
12. Have all industrial hygiene issues been appropriately addressed (this may include items other than those outlined above)?

___ ___

Lifting Devices and Material Handling

YES N/A
___ ___
1. Have crane and hoist systems been approved by a structural engineer?

___ ___
2. Is the rail/beam labeled with the rated load?

___ ___
3. Is the hoist labeled with the rated load?

___ ___
4. Are safety latches provided on all hoist hooks including the hooks used to attach the hoist to the rail, trolley, or structure?

___ ___
5. Have proof testing inspection tags been assigned?

___ ___
6. Has the installation of lifting devices been communicated to Maintenance and recorded and logged for routine inspections?

___ ___
7. Have all material handling concerns been appropriately addressed (this may include items other than those outlined above)?

___ ___

Facilities and Structural Engineering

YES N/A
___ ___
1. Has the floor loading rating or other building structural requirements (i.e. floor and/or wall penetrations) been reviewed for the equipment location?

___ ___
2. Has the floor loading rating or other building structural requirements been reviewed for the moving of equipment into and throughout the facility?

___ ___
3. Will the location of the equipment require material handling equipment (i.e. PIT's) that will comply with floor loading ratings and other building structural requirements?

___ ___
4. Have considerations and plans been made to safely transport, unload, move, lift and install equipment?

___ ___

Fire Safety

YES N/A
___ ___
1. Is the machinery being placed so that it does not block an egress path, fire extinguisher, or fire alarm?

___ ___
2. If the new machinery requires shutting down a sprinkler system, has this effort been communicated to the Security Supervisor well in advance of the date required?

___ ___
3. Is the new machinery installed so that it will not interfere with the operation of sprinkler systems?

___ ___
4. Have process/equipment which create a fire hazard from new materials been eliminated?
**Ergonomics**

YES  N/A

If the associate is required to stand at the workstation or process being assessed, were pages 3, 5 and 6 of the Humantech Design and Build Guidelines referenced and completed?

__ __

If the associate is required to sit at the workstation or process being assessed, were pages 6, 7 and 8 of the Humantech Design and Build Guidelines referenced and completed?

__ __

If the associate is required to handle material as part of the process or equipment, was page 4 of the Humantech Design and Build Guidelines referenced and completed?

__ __

If the process or equipment being introduced requires the use of tools, was page 9 of the Humantech Design and Build Guidelines referenced and completed?

__ __

If the equipment or process being assessed requires the use of a power grip or pinch grip, was page 9 of the Humantech Design and Build Guidelines referenced and completed?

__ __

Has material handling equipment and mechanical lifting equipment been provided to eliminate or reduce: highly repetitive tasks, heavy lifting, excessive reaching, bending, twisting, etc.?

__ __

Are twisting motions minimized by the use of conveyors, turntables, or by providing enough room for the employee to turn their whole body?

__ __

Have anti-fatigue mats provided for employees standing for extended periods of time?

__ __

Is adequate space provided around equipment/machinery to allow employees ample room to perform the job, and to allow for the performance of maintenance and servicing operations?

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**The Humantech Design and Build Guidelines can be found on the safety website under Forms - Equipment/Process Assessment Forms.**

***The Humantech Design and Build Guidelines do not need to be turned with the safety assessment form or retained for recordkeeping purposes.***

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**Machine Safeguarding Inventory Form**

YES  N/A

__ __  1. Form complete, signed, and posted?

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<table>
<thead>
<tr>
<th>Date Complete:</th>
<th>Date Posted:</th>
<th>Not Required (SSR Initial):</th>
</tr>
</thead>
</table>

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Form # F22SH014  Rev: AE  Page 8 of 8