# PRE-JOB PLANNING RISK ASSESSMENT GUIDE

NAPO

**Asset Area:** _____ **Location ID:** _____ **Scope of Work:**_____ **Job Supervisor:**_____

**Participants:**_____ **Date of Assmt.:** _____ **Approved by:** _____ **Date Approved:**_____

**Post-job Review date:** _____ **Post-job review led by:** _____

***Procedure:***

1) Review SOW & identify key job phases
2) Identify hazards and consequences
3) Assess available mitigation - Lo/Med/Hi
4) Assess confidence implementaion - Lo/Med/Hi
5) Determine risk ranking from matrix
6) Identify additional controls to reduce risks
7) Assign responsibility and date for controls
8) Have RA approved by supervisor of PIC
9) Perform post-job review

## 1) IDENTIFY

### Examples of Hazards

| | | |
|---|---|---|
| PHYSICAL | Mechanical | Crushing, shearing, cutting, entanglement, drawing-in, impact, stabbing/puncture, friction/abrasion, high pressure fluid injection or ejection, inadequacy of mechanical strength, elastic elements (springs), mass and velocity, relative motion, shape, effect of vacuum, liquids/gases under pressure. |
| | Electrical | Contact with live parts/parts that become live under fault conditions, approach to live parts under high voltage, electrostatic phenomena, arcs, flashes, failure of hazardous area equipment, thermal radiation from overload/shorting. |
| | Thermal | Contact with objects or materials with an extreme high or low temperature, by flames or explosions or by radiation of heat sources resulting in burns, scalds and other injuries. Heat or cold stress from work environment. |
| | Noise | Machinery operation (engines, generators, turbines, compressors, pumps, fans), air-operated tools, heavy equipment operation, pneumatic conveyors, casing hammer, and activities such as sandblasting, chipping, grinding, etc. |
| | Vibration | Hand-arm segmental vibration or whole body vibration from use of powered tools, jack hammers or vibrating work surfaces. |
| | Radiation | Use of ionizing radiation sources (gamma, neutron, x-ray). Ultraviolet and Infrared radiation from welding, cutting or burning activities, lasers, NORM, radiant heaters, etc. |
| | Unexpected start-up | Failure/disorder of control system, restoration of energy supply after an interruption, external influences on electrical equipment, other external influences (such as gravity, wind, ice, etc.), software errors, control circuit failure, errors made by operator, failure to lockout all energy sources. |
| CHEMICAL | Hazardous Chemicals | Contact with/inhalation of harmful fluids, dusts, mists, fumes, vapors, gases. Fire or explosion hazards from flammable liquids or gases. Corrosion and weakening of metal structures/pipeline/ equipment from contact with acid gases, corrosive liquids, or failure of anti-corrosion measures. |
| BIOLOGICAL | Biohazards | Exposure to insects, vegetation, harmful body fluids, blood borne pathogens, bacteria, viruses, fungi, parasites. Inadequate biohazardous waste collection/disposal. |
| ERGONOMIC | Human Factors | Repetitive motion, unhealthy postures due to workstation design or cramped work space, excessive effort required for task, inadequate local lighting, mental overload, inadequate design/location/identification of manual controls, inadequate design/location of video display units. |
| ENVIRON'L | Environment | Loss of primary containment, adverse weather conditions, hazardous waste disposal, soil erosion, air emissions exceeding air quality standards; impact on water sources, impact on fish and wildlife, impact on environmentally sensitive areas (e.g. wetlands, protected habitats)., environmental activism. |

## 2) EVALUATE

### Risk Matrix

| Existing HES Controls (What is needed? Are they good?) | Low Confidence in Implementation | Medium Confidence in Implementation | High Confidence in Implementation |
|---|---|---|---|
| High | HIGH Stop all activities and reduce risk to a lower level | MODERATE Implement additional controls | LOW Manage for continuous improvement |
| Medium | HIGH Stop all activities and reduce risk to a lower level | MODERATE Implement additional controls | MODERATE Implement additional controls |
| Low | HIGH Stop all activities and reduce risk to a lower level | HIGH Stop all activities and reduce risk to a lower level | HIGH Stop all activities and reduce risk to a lower level |

***(Will the HES Controls be properly implemented?)***

**Factors Contributing to High Confidence in Implementation :**

- ☐ **Adequate lead time for planning and procurement**
- ☐ **Availability of onsite supervision**
- ☐ **Implementation of *Core HES Site Management Practices***
- ☐ **Availability of previously used high performance crew**
- ☐ **Onsite availability of resources for HES mitigations**
- ☐ **Availability of Professional HES support**
- ☐ **Long-term relationship of trust with contractor**
- ☐ **Contractor employees trained by Marathon &/or embedded**
- ☐ **Contractor has safe operating history with similar jobs**
- ☐ **Fatigue management arrangements**
- ☐ **Language barriers addressed**
- ☐ **Short Service Employees managed**
- ☐ **Contractor has no pending HES regulatory violations**
- ☐ **Contractor has no open Marathon HES audit actions**
- ☐ **HES management interface/bridging arrangements**
- ☐ **Clear lines of communication with all parties**
- ☐ **Responsibilities, authority, chain of command understood**
- ☐ **Other (define)**

**ALL RISKS CAN BE MANAGED**

## 3) MANAGE

### Examples of Additional Risk Mitigation Controls

MOST EFFECTIVE

LEAST EFFECTIVE

| Hierarchy of Control | Examples |
|---|---|
| ❶ Elimination | **Remove the risk entirely – most preferred option**<br>• Design or re-engineer job to eliminate physical, chemical, biological and ergonomic hazards |
| ❷ Substitution | **Use methods, tools, materials, equipment etc. that have a lower inherent hazard**<br>• Substitute for less hazardous material<br>• Reduce intensity of energy |
| ❸ Engineering Controls | **Provide an engineering solution to the risk**<br>• Ventilation systems<br>• Monitoring and alarm systems<br>• ESD/PSD system<br>• Mechanical lifting arrangements<br>• Machine/equipment guarding<br>• Safety interlocks<br>• Secondary containment<br>• Noise reduction |
| ❹ Administrative Controls | **Establish or implement procedure or practice that reduces the risk**<br>• Job Safety Analysis<br>• Safety Leadership Engagement<br>• Site HES inspections<br>• Additional training<br>• Safe contractor selection<br>• Onsite supervision<br>• Purchasing controls<br>• Planned Maintenance<br>• Emergency Response Plans<br>• Housekeeping practices<br>• Personal hygiene practices<br>• Job rotation<br>• Energy Control Procedures |
| ❺ Personal Protective Equipment | **The last line of defense – least preferred option. PPE failure will immediately expose person to hazard**<br>• Appropriate for hazard and regulatory compliant<br>• Eye/head/hand/foot/respiratory/hearing/ whole body protection (coveralls/aprons)<br>• Insect repellant<br>• Personal Flotation Devices<br>• $H_2S$ Personal Monitors<br>• Lone worker alarms |