

## Application of the Graded Approach for Work Planning and Experimental Review

ESSH Category	Low Hazard	Moderate Hazard	High Hazard
Type of Work or Work Aspect			
1. Radiological Work	Work in controlled areas.	Work requiring a Radiological Work Permit (RWP).	<ul style="list-style-type: none"> <li>Work requiring an RWP and ALARA review.</li> <li>Increase to an Administrative Control Level (ACL).</li> </ul>
2. Electrical Work	<ul style="list-style-type: none"> <li>Work on energized systems 50 volts or less.</li> <li>Work on any electrical system after proper application of LOTO and zero energy checks.</li> </ul>	Work on energized systems greater than 50 volts but less than 600 volts. See <a href="#">Electrical Safety</a> Subject Area.	<ul style="list-style-type: none"> <li>Work on energized systems 600 volts or greater.</li> <li>Work requiring the disabling or jumpering out of safety interlocks.</li> <li>Any work within 10 feet of a non-insulated energized line in conjunction with the above voltage. See <a href="#">Electrical Safety</a> Subject Area.</li> </ul>
3. Stored energy (hydraulic, thermal, pneumatic, mechanical, etc.)	<ul style="list-style-type: none"> <li>Capable of being easily isolated; no disassembly required.</li> <li>Energy source is LOTO'd.</li> </ul>	<ul style="list-style-type: none"> <li>Required to disassemble system or piping to isolate energy (i.e., inserting blank flange).</li> <li>Work on pneumatic systems with stored energy <math>\geq 100,000</math> joules.</li> </ul>	
4. Confined space work	Confined space (Class 1)	Confined space work (Class 2A and 2B)	Confined space work requiring permit (Class 2C). See <a href="#">Confined Spaces</a> Subject Area.
5. Excavation, digging, trenching, or concrete penetration	<ul style="list-style-type: none"> <li>Excavations where no personnel will be in the trench.</li> <li>Dig depth of less than 5 feet.</li> </ul>	<ul style="list-style-type: none"> <li>Excavations over 5 feet in depth with personnel using trench box.</li> <li>"Aggressive" concrete penetration.</li> </ul>	Excavations over 5 feet in depth where personnel will be working in trench and using engineered protective system (i.e., sloping or shoring). See <a href="#">Excavation Safety</a> Subject Area.
6. Environmental Aspects/Impacts	Work has an environmental aspect but does not meet significance criteria. A self-identified nonconformance to an ESH SBMS requirement or a self-reported exceedance of a permit requirement.	Work has an environmental aspect that meets significance criteria defined in <a href="#">Identification of Significant Environmental Aspects and Impacts</a> Subject Area. A self-identified nonconformance to an ESH SBMS requirement or a self-reported exceedance of a permit requirement.	Work has an environmental aspect that meets significance criteria and has potential for (1) radiological release or (2) groundwater contamination or (3) regulatory violation that results in a formal enforcement action.
7. Airborne hazardous material - Work requiring respiratory protection		Wearing an air purifying respirator. See <a href="#">Respiratory Protection</a> Subject Area.	Wearing an Air supplied respirator required (SCBA or air line). See <a href="#">Respiratory Protection</a> Subject Area.
8. Rigging and heavy lifting	Routine bucket truck, forklift, or crane work with trained personnel.	Lift is 75% or more of the rated capacity.	Critical lifts. See <a href="#">Lifting Safety</a> Subject Area.
9. Work with OSHA regulated chemicals (i.e., lead, heavy metals, asbestos, beryllium).	No potential for exceeding action level.	Potential for exceeding action level.	Potential for exceeding exposure level.
10. Potential for Exposure to Other hazards.	<ul style="list-style-type: none"> <li>Exposure to noise level less than 85 dBA.</li> <li>Work in Biosafety Level 1 area or hood. See <a href="#">Biosafety in Research</a> Subject Area.</li> </ul>	<ul style="list-style-type: none"> <li>Demolition work with potential legacy waste concerns.</li> <li>Work in extreme temperature conditions.</li> <li>Potential exposure to bloodborne pathogens.</li> <li>Work in Biosafety Level 2 area or hood.</li> <li>Potential exposure to noise levels 85-100 dBA.</li> </ul>	<ul style="list-style-type: none"> <li>Potential for contact with hydrogen, flammable gas, or flammable liquid.</li> <li>Work in Biosafety Level 3 and 4 area or hood.</li> <li>Potential exposure to noise level &gt;100 dBA. See <a href="#">Noise and Hearing Conservation</a> Subject Area.</li> </ul>
11. Work in unsecured areas (no cameras, no locked fences or enclosures).		Potential for theft of tools or valuable metals >\$1,000.	

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<b>Work Complexity and Coordination Issues</b>			
	<b>Low Hazard</b>	<b>Moderate Hazard</b>	<b>High Hazard</b>
Work Complexity/ Uncertainty Issues	<p>Task sequence is not significant. Minimal interactions between personnel required for task/activity completion, e.g.,</p> <ul style="list-style-type: none"> <li>• Work involves less than 15 steps and no written procedure or checklist. Personnel are familiar with task and experienced with equipment or tools for the task.</li> <li>• Work involves more than 15 steps and using written procedure or checklist.</li> <li>• Work involves a few safety, environmental, or facility concerns.</li> <li>• Task sequence not significant to risks.</li> </ul>	<p>Task sequence is significant. Frequent interactions between personnel required for task/activity completion, e.g.,</p> <ul style="list-style-type: none"> <li>• Work involves several safety, environmental, or facility concerns.</li> <li>• Work involves more than 15 steps and no written procedure or checklist and personnel are unfamiliar with tasks and/or not experienced with equipment or tools.</li> <li>• Work is infrequently performed or first time activity.</li> <li>• Task sequence is significant.</li> <li>• Work involves shutdown of several systems to isolate the area.</li> </ul>	<p>Continuous interdependency between personnel required for tasks/activity completion, e.g.,</p> <ul style="list-style-type: none"> <li>• Work is prone to rapidly changing conditions.</li> <li>• Task sequencing is critical to risk control.</li> <li>• If work is done incorrectly, it could cause major system downtime or adverse public reaction.</li> </ul>
Work Coordination	<ul style="list-style-type: none"> <li>• No more than three functional groups within one Department/Division.</li> <li>• Work requires minimal coordination between support and operational organizations.</li> </ul>	<ul style="list-style-type: none"> <li>• More than three functional groups are needed to complete the task/activity within one department or a combination of Departments/Divisions.</li> <li>• Work requires close coordination between multiple support and operational organizations.</li> <li>• Work has to be performed at the same or in a certain sequence with other specific work requests or operational activities.</li> </ul>	<p>More than six functional groups within one Department or a combination of Departments/ Divisions and/or outside contractors performing work, and requiring frequent support systems to assist in risk mitigation.</p>