

*If you are using a printed copy of this procedure, and not the on-screen version, then you **MUST** make sure the dates at the bottom of the printed copy and the on-screen version match. The on-screen version of the Collider-Accelerator Department Procedure is the Official Version. Hard copies of all signed, official, C-A Operating Procedures are available by contacting the **ESSHQ Procedures Coordinator, Bldg. 911A***

C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

2.28.h Screening Guide Card for Work Planning

Text Pages 1 through 3

C-A OPM Procedures in which this Attachment is used.		
2.28		

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approved: \_\_\_\_\_ *Signature on File* \_\_\_\_\_  
 Collider-Accelerator Department Chairman Date

P. Cirnigliaro

The purpose of this checklist is to **help in determining if a job requires an enhanced work permit** due to ES&H hazards, system complexities, or work coordination needs. If the job already has an established work procedure or has been defined as a routine job due to the training and qualifications of the crafts person or technician, then the checklist is not needed. Check off items that apply to the job.

**ES&H Permits Needed**

- Confined space permit
- Cutting/welding permit
- Digging/core drilling permit
- Electrical working hot permit
- Fire protection impairment permit
- Job-specific RWP
- Dept./Div-specific permit \_\_\_\_\_

*If only one permit is checked off and there are no other ES&H concerns, complexities, or coordination issues checked off in the following sections, then an enhanced work permit is not required. If two or more permits are checked off, an enhanced work permit is recommended.*

**Safety Concerns**

Check off applicable safety concerns unless covered by a specific work procedure or qualified training.

- Asbestos – work will disturb or involve removing asbestos – containing material
- Beryllium – cannot produce airborne beryllium dust in any manner
- Biohazard – potential to be exposed to biohazardous substances (i.e., bloodborne pathogens)
- Chemical - using or exposed to hazardous chemicals without specific procedure or training
- Elevated work – will use scaffolding, harnesses, lanyards, or fall protection plan
- Explosives – must use work permit if no task specific procedure for explosives is utilized
- Fumes/Mist/Dust – work activity likely to result in an inhalation or dermal exposure to dust, fumes, or mist
- Heat/Cold stress – will be working under extreme temperature conditions
- Lasers – will be using a class III or IV laser on the job
- Material handling – moving heavy loads by personnel other than riggers or qualified material handlers
- Non-ionizing radiation – work will involve the use of non-ionizing radiation sources or devices other than welding equipment (i.e., microwaves, RF fields, etc.)
- Oxygen deficiency hazard – work will be in a potential ODH area
- Radiation/Contamination – work involving radiation or contamination not covered by an RWP
- Removing/penetrating walls – firewalls involved in work
- Rigging/critical lift – work involves a critical lift or exposes expensive equipment to potential damage
- Stored energy – potential for exposure to any electrical, mechanical, hydraulic, or pressure systems that are not controlled or protected from workers
- Operational safety envelope – work could impact the operational safety envelope as defined by the Facility Use Agreement

*If no safety permits in Section A are required and only one safety concern in Section B is checked, then a work permit is not required, but ES&H precautions must still be taken. If two or more safety concerns are checked, then a work permit is recommended since the level of planning rigor has increased. Contact ES&H Coordinator or ESH&Q personnel if any questions on the safety concerns.*

**Environmental/Waste Concerns**

- Work may increase storage of chemicals beyond limits of Suffolk County Article 12
- Rad. Materials may exceed area posted limits
- Work creates a new air emissions source (rad. or non rad.) or changes an existing air emissions source
  - Liquid discharges of any of the chemicals listed on the BNL State Pollutant Discharge Elimination System (SPDES) Permit Chemicals exhibit.
  - Potential to disturb protected areas or species (i.e., wetlands)
  - Work will generate hazardous, industrial, mixed, radioactive, or regulated medical waste without an approved disposition path (Contract your Environmental Compliance Representative)
  - Work needs to be evaluated for pollution prevention or waste minimization opportunities.

*If any of the environmental or waste concerns are checked off, a work permit is recommended. Contact your Environmental Compliance Representative if any questions on environmental/waste issues.*

**Complexity/Uncertainty Issues**

- Shutdown of several systems is required to properly isolate the work area
- There are numerous major tasks/activities (i.e., 6 or more) involved in the job
- Work requires integration of regulatory controls or notification of regulatory agencies
- Work involves a large number of steps that require action or sequences of steps that may not be obvious
- Work is prone to rapidly changing conditions
- Work is infrequently done or it is a first time activity
- Equipment will be used outside of its normal operating range
- Person not experienced with new or specialized equipment or tools
- If work done incorrectly, could cause major system downtime or adverse public reaction

*For one checkoff, work permit should be considered. For two or more, permit is recommended.*

**Work Coordination**

- Work requires close coordination between multiple support and operational organizations
- Work has to be performed at the same time or in a certain sequence with other specific work requests or operational activities.

*Work permit is recommended for any work coordination checkoffs unless job will be covered through another work planning procedure or document.*

**Addition C-A Low Hazard Tasks from OPM 2.28.d**

Routine preventive maintenance.  
 Simple LOTO (not involving multiple energy sources)  
 Work covered under general RWP  
 Filtered respiratory protection used on the basis of personal choice  
 Routine crane, bucket-truck, or fork-truck work by trained personnel  
 Routine carpentry work, e.g., hanging bulletin boards, erect office partitions, painting, etc.  
 Routine mechanical work, e.g., run air lines, realign coupling, repack valve, etc.  
 Re-lamping  
 Scaffold assembly/disassembly (inspection required)  
 Routine HVAC repair  
 Work on energized systems under 50 volts see [Electrical Safety Subject Area](#)

**Additional C-A Moderate Hazard Tasks from OPM 2.28.d**

Respiratory protection (SCBA is High Hazard)  
 Work requiring a job specific RWP  
 Confined space work (Class 2A and 2B)  
 Bucket truck work within 10 feet of a non-insulated, energized line  
 Asbestos abatement work  
 Work requiring fall protection  
 If work permit is required for outside department  
 ALARA review required (greater than 0.75 person-rem)  
 Radiation Safety Committee review required  
 Need to set up Radioactive Material Work Area  
 X-ray hazards  
 Conventional Safety Committee review required  
 Cutting and welding in other than C-A pre-established areas  
 Fire Hazard involved  
 Hazardous/flammable gas hazard created  
 Personal Protective Equipment (PPE) required, other than safety glasses, gloves, shoes, ear plugs, or hard hat  
 Liquid spill prevention required  
 Liquid or airborne effluents generated  
 Excavations  
 Use of any hoisting and rigging equipment in excess of 85% of the rated capacity  
 Access control issue  
 Minors or students or untrained person involved in work  
 Work on pressurized systems

**Additional C-A High Hazard Tasks from OPM 2.28.d**

Confined space work requiring permit (Class 2C)  
 Work in High Radiation Areas greater than 5 rem/hour  
 Work in High Contamination Areas  
 Work involving voltages greater than 600 volts see ([Electrical Safety Subject Area](#))  
 Excavations over 5 feet in depth where personnel will be working in a trench  
 Critical lifts  
 Class IIb and IV laser alignment activities, which potentially expose personnel to laser hazards.

## Screening Guidelines for Work Permit Determination

ESH Category	Low	Moderate	High
<b>ESH Issues</b>			
1. Personnel Injury	Minimum risk for injury	Potential for serious injury	Potential for fatality or severe injury
2. Radiological Work	Work in controlled areas	Work requiring an RWP	Work requiring an RWP and ALARA review
3. 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 Subject Area</a>	<ul style="list-style-type: none"> <li>Work on energized systems 600 volts or greater– See <a href="#">Electrical Safety Subject Area</a></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 the <a href="#">Electrical Safety Subject Area</a></li> </ul>
4. 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</math> 100,000 joules</li> </ul>	
5. Confined space work	Confined space (Class 1)	Confined space work (Class 2A and 2B)	Confined space work requiring permit (Class 2C) - <a href="#">Confined Spaces Subject Area</a> .
6. 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>	<ul style="list-style-type: none"> <li>Excavations over 5 feet in depth where personnel will be working in trench and using engineered protective system (i.e., - sloping or shoring) –</li> <li>See <a href="#">Excavation Safety Subject Area</a></li> </ul>
7. Environmental Aspects/Impacts – refer to “Criteria for Significant Environmental Aspects” Note: Quality Class does not apply to this issue. See BNL’s environmental system documentation.	Work has an environmental aspect but does not meet significance criteria	Work has an environmental aspect that meets significance criteria defined in <a href="#">Identifying Significant Environmental Aspects and Impacts Subject Area</a>	Work has an environmental aspect that meets significance criteria and has potential for (1) radiological release or (2) groundwater contamination or (3) regulatory violation
8. Work requiring respiratory protection		Air purifying respirator required See <a href="#">Respiratory Protection Subject Area</a>	Air supplied respirator required (SCBA or air line) – See <a href="#">Respiratory Protection Subject Area</a>
9. Non-ionizing Radiation	Exposure <TLV Work with class I, II, or IIIa lasers	Exposure >TLV Work with class IIIb lasers	Pacemaker wearer or medical implant Work with class IV lasers
10. Rigging and heavy lifting	Routine bucket truck, forklift, or crane work with trained personnel	<ul style="list-style-type: none"> <li>Lift is 75% or more of the rated capacity</li> <li>Moving heavy loads by personnel other than riggers or qualified crane/fork operators</li> </ul>	Critical lifts – See <a href="#">Lifting Safety Subject Area</a> .
11. Elevated work. See <a href="#">Fall Protection Subject Area</a> .	<ul style="list-style-type: none"> <li>No fall protection required</li> <li>Work requiring fall protection equipment, but with established procedures and qualification training (i.e., - bucket truck use)</li> </ul>	Work requiring fall protection equipment, (i.e., - harness, lanyard, etc.)	Work requiring a fall protection plan
12. Work with OSHA regulated chemicals (i.e., lead, heavy metals, asbestos, Beryllium etc.)	Below action level	Potential for exceeding action level	Potential for exceeding exposure level
13. 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 Subject Area</a>.</li> </ul>	<ul style="list-style-type: none"> <li>Work requiring valve lineup instructions to properly isolate system</li> <li>Asbestos abatement</li> <li>Demolition work with potential legacy waste concerns.</li> <li>Work in extreme temperature conditions.</li> <li>Potential exposure to bloodborne pathogens.</li> <li>Potential exposure to noise level 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 Subject Area</a>.</li> <li>Work on shielding, dept. specific – OPM 9.1.12</li> <li>Work on pressurized or vacuum systems, see Pressure Safety Subject Area</li> </ul>
14. Work in unsecured areas (no cameras, no locked fences or enclosures).		Potential for theft of tools or valuable metals > \$1,000.	
<b>Programmatic Issues</b>			
15. Stakeholder Perception	Minor on overall BNL/DOE mission and program	Major on overall BNL/DOE mission and programs	Critical on overall BNL/DOE mission and program
16. Downtime of a program.	Minor, e.g., <ul style="list-style-type: none"> <li>2 days or more but less than 4 days</li> <li>2% or greater but less than 10% of program schedule</li> </ul>	Major, e.g., <ul style="list-style-type: none"> <li>4 days or more but less than 3 weeks</li> <li>10% or greater but less than 30% of program schedule</li> </ul>	Critical, e.g., <ul style="list-style-type: none"> <li>3 weeks or more</li> <li>30% or greater of program schedule</li> </ul>
17. Equipment dollar loss	Minor, e.g., <ul style="list-style-type: none"> <li>Greater than 10K</li> <li>2% or greater but less than 10% of item/material or program cost</li> </ul>	Major, e.g., <ul style="list-style-type: none"> <li>Greater than 50K</li> <li>10% or greater but less than 50% of item/material or program cost</li> </ul>	Critical, e.g., <ul style="list-style-type: none"> <li>Greater than 250K</li> <li>50% or greater of item/material or program cost</li> </ul>