

HAZARD CONTROL PLAN AND WORK AUTHORIZATION Page 1 of 3

This form is from MAQ-035

1. Describe the work to be performed (use continuation page if needed) or give procedure number, revision number, and title.

HCP-MAQ-Borescope, R1 Title: Use of the UXR Borescope

This borescope is used to internally inspect stack sampling systems (probes, transport lines, etc.) for any buildup or other condition which would affect sampling performance. See continuation page for general procedure on how this is done.

2. Describe potential hazards associated with the work (use continuation page if needed).

- a) Radiological hazards - contamination from contact with internal components of sample systems, or direct radiation hazards from work in radiologically controlled areas
- b) hand tools - nicks, cuts, bruises from using tools
- c) Work at elevation (ladders, scaffolding, bucket truck) - slips & falls from equipment
- d) high-intensity light source in scope can "damage eye" if you look directly into it
- e) General work area hazards (e.g., uneven flooring, noise, low headroom, cramped conditions)
- f) Facility-specific hazards (emergency response, etc.)
- g) Overhead hazard- workers on ground below scaffolding could be hit by falling objects
- h) Stack air: workers are exposed to pollutants in stack (rad & non-rad) while sample system opened.
- i) Electrical hazards: use of equipment in outdoor/wet environments, and contacting electrical equipment on stack system (e.g., heat trace).

3. For each hazard, list the likelihood and severity, and the resulting initial risk level (before any work controls are applied, as determined according to LIR300-00-01, section 7.2)

- a) Radiological hazards - (all) frequent / negligible = Low
- b) hand tools - occasional / moderate = Low
- c) work at elevation (ladders, scaffolding, bucket truck) - occasional / moderate = Low
- d) high-intensity light source: improbable / moderate = Minimal
- e) General work area hazards: occasional / moderate = Low
- f) Facility-specific hazards: occasional / moderate = Low
- g) Overhead hazard: occasional / moderate = Low
- h) Stack air exposure: occasional / moderate = Low
- i) Electrical hazards: occasional / moderate = Low

Overall *initial* risk: Minimal Low Medium High

4. Applicable Laboratory, facility, or activity operational requirements directly related to the work:

None List: Work Permits required? No List:

Radiological work permit may be required for working inside stack sampling systems. Consult with facility HSR-1 team for clarification of facility-specific radiological requirements.

Other facility-specific requirements may apply for some locations. Contact FMU operations.

5. Describe how the hazards listed above will be mitigated (e.g., safety equipment, administrative controls, etc.):

- a) Rad hazards: obey all postings, minimize time in any radiological area. Wear gloves whenever in contact with equipment from inside stack sample systems.
- b) Hand tools: work in a calm, unhurried manner. Wear leather gloves as needed.
- c) Ladders/Scaffolding/Bucket Truck: Take required training (see item 6). Wear closed-toe footwear with non-slip soles when climbing ladders or scaffolding. When climbing, keep hands free of any items. Transport work items to working platform by means of a tool belt or back pack, or lift & lower with container and rope, as appropriate. Learn the weight limit of the scaffold & ensure it is not exceeded. When working from bucket truck, ensure you do not over-reach and keep arms inside the bucket while it is being moved.
- d) Light source: do not look into the borescope nozzle when the light source is in operation.

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6. Knowledge, skills, abilities, and training necessary to safely perform this work (check one or both):

Group-level orientation (per MAQ-032) and training to applicable procedure.

Other → Describe:

Scaffolding Training or Ladder Safety for stack inspection operations that requires the work to be performed at elevation.

For inspections requiring a bucket truck, "Skill of Craft" training course #13079 Basic Fall Protection.

7. Any wastes and/or residual materials? (check one) None List:

HSR-1 materials (used to survey equipment for release) to be disposed of by facility personnel.

8. Considering the administrative and engineering controls to be used, the *residual* risk level (as determined according to LIR300-00-01, section 7.3.3) is (check one):

Minimal

Low

Medium (requires approval by Division Director)

9. Emergency actions to take in event of control failures or abnormal operation (check one):

None

List:

In the event of fall, evaluate injury and respond accordingly.

Call 911 and/or proceed to HSR-2 as appropriate

Notify facility operations center in case of any emergency situation or injury.

After this form is approved, perform the work safely. Identify opportunities for improvements in safety and report these to the safety officer or group leader.

Preparer(s) signature(s)

Name(s) (print)

/Position

Date

[NOTE: Training to a procedure constitutes authorization.] **If this work is NOT described by a procedure:** I have reviewed the safety of this proposed work with the group safety officer and I commit to follow safe practices when performing this work.

Employee signature

Name (print)

Date

Additional employee signature (optional)

Name (print)

Date

Additional employee signature (optional)

Name (print)

Date

Group leader or safety officer review.

I have reviewed the proposed work with 1) the preparer(s) and 2) employees who will perform the work (if not described in a procedure) and I believe the hazards and safety concerns have been adequately addressed. The work as described above is hereby authorized. This authorization expires one year after the date below.

Group leader or safety officer signature

Name (print)

Date

This plan will be revised according to MAQ-035. Group leader or safety officer: After completion, submit to group Records Coord.

HAZARD CONTROL PLAN AND WORK AUTHORIZATION**Hazard Control Plan continuation page. Give item number being continued.**

#5. Mitigation steps:

- d) Light source: do not look into the bore scope nozzle when the light source is in operation.
 - e) Work area hazards: work in a calm, unhurried manner.
 - f) Facility-specific hazards: Have appropriate training, or be under escort by a qualified worker.
 - g) Over head work: Requirements when work is being conducted at elevation (e.g., on scaffolding)
 - All workers near scaffolding will wear hard hats and safety shoes when work is going on above.
 - Keep all non-participants outside of the "cone of danger" by controlling access to work area.
 - During equipment lifting & lowering, keep workers away from scaffolding. Hoist and lower equipment in a bucket or appropriate container with a rope that has a secure latch or knot. For heavy loads, use a tag line on the ground to help control the load during transition.
 - Secure equipment on the scaffolding or store in a container that is secured to the scaffolding.
 - Workers on the ground shall remain outside the cone of danger during activities on the scaffolding, unless actively assisting with hoisting or lowering.
 - h) Stack air: consult with HSR-1 (rad) and facility operations (non-rad) to determine if special controls or PPE should be used during stack inspection work
 - i) Electrical: Use appropriately-rated power cords with GFC interrupt system when using electrical equipment in outdoor or wet environment. Disconnect any electrical systems (e.g., heat trace) on stack system prior to work.
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General process for conducting stack internal inspections with the UXR Bore scope:

- a) Verify with facility operations personnel that no atypical operations are ongoing which could release unanticipated pollutants into the stack (acid fuming, mercury operations).
- b) Disconnect any electrical equipment (heat trace, etc.) on sample system prior to inspecting stack.
- c) Remove MAQ sample media (paper filter and/or charcoal) and store in glassine envelope, according to MAQ-109 and/or MAQ-601. Note the date and time of removal.
- d) Note general condition of sample system external components.
- e) If needed, break sample line near the stack wall (required if sample filter media location is distant from stack wall).
- f) Contact HSR-1 team for contamination survey during initial breach of system, if appropriate.
- g) Insert bore scope into sample system, either through filter media port or break in sample line.
- h) Using eyepiece, inspect sample line and nozzles; examine as much of the sample line as possible, concentrating on bends or other areas where particulates could accumulate. Document the observation (Stack ID, date, time, results) in an appropriate log. Use 90-degree viewer if needed to look down nozzles in multi-point rake.
- i) If needed, attach camera and PC link to borescope to document findings with video record or image capture.
- j) Remove bore scope from stack sample system
- k) If needed, perform mild cleaning of probe and sample system. If probe removal or significant cleaning is required, note in logbook and later make arrangements for removal and cleaning.
- k) Replace sample media and note date & time of sampling resumption.
- l) If needed, re-connect sample lines that were dismantled to allow inspection access.
- l) Contact local HSR-1 team for contamination survey of any equipment that was exposed to potential contamination from inside the stack during breach of the sampling system.