Utility Outages

NIST PR 2103.06
Effective Date: 6/5/2018
Issue Date: 6/5/2018

PURPOSE

This document provides instructions to plan, minimize, consolidate, communicate, coordinate, execute and close-out any outage to a utility under the control of the Office of Facilities and Property Management (OFPM).

APPLICABILITY

This procedure applies to all personnel at NIST working on or using any utilities under the control of OFPM and provided to any NIST-controlled facilities.

SCOPE

A. This outage procedure covers the shutdown of building systems under OFPM control. Building system outages are typically required for the purposes of construction, renovation, inspection, isolation, maintenance, replacement or repairs to existing systems, subsystems or component parts thereof.

B. Systems included in these guidelines include, but are not limited to:

1. Steam and condensate
2. Domestic hot and/or cold water
3. Chilled water supply and return
4. Processed chilled water
5. Compressed air
6. Electrical
7. Heating Ventilation and Air Conditioning (HVAC)
8. Natural Gas
9. Nitrogen gas
10. Vacuum systems
11. Elevator systems
12. Heating hot water systems
13. De-ionized (DI) water systems

C. These guidelines do not apply to fire protection and life safety systems, see NIST S7401.03 Impairment of Fire Protection and Life Safety Systems (in draft).

1. Any outage or impact to fire protection and/or life safety system shall be coordinated with the Emergency Services Office (ESO) and Office of Safety, Health and Environmental (OSHE). Any impairment to fire protection and/or life safety system(s) shall be handled as indicated in NIST S 7401.03 (in draft).

D. These guidelines do not apply to isolation valves, switches or other such devices that isolate a point of service device that will result in only the loss of service of the specific piece of equipment, fixture or another device. In these cases, the primary contact must still notify all affected stakeholders of the impact of the outage.

Examples of such situations would include, but not be limited to:

1. Plumbing fixtures (sinks, toilets, showers, drinking fountains, etc.)
2. Redundant devices such as pumps, fans or other equipment that are being appropriately backed up by operational duplicate devices.
3. Individual Variable Air Volume boxes, air terminals, reheat valves, coils, radiators, fan coils, unit heaters or other HVAC devices controlling a single space.
4. Lighting and power circuits serving a single space or device, including discrete electrical devices such as occupancy sensors, light fixtures, light switches and receptacles.

REFERENCES

- NIST O 2103.00 Facilities and Site Management
- NIST O 2201.00 Emergency Management Program
- NIST PR 2201.03 Energy Contingencies
- NIST S 7401.03 Impairment of Fire Protection and Life Safety Systems (in draft)

DEFINITIONS

Access - entry or egress paths within a building.

Building Facilitator - The primary representative of the Organizational Unit (OU) and/or occupant of a building who is knowledgeable of the personnel, equipment and ongoing research in that building and acts as the Point of Contact (POC) for emergency planning and outages. This person would be assigned and trained by the Emergency Services Office. (Gaithersburg ONLY)

Building Manager - The primary POC from OFPM responsible for facilities engineering and maintenance management of building(s) and operates as the coordinator with building occupants regarding outages, modifications, repairs and service requests (Boulder ONLY).

Emergency Outage - An interruption in utility services that cannot be foreseen. Emergency outages are required when repairs must be accomplished immediately to safeguard property, research and/or occupant health.

Minor Outage - A utility outage that affects a small group of occupants or a small section of a building (e.g., less than six (6) offices or labs, exceptions decided on a case-by-case basis by the Outage Coordinator).

Major Outage - A utility outage that affects a large group of occupants (e.g., more than six (6) offices or labs) or a large section of a building (e.g., most of a floor, wing, quadrant or riser) or an entire building.

OFPM Outage Coordinator (OC) – The person who receives outage requests, approves schedules for outages and officially communicates all utility outages for OFPM.

Outage - An interruption or shutdown of a building's utility service(s) or access.

Planned Outage - An interruption in utility services which can be foreseen. Planned outages include minor, major or site outages AND any repair, renovation or installation of scientific tools with enough lead time to allow the outage to be accomplished with adequate advanced notice.

Primary Contact (PC) - The project leader or Contracting Officer Representative (COR) with overall stewardship and accountability for a utility outage. The Primary Contact (PC) is the requestor of the outage and could be a mechanic, scientist, engineer or project leader. The PC could be within any division of OFPM or outside of OFPM. This person will be responsible for oversight of interrupting the utility service.

Site Outage - Outage of all/most site utilities. Generally performed twice a year over a weekend in the Spring and in the Fall to perform necessary maintenance to site services.

Stakeholder - Individuals and groups who are involved in and/or are impacted by an outage, typically a lab user, occupant(s), Division Chief(s) or equivalents, Division Safety Representative and Building Manager or Building Facilitator.

Utility - Any utility service provided by OFPM through an outside source or manufactured in-house (gas, water, electricity, chilled water, steam, vacuum, etc.), which facilitates building and/or scientific operations.

RESPONSIBILITIES

A. Organizational Unit (OU) Building Facilitator:

1. Notify appropriate employees in their building about the upcoming utility service interruption and provide details of which utilities will be affected.
2. Identify any additional stakeholders beyond those identified by the PC during meeting to determine who will be impacted and prepare the stakeholder list.
3. Provide OFPM with feedback from staff on outage requests.

B. OFPM Building Manager:

1. As directed by the OC, take every precaution to ensure minimum interference with critical experiments and technical projects.
2. Maximum use should be made of each scheduled outage. Consider simultaneous performance of maintenance work in that outage area.
3. As directed by the OC, schedule and coordinate all planned interruptions of utility services with groups affected by outages and those wanting to interrupt the utilities.

C. OFPM Outage Coordinator:

1. The Facilities Maintenance Division Chief will fill the role of OFPM OC for their respective campus.
2. The OC may utilize other individuals to assist with managing the outages; however, this position has the ultimate responsibility for overall schedule, frequency of outages, communication and coordination of all outages.
3. Act as the primary POC for proposed schedule of utility interruptions and outages. Take primary responsibility to implement and communicate this procedure.
4. Make final decisions on dates for utility outages.
5. Make the official notifications for each outage. Outage notices will have a full description of the outage, the location and utility system(s) affected, impact to systems (especially impacts not obvious, e.g., fume hoods not working) and the anticipated duration of the outage.
6. Respond to proposed outage requests in a timely manner.
7. Ensure proper communication of changes, delays and completion of outages to Stakeholders.

D. Primary Contact (PC):

1. Plan for minimal impact to all Stakeholders and discuss such plans with the OFPM OC.
2. Present proposed outages to the OFPM OC as far in advance as possible of the dates in the table titled “Outage Notice Schedule”. Proposed outages will include utility to be shut off, date, duration and impact – what rooms, what systems and what people.
3. Identify all stakeholders affected by meeting with senior, tenant organizational unit (OU) division representative AND building facilitator or building manager. Prepare a list of stakeholders based upon input from each person and sharing of what rooms, systems and utilities will be affected.
4. Coordinate with Stakeholders after dates are approved by the OC.

5. Prepare the draft outage notice after coordination. Submit the draft notice to the OC by the dates shown in the table titled "Outage Notice Schedule".
6. Execute the outage after the schedule is approved and the outage notice has been issued by the OC.
7. Immediately notify the OC if any portion of the outage has been canceled or must be altered. Also, notify Stakeholders so they may adjust their operations.
8. Present previously unforeseen problems, delays, etc., to the OC.
9. Notify the OC of completion.

E. Stakeholder:

1. Provide the PC with information on the impact of a requested outage.

PROCEDURE FOR PLANNED OUTAGE

A. Planning Within OFPM

1. The PC will notify the OFPM OC as far in advance as possible of planned outages (see chart titled "Outage Notice Schedule" for minimum notification times).
2. The PC will provide to the OC the utility to be shut off, date, duration and impact.
3. OC will decide if this is a minor, major or site outage.
4. OC should minimize the number of outages per year in any one facility or affecting any one customer.

B. Preliminary Communication and Planning with Other OUs and Building Occupants

1. After setting the tentative outage date, the OC (or could designate to PC and/or Building Manager) will meet with appropriate Stakeholders to discuss:
    a. Impacts
    b. Preferred Scheduling
    c. Outage Duration
    d. Contingency plans to minimize disruption and protect the building systems and program operations.
        i. Alternate dates if unsuccessful on original schedule
        ii. Possibility of extending outage
        iii. Who to be called if issues arise during planned outage events
    e. Special logistics such as room access, etc.
    f. Contact information for the designated person and their availability during outage.

2. The PC will notify the building manager and building facilitator (if applicable) of all possible outages. This effort will be done to minimize the impact to the building and to consolidate outages when possible. Any changes will be brought back to the OC for possible rescheduling.

C. Official Outage Notice

1. The PC will complete the draft outage notification (see attached templates and examples) and submit to the OC for publication.
2. The OC will issue all official outage notices. Outage notifications will be emailed to affected building(s) staff and posted on the OFPM website (if available).
3. For major outages, the OC should post notices in the main lobby of impacted buildings.
4. Timeframe – outages will be planned so notifications can be sent out per the chart below:

Outage Type	**Submit to Outage Coordinator**	**Official Notice to Site/Occupants**
Minor outage	2 weeks	1 week*
Major outage	6 weeks	1 month*
Site utility outage	Min. 6 months	3 to 6 months

Outage Notice Schedule

***(Exceptions must be approved by Outage Coordinator or Chief Facilities Management Officer)**

D. Execute Outage

1. The PC shall execute the outage or inform those responsible to perform the outage.
2. If the outage is unsuccessful within allotted time (i.e., the intended scope of work could not be accomplished), the PC shall notify and/or meet with the appropriate Stakeholders to discuss problems and propose extending the outage or a rescheduled date.
3. Return to "Planning Within OFPM" step if a rescheduled date is proposed, prior to confirming with Stakeholders.

E. Follow-through (mandatory for Major Outages)

1. The PC shall notify the OC that the outage is complete and utilities are back in service.

2. The OC will send out a building notification that the outage is complete and services have been restored for any major or site outage.

F. Follow-through for minor outages. The PC shall notify stakeholders that the outage is complete and utilities are back in service.

PROCEDURE FOR EMERGENCY OUTAGES

Emergency outages are required for repairs that must be accomplished immediately to safeguard property and health. This type of outage does not allow for extensive pre-planning or coordination prior to the interruption.

A. Any responsible party may take immediate action to reduce the threat to life, health, safety, or the environment.

B. That responsible party should notify occupants in the local area, then contact the OFPM OC as soon as situation is stabilized.

C. The OC will officially notify the Stakeholders of the outage. The notification will be labeled as EMERGENCY. Typically, this should occur within minutes of outage.

D. The OC shall notify the NIST Emergency Coordinator (Emergency Services Office) in the event an outage is significant enough to impact multiple buildings.

E. A PC will be identified that will plan for repairs and eventual returning utility to service in accordance with any special instructions from Stakeholders.

F. The OC must give approval in advance of returning utility to service. The OC will contact Stakeholders to coordinate the schedule of the utility being returned to service.

G. The OC should follow through with official notification that the outage is complete and services have been restored. Inform the occupants of the current state and possible next steps.

OUTAGE NOTICE GUIDELINES

A. Template. Outage notices should follow a standard format, following the template shown in Appendix A for major outages.

B. What. Explain what will be turned off/closed/de-energized/etc. Equipment and systems may be identified, but only if the occupant needs to know.

1. Example of too much detail in impact statement: "All 120/208V power will be turned off at electric panel ***B-2*** to include breakers ***B-246, B-248, B-250***, and ***B-252***."

2. Better Impact Statement: "All electricity will be turned off to all outlets in Room ***E-XXX*** through ***E-ZZZ***. Lights will remain on."

C. When and Who. Explain when, how long, and who will turn off the service. You should put an expected time/date when service will be restored.

D. Why Now. If applicable, explain why "now" is a good time for an outage. For example, we anticipate the weather will be temperate and conducive to shutting down heat for a short time.

E. Impact. Explain how the occupants will be impacted in layman's terms. Typically, only explain in terms that the occupant can identify with or that have meaning to them.

   1. Example of unfamiliar language in impact statement: "The modulating control valve to ***ACU-123*** will be out resulting in no steam supply to the air handling unit."

   2. Better Impact Statement: "Temperature control will be impacted to Rooms ***E-AAA*** through ***E-BBB***."

F. Avoid words that generate anxiety (such as "asbestos" or "contaminated") yet still be forthcoming. You can say that the work area is restricted while abatement activities are being conducted which would have the same effect.

G. Follow-up Explanation. In follow up notices, explain why something happened in addition to the cancellation notice or the rescheduling of the outage.

H. Explain Coordination and POC. Identify that coordination has occurred with the building managers/facilitators and that they agree this will have minimal impact. Give their contact information and provide the PC phone numbers to include a work cell phone number.

DIRECTIVE OWNER

190.00 – Chief Facilities Management Officer

APPENDICES

A. Template for Major Outage Notice

B. Revision History

APPENDIX A

MAJOR OUTAGE TEMPLATE/EXAMPLE

Notice: Utility or Service (e.g., Electrical) Outage Building xxx

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OFPM will have an electrical outage in Building xxx on Day, Month, Year, from start time to end time. **All utility service (in simplest terms, e.g., electrical power) will be out to room numbers AAA-BBB.** The outage is in support of the brief description of project (e.g., new electrical distribution panels being installed).

Special instructions. (e.g., It is recommended that you turn off all sensitive electrical equipment in the affected areas during the outage period.)

If you have any questions or concerns, please contact Primary Contact Name (x#### or ###-###-####).

If you have any other maintenance issues, please report them to our service desk at x6928 or submit an M-slip by following this link/email: Maintenance Service Request (M-Slip).

APPENDIX B

REVISION HISTORY

Revision	Date	Responsible Person	Description of Change
	3-5-2018	Skip Vaughn	Initial Version
Rev. .01	3/5/2018	Dan Cipra	Formatting updates
Rev. .02	5/11/2018	Tom Weister	Adjudicated OCC comments