

## ***EFCGO Best Practice #50***

### **Post-Deactivation Surveillance and Maintenance of Excess Facilities**

**Facility:** Oak Ridge National Laboratory, Oak Ridge, Tennessee

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#### **Brief Description of Best Practice:**

Oak Ridge National Laboratory (ORNL) has implemented a surveillance and maintenance program for unoccupied excess facilities. The program monitors the facilities during the transition and disposition period to provide hazard mitigation and risk reduction. A flow chart of the ORNL process is included as Attachment 1.

The Surveillance and Maintenance (S&M) Program assures that facilities are assessed to determine condition and known hazards and to perform periodic surveillance for facility maintenance and stabilization. The ORNL S&M Program has been in place in various degrees for several years; however, the current S&M Program reflects the recommendations and requirements from an assessment of the structural conditions of excess facilities at ORNL; that was prompted by a worker accident at the Oak Ridge K-25 Site (Lessons Learned R-2006-OR-BJCPQA-0101). The structural assessment was completed by building Facility Engineer and a support team. In addition to evaluating the structural integrity of ORNL's excess facilities, it was recommended that ORNL assure that excess facilities are routinely and periodically reviewed, that potential environmental and safety issues associated with the facilities are identified, and that appropriate maintenance and mitigating actions are performed. Furthermore, the S&M Program was re-established at ORNL and the Excess Facilities Manager was established as the focal point for these issues.

A tailored approach was used to determine which elements of the various Department of Energy (DOE) orders apply during the S&M period. To date, all facilities currently in the ORNL Excess Facility program are classified as industrial facilities and, therefore, many of the elements associated with nuclear facilities do not apply. Under the current management structure, nuclear facilities determined to be excess are planned for transfer to DOE's Office of Environmental Management (EM) for disposition within the Integrated Facilities Disposition Program (IFDP). If it becomes apparent that DOE-EM will not accept a facility into the IFDP for disposition, then ORNL will where possible deactivate the facility to the point that it can be reclassified as an industrial facility by removing nuclear material and equipment, and decontaminating prior to placing it into a state requiring S&M. In the event they cannot be reclassified, they will be managed in accordance with DOE Order 433.1, "Maintenance Management Program for DOE Nuclear Facilities." Facilities with no intended future use that are to remain within ORNL's Excess Facilities Disposition Program (EFDP) must meet ORNL's Space Return Criteria before being turned over to the Excess Facility Manager.

An ORNL Excess Facility Assessment Checklist was developed to aid in the facility walk downs; a copy of the checklist is provided in Attachment 2. All applicable ESH&Q, ISM, and 10 CFR 851, "Worker Safety and Health Program requirements that pertain to closure facilities are embedded within this checklist. Protecting the public, ORNL employees, its sub-contractors, and the environment is a primary goal of this plan.

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#### **Why the Best Practice was used:**

Renewed and increased emphasis on surveillance and maintenance was placed on the Oak Ridge Complex after a worker at another site fell through a deteriorated floor in a building being remediated prior to demolition (Lessons Learned R-2006-OR-BJCPQA-0101). In addition, compliance with 10 CFR 851 will be monitored through the ORNL S&M program as part of the life cycle management for its excess closure facilities. The S&M Program will also provide critical facility condition information to assure that deactivation and decommissioning activities can be adequately planned, executed, and documented consistent with the principles of the ORNL Integrated Safety Management System.

#### **What are the benefits of the Best Practice?**

- Procedures are in place to protect inspectors and workers entering the facility.
- After initial evaluation facilities are posted to alert authorized personnel to potential hazards.
- Facilities are cordoned off and locked to prevent unauthorized entry.
- Facilities do not deteriorate to a state where it is unsafe for workers to enter the building.
- Defects in facilities that have already deteriorated are documented for worker safety.
- Facilities are maintained at minimum expense while still placing them in stable and known conditions, identifying hazards, and eliminating hazards.
- Assurance that the safety of the public, ORNL employees, subcontractors, and the environment is maintained.

#### **What problems/ issues were associated with the Best Practice:**

The largest problem is estimating and securing adequate funding for the maintenance of abandoned, inactive facilities. This problem is two fold; first the problem of identifying and estimating the costs of the minimum maintenance required to keep the facility in stable condition. This is compounded by the uncertainty of how long the building must be maintained prior to demolition. For example, repair of a small roof leak could be deferred if the facility is to be demolished the next year. However, if the demolition date is unknown, it may be prudent to spend the capital to repair the roof and stop further deterioration. The second problem arises when competing activities vie for the same resources. At ORNL, the Complex Facility Manager controls all ORNL facility maintenance funding and is responsible for maintaining Active occupied facilities as well as Excess Facilities. Prioritization of maintenance activities and allocation of resources is difficult when comparing the needs of active versus excess facilities.

Attachment 3 shows the results of the failure to perform necessary roof maintenance over an extended period of time prior to demolition at ORNL.

#### **How the success of the Best Practice was measured:**

Condition of the facilities will be monitored by subjectively comparing the results of the periodic facility assessments to identify deterioration of facilities up to the time of demolition.

#### **Description of process experience using the Best Practice:**

The program has been in effect and evolving for close to a year. It began initially with 85 facilities that are either currently unoccupied or occupied and scheduled for deactivation and decommissioning (D&D) before 2009. The process has identified several facilities in poor

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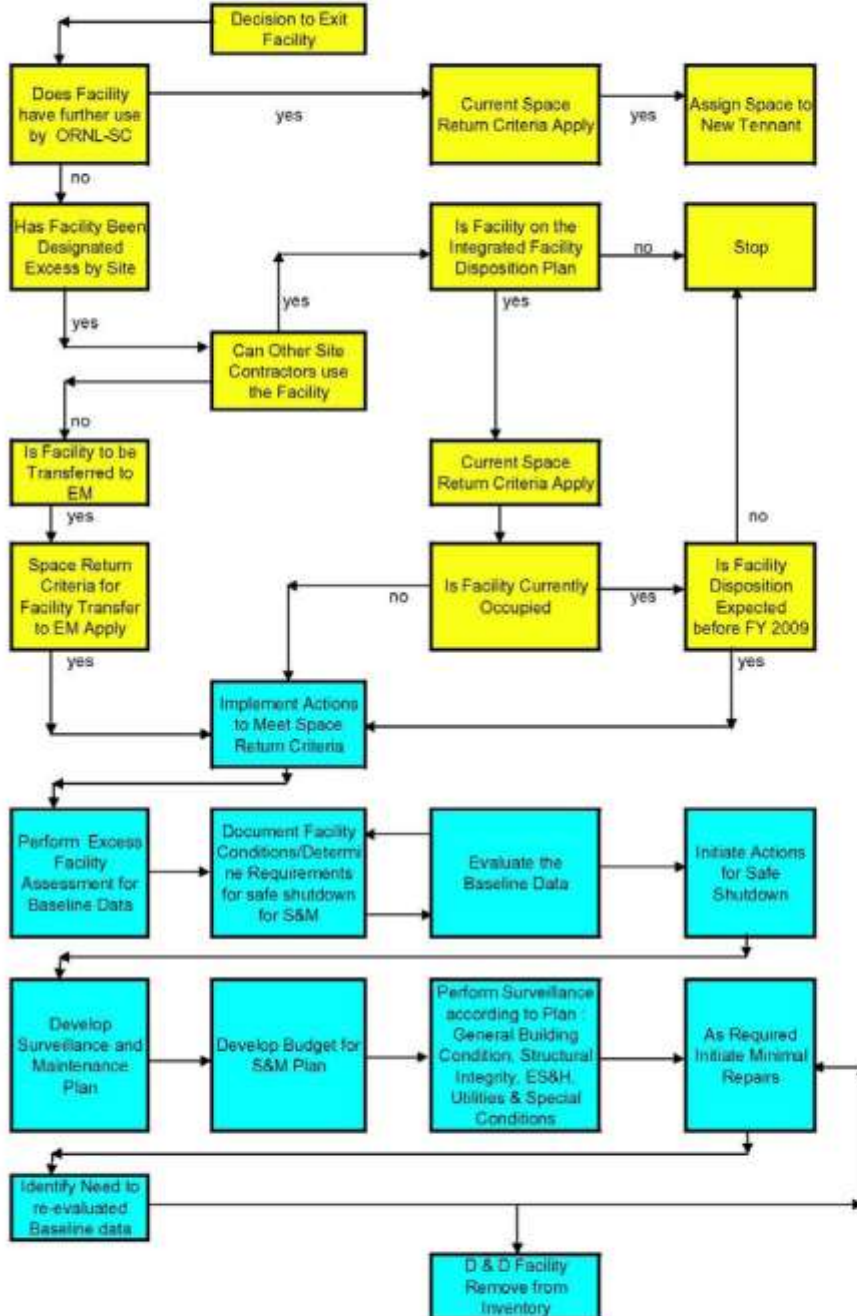
condition requiring postings to keep out unauthorized personnel and has documented the hazards for personnel required to enter the facility. It has also identified several facilities that required minor maintenance such as door or window repair to keep rain out and prevent mold issue or to prevent wildlife intrusion into the facility.

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### Attachment 1

Flow Chart for S/M Framework





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**Attachment 2 (Continued)**

| <b>Utility Status</b> | <b>Active</b> | <b>Inactive</b> | <b>Remarks/Required Actions (are the utilities air-gapped?)</b> |
|-----------------------|---------------|-----------------|---|
| Plant air             |               |                 |   |
| Broadband             |               |                 |   |
| Cooling tower water   |               |                 |   |
| Process water         |               |                 |   |
| Electrical            |               |                 |   |
| Fire alarm            |               |                 |   |
| Telephone             |               |                 |   |
| Natural gas           |               |                 |   |
| Alarm systems         |               |                 |   |
| Potable water         |               |                 |   |
| Chilled water         |               |                 |   |
| Sanitary sewer        |               |                 |   |
| Standby power         |               |                 |   |
| Steam                 |               |                 |   |
| Fire protection water |               |                 |   |
| Ventilation systems   |               |                 |   |
| Ethernet system       |               |                 |   |
| PA system             |               |                 |   |
| Hot drains            |               |                 |   |
| Process drain         |               |                 |   |
| Bottled Gases         |               |                 |   |

| <b>General Facility Condition</b> | <b>Good</b> | <b>Fair</b> | <b>Poor</b> | <b>Urgency</b> | <b>Remarks/Required Actions</b> |
|-----------------------------------|-------------|-------------|-------------|----------------|---------------------------------|
| Access controls                   |             |             |             |                |                                 |
| Ceilings                          |             |             |             |                |                                 |
| Confined spaces                   |             |             |             |                |                                 |
| Doors                             |             |             |             |                |                                 |
| Drains plugged                    |             |             |             |                |                                 |
| Ductwork                          |             |             |             |                |                                 |
| Floors                            |             |             |             |                |                                 |
| Grounds                           |             |             |             |                |                                 |
| Hoods/hot cells/<br>glove boxes   |             |             |             |                |                                 |
| Lighting                          |             |             |             |                |                                 |
| Storm drains/streams              |             |             |             |                |                                 |
| Walls                             |             |             |             |                |                                 |
| Windows                           |             |             |             |                |                                 |

| <b>Structural Condition</b>   | <b>Good</b> | <b>Fair</b> | <b>Poor</b> | <b>Urgency</b> | <b>Remarks/Required Actions</b> |
|---|-------------|-------------|-------------|----------------|---------------------------------|
| Roof (including<br>undersurface)  |             |             |             |                |                                 |
| Building structural<br>integrity  |             |             |             |                |                                 |
| Walk surfaces and<br>elevated interior and<br>exterior access areas<br>(including<br>undersurfaces) |             |             |             |                |                                 |



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**Attachment 3**