

Lawrence Berkeley Nation Laboratory

Assuring Understanding and Compliance with the LBNL Work Alone Policy

Facilities Division Self- Assessment



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Executive Summary

The Facilities Division enables world class science through the maintenance and construction of the laboratory infrastructure, logistics support, and energy management in a manner that maintains the highest level of integrity by ensuring the safety of its workers, listening to the voice of the customer, and delivering exceptional services through teamwork and efficient operations. The Facilities Division uses a tailored risk-based approach to assess its safety program effectiveness.

The Lawrence Berkeley National Laboratory Work Alone policy took effect in April 2012 and was communicated to LBNL workers through various means. The goal of this Self-Assessment is to verify that employees understand and comply with the new policy.

The Facilities Division assembled a team of 7 individuals to interview Divisional Craft Workers, Supervisors, and Work Leads. A total of 51 individuals were interviewed through either scheduled or random field interviews. The interviews were held between April and June 2013.

Results of the interviews indicate a general lack of policy awareness or understanding by the Facilities Division employees. The majority of the interviewed employees answered the survey in a manner that demonstrated they did not have enough policy information or a clear enough comprehension of the term “mitigated hazards” to correctly answer the survey.

Employees were asked to describe some work activity that should not be performed alone, and were (with few exceptions) very knowledgeable about activity hazards and controls. It appears that while their knowledge of the policy is weak, there are strong work processes in place to protect the employees.

Some issues need further clarification because it is unclear that employees understand what working alone means. For example: Does working alone mean that you are the only worker in the cafeteria during the day when many people are about or do you consider yourself alone because you were the only craft person in the building?

The results of the survey do not provide conclusive information on actual field work. Supervisors, Work Leads, and Employees must have task specific conversations during the work planning, and work assignment process. Work planning partnered with Supervisor/Work Lead safety inspections will ensure policy compliance.

The Self-Assessment unexpectedly revealed that although the Job Hazard Analysis work groups were amended to include the Work Alone Policy information, that information did not transfer as intended to 44% of the individual JHAs.

There were two findings associated with this review. There were 5 observations and 10 corrective actions (see page 8).

Introduction

The goal of this Self-Assessment is to verify that employees understand and comply with the new policy. This review examined all five ISM core values as they pertain to the Lawrence Berkeley National Laboratory Work Alone Policy.

1. **Define the Work**-Employees were interviewed specifically using the working alone guidelines listed in the EH&S Health and Safety Manual to examine their individual work processes.
2. **Analyze the Hazards**-Employees were asked to define the tasks they perform that should be considered under the Work Alone Policy.
3. **Develop Controls**-This Self-Assessment gives us the opportunity to ensure compliance with the policy.
4. **Perform the Work**-This Self-Assessment examined current work processes as they relate to the work alone policy.
5. **Obtain Feedback**-Feedback was gained during the interviews and conversations with employees, supervisors and work leads. Substantial samplings of employees were interviewed through the Self-Assessment process.

Definitions

- **Working Alone**-Occurs when a worker performs work out of sight and earshot of anyone who can help in the event of an emergency
- **Working Accompanied**-Occurs when a second person is within sight or earshot or when an available second person who agrees to and understands the monitoring responsibilities (if the second person has to leave the area, the activity is considered to be Working Alone and must terminate if prohibited in the work authorization).
- **Mitigated Hazard**-Is the hazard that remains after taking into account the controls used to prevent the hazard from causing an accident.

Focus Area Description

The Self-Assessment team interviewed 51 employees including supervisors, and work leads to determine:

- The level of employee notification concerning the Work Alone Policy
- Employee understanding of the Work Alone Policy
- Compliance with the Work Alone Policy
- What, if any, work processes are not correctly defined as work alone processes
- What, if any, barriers are preventing adherence to the Work Alone Policy

Current Requirements

The Lawrence Berkeley National Laboratory Work Alone Policy is outlined in the Requirements and Policies Manual (RPM). The policy is summarized as follows:

Berkeley Lab employees are not allowed to work alone when the mitigated hazards associated with their work could incapacitate them such that they could not "self-rescue" or activate emergency services. This policy supports the Laboratory's Environment, Safety & Health (ES&H) Core Policy to perform all work safely and with full regard to the well-being of workers, contractors, affiliates, the public, and the environment.

The Work Alone Policy restricts work at Lawrence Berkeley National Laboratory (Berkeley Lab) in cases where a plausible failure of hazard controls could result in an injury or exposure that would render an individual unable to take appropriate emergency actions. Examples include:

- An individual may be splashed with a corrosive chemical that blinds him or her (volume used and concentration, etc., should be considered)
- An individual may be exposed to a chemical or trauma that impairs consciousness.
- An individual may be set on fire
- An individual may receive severe electrical shock or arc-flash injury
- An individual may fall from an elevation above 6 feet
- An individual may be struck or trapped by a heavy object or suspended load
- An individual may become trapped in or by moving machinery
- An individual may be injured by a powered cutting tool

Assessment Results

Lawrence Berkeley National Laboratory Work Alone Policy

The Lawrence Berkeley National Laboratory Work Alone Policy became effective on 11/28/2011 and was published on 10/29/2012. Divisions were required to update their ISM Plans by February 29, 2012 and to include the contents of the policy into the Job Hazard Analysis (JHA) work groups by September 30, 2012.

On 6/6/2011 an email was sent to FA-group –Leads (Appendix C) informing the supervisors of the impending policy. Supervisors were asked to identify work under their supervision that incorporates these hazards. The responding supervisors indicated either uncertainty with the policy or that the tasks performed by their direct reports did not have work that would be impacted by the policy. This information was additionally discussed at the at the December 2011 DZAC¹ meeting. Division Work Alone Policy details had not been established at that December 2011 date and the information relayed was very non- specific.

¹ Division Zero Accident Committee (DZAC). This committee consists of representatives from all Division workgroups who are responsible for communicating safety information back to their groups.

The Policy was broadly discussed at the at the December 2011 DZAC meeting. On 1/12/2012 an email was sent to the Department Heads (Appendix D) outlining the new policy.

The Facilities Division ISM Plan was updated in April 2012 with the updates (including the Work Alone Policy) again mentioned at the monthly DZAC meeting. In August 2012 the Policy was added to all of the Facilities Division JHA work groups with email requesting that employees renew their JHAs to capture the Work Alone Policy on their individual JHAs.

Surveys Results

The Work Alone Policy Self-Assessment team interviewed a total of craft 51 employees, supervisors, and work leads. The results of the survey indicate a general lack of knowledge and understanding of the Lawrence Berkeley National Laboratory Work Alone Policy. Survey answers and the follow up discussions with the Self-Assessment team members demonstrate that employees are confused by the policy guidelines and the term “mitigated hazards”. For example:

Each of the truck drivers replied that yes they could be blinded or impaired when working alone with chemicals. In actuality the truck drivers do not directly handle or work with chemicals because the chemicals are delivered in appropriate protective packing. The truck drivers are generally delivering to buildings that are occupied during day time hours. There may not be another truck driver involved in the delivery; however there are area occupants around and about their delivery areas.

Some of the electricians answered that yes they could be electrocuted when working alone. Other electricians answered that no, they could not be electrocuted because of LOTO, PPE and the two man rule (this would be the expected correct answer as the hazards were controlled). The difference in their answers can be attributed to the difference in understanding of the Work Alone Policy.

Several employees believed the policy was intended for shop or laboratory workers and not to their craft. Several employees indicated that, because this information was not processed through a “Level One” email they did not believe it was a formal policy.

Several employees voiced concern about the swing shift PMT who works in the acid waste area. During the Self-Assessment review EH&S Industrial Hygiene was asked to determine if the acid waste processes are safe when performed by a PMT working alone during off hours. EH&S determined that the process is safe and the hazards are controlled.

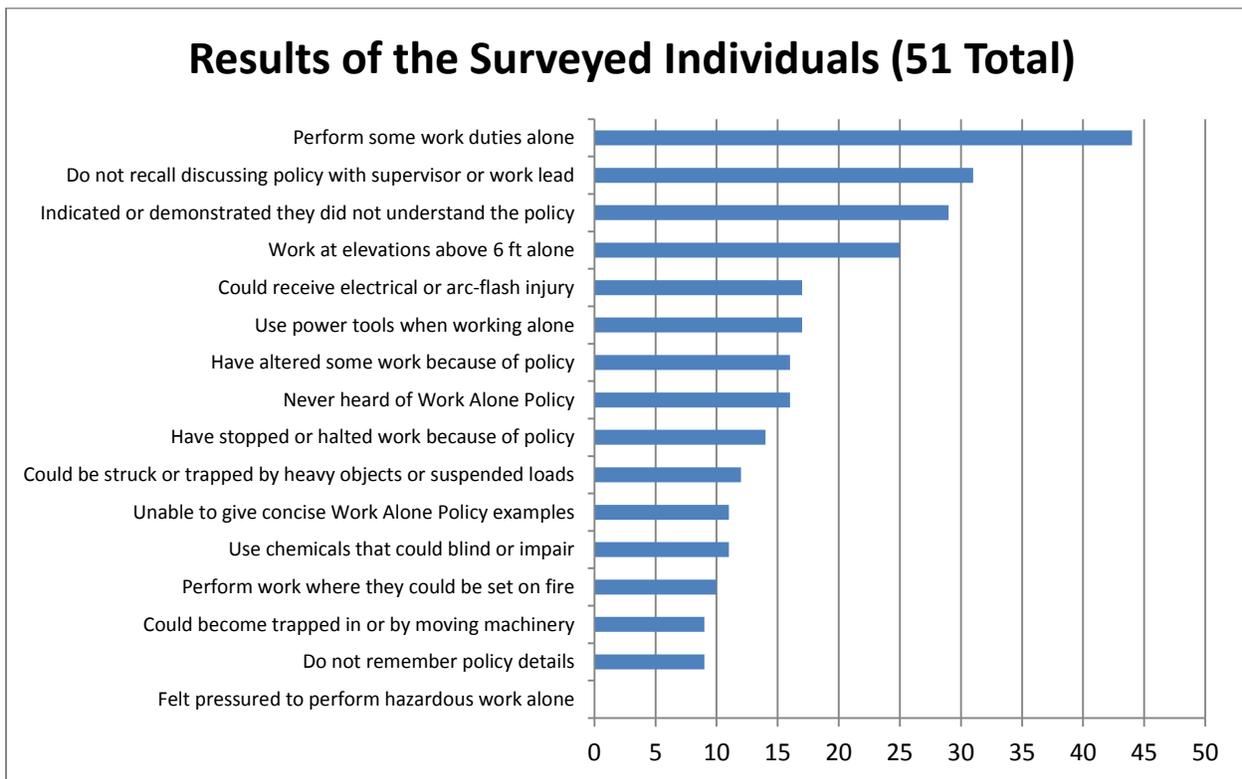
Most employees stated that their normal work process and hazard controls kept them working correctly under the guidelines of the Work Alone Policy. Several groups have employees that always work together thus eliminating the risk of working alone.

The owl shift (22:00-06:00) PMTs stated they primarily work alone on preventative maintenance. Preventative maintenance work is considered low hazards and it is acceptable to perform this work under the policy. Their work process limits their exposure to unmitigated hazards. For example, the owl

shift PMTs do not access building roofs, leaving all PMT related roof work for the day and swing shift. Emergency work is performed by all available owl shift employees.

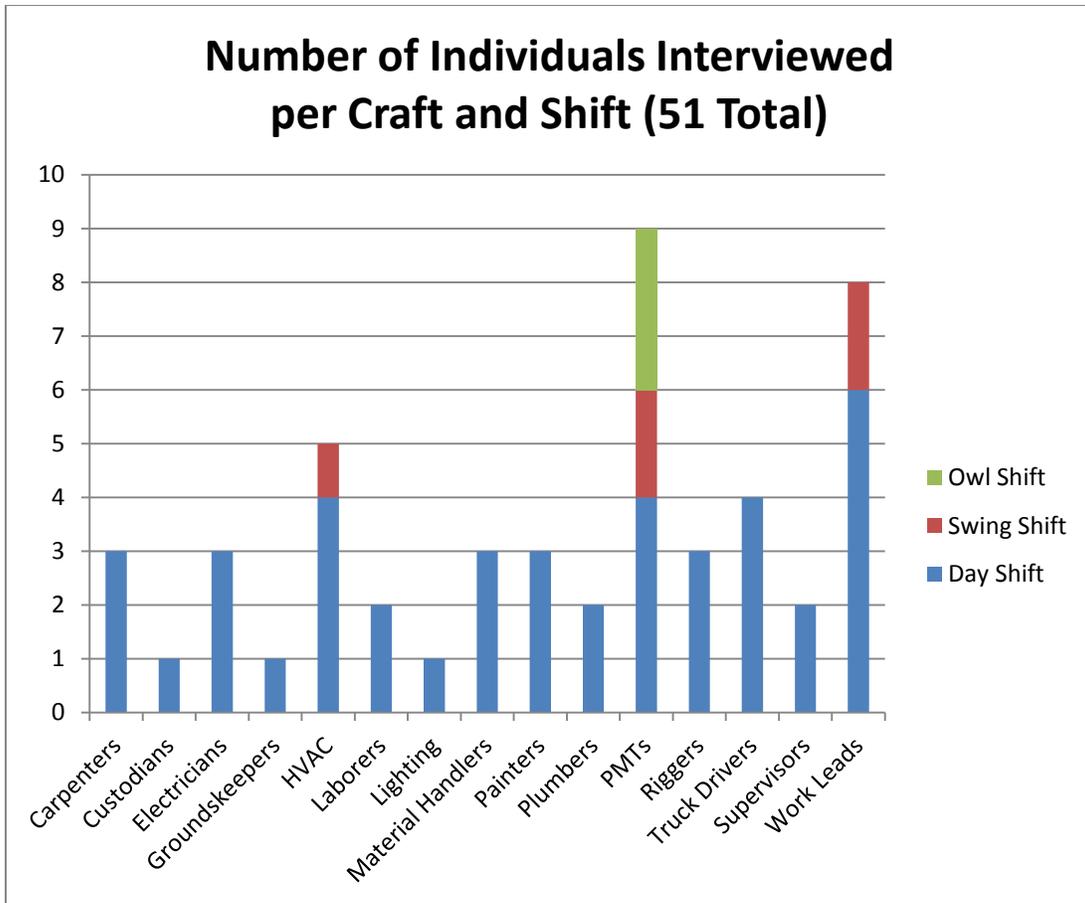
Questions were raised by some employees about the budgetary impact this policy could inflict on the Facilities Division. One employee stated a concern that this policy could dramatically impact estimating costs.

Work alone situations that remain unclear are ladder and powered cutting tool use. There should be informed discussions between the Supervisors, Work Leads, and Employees to work out the details on those work processes to ensure compliance and reduce any possible budgetary impact.



The survey is unable to definitively tell us if there are any noncompliance situations occurring in the field because most of those answering the survey do not understand the policy. The manner in which questions were answered clearly demonstrated the employees further need to clearly understand a policy that impacts decisions the employees make in the field.

It is expected that very few activities will fall under this policy that are not already covered by existing hazard controls. Most employees were able to detail existing work hazards and the controls.



JHA

A total of 37 individuals (73%) indicated they had not seen the work alone policy on their JHA. This was unexpected because the Division Safety Coordinator had added the Work Alone Policy to each work group in August 2012. An email was sent to each employee and their Supervisors with instructions to retake their JHA so that the new information would attach to their individual JHA. Even if they had not followed through on this process there was an expectation that after a year the information would have attached during the yearly update. This was not the case.

A check of the JHA's of each person who was surveyed revealed that 22 of the 51 surveyed employees did not have the Work Alone Policy on their JHA. EH&S explained that the JHA system has a specifically designed limitation. This limitation prevents new work group information from attaching to the JHAs unless Supervisors use the update button. Supervisors alone have the ability to upload new information by hitting the update button when the JHA is in the draft form. The downside of using this function is that all previously deleted/removed information will also reattach to the JHA. This would take some time and attention as Supervisors would need to be prepared to once again edit previously edited JHAs. Facilities can (in the case of the Work Alone Policy) with the assistance of EH&S, develop a stand-alone work group so that the information would then attach to the individual JHAs.

A question arises concerning all of the many work group changes that have been made over the years, adding corrective actions from Occurrence reports or injury reports to the JHAs. Has the information in those cases been uploaded into the individual JHA or do the changes only exist in the group JHAs unseen by the individual employee?

Of the 28 employees who do have the Work Alone Policy on their JHAs, 21 (75%) were unaware the policy existed on their JHA. This raises a concern that the yearly JHA review performed between Supervisor and Employee is either not occurring in depth or the revised JHA is not being used for the review. In the past Facilities Division employees have demonstrated extensive knowledge of the contents of their JHAs.

Custodial Challenges

The Self-Assessment interviews revealed that the Facilities Division deaf custodian has been reassigned to the swing shift floor crew. This custodian works with a custodial floor crew lead as his partner. Previously when the custodian was assigned the day shift he worked in a building with emergency strobe lights and a general awareness by the building population that he is deaf. During past emergency evacuations the building manager had located the deaf custodian and communicated to him the need to evacuate the building.

The Custodian carries a phone and can be notified by text of building evacuations by his supervisor or work lead. Because the Supervisor works in another location the Supervisor is dependent on someone (perhaps the custodian assigned to the building) to inform him of building evacuations. On swing shift, the Custodian works the majority of his time with his Work Lead. However there are times (averaging about half hour daily) when the deaf Custodian may be working alone in an unfamiliar building, unable to hear any alarms. These factors may limit his ability to take quick action and escape during an emergency.

Findings

There were two findings identified in this assessment.

1. The majority of employees interviewed did not fully understand the Work Alone Policy including the definition of mitigated hazards.
2. A deaf custodian is placed in a situation where he might not be informed about building emergency alarms during limited times of his shift.

Observations

The following are the observations noted during the interviews:

1. Updates to the JHA system via the work groups are not necessarily captured by the individual employee JHA.
2. Some employees do not believe the Work Alone Policy is intended to include craft workers.

3. Because the Work Alone Policy delivery method did not include a formal level 1 email some employees do not believe it is a serious policy.
4. A total 21 employees were unaware the work alone policy was on their updated JHA.
5. It remains unclear if there are situations when work is performed outside the policy.

Noteworthy

The following is a noteworthy finding indicating Facilities Division excellence.

Each of the 51 employees interviewed stated they have never been pressured to perform hazardous work alone.

Recommended Corrective Actions

The following is a list of recommended corrective actions (CATS 9462-1-10).

1. With the assistance of EH&S, the Facilities Division will develop a Work Alone Policy JHA work group that would add the policy requirements to the individual JHA.
2. Facilities Safety will review previous JHA corrective actions (in CATS) to determine which work group changes have been included/not included in the individual JHAs.
3. Facilities Safety will work with the Work Leads to insure all of the previous JHA corrective actions are uploaded into the individual JHAs.
4. Facilities Safety will develop a Work Alone Policy Training Presentation and present to the Facilities Division Supervisors and Work Leads.
 - Include craft work specific examples
 - Include a clear definition of mitigated hazards
 - Include Subject Matter guidance to clarify specific task questions
5. Facilities Division Supervisors/Work Leads will use the Work Alone Presentation to train all Facilities Division employees.
6. Facilities Safety will send a level-one Work Alone Policy email to Facilities Division employees.
7. Develop Supervisor/Work Lead JHA process training that will include use of the update button, and the responsibilities of the yearly discussion/sign off.
8. Present the JHA process training to all Facilities Supervisors and Work Leads.
9. Add Work Alone Policy criteria to inspection checklists.
10. The Custodial Supervisor will schedule work so that the deaf custodian is never placed in a work alone situation.

Assessment Scope and Supporting Documentation

Documents reviewed included:

- EH&S Health and Safety Manual (PUB 3000)
- 51 completed surveys

Appendix A- Lines of Inquiry

Lines of inquiry for this Self-Assessment Include:

- Are Facilities Division employees informed about the Lawrence Berkeley National Laboratory Work Alone Policy?
- Do the Facilities Division Employees understand the Work Alone Policy?
- Are the Facilities Division Employees performing work within the requirements of the Work Alone Policy?
- Have the Supervisors or Work Leads discussed the policy with the employees?
- Have the employees halted or stopped work because of the policy?
- Have the employees ever been pressured to work outside the policy requirements?

Appendix B –Survey Chart A

Craft	Remembers Hearing About Work Alone Policy	Saw the policy on their JHA	Performs work with a powered cutting tool when working alone	Works with Chemicals that could blind or impair when working alone	Could receive electrical shock or flash injury when working alone	Performs work where they could be struck or trapped by heavy object or suspended load when working alone	Performs work at elevations above 6 feet when working alone	Performs work where they could be set on fire when working alone	Works where they could be trapped in or by moving machinery when working alone	Has altered some work because of policy	Performs some work alone	Shift	Understood the policy	Has discussed policy with supervisor/work lead	Gave Example of work that should not be performed alone	Has felt pressured to perform hazardous work alone	Has stopped work to comply with policy	Current on Individuals JHA
Carpenter	No	No	Yes	Yes	Yes	No	No	No	No	No	Yes	Day	No	No	Yes	No	N/A	No
Carpenter	Yes	No	Yes	No	No	Yes	No	No	Yes	No	Yes	Day	No	No	No	No	No	Yes
Carpenter	Yes	No	Yes	No	No	Yes	Yes	No	Yes	No	Yes	Day	Yes	Yes	Yes	No	Yes	No
Custodian	Yes	Yes	No	No	Yes	No	No	No	No	Yes	Yes	Day	No	Yes	Yes	No	Yes	No
Electrician	No	No	Yes	No	Yes	No	Yes	Yes	No	No	Yes	Day	No	No	Yes	No	N/A	Yes
Electrician	No	No	Yes	No	No	No	Yes	No	No	No	Yes	Day	No	No	Yes	No	N/A	Yes
Electrician	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Day	Yes	No	Yes	No	No	Yes
Grounds-keeper	Doesn't remember details	No	No	No	No	No	No	No	No	Yes	Yes	Day	Yes	Yes	Yes	No	No	No
HVAC	Yes	Yes-new hire	No	No	Yes	No	Yes-	No	No	Yes	Yes	Swing	No	Yes	Yes	No	Yes	Yes
HVAC	No	No	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Day	No	No	Yes	No	NA	Yes
HVAC	No	No	No	No	Yes	No	No	No	No	No	Yes	Day	No	No	Yes	No	NA	No
HVAC	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Day	No	No	Limited answer	No	No	Yes
HVAC	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Day	Yes	Yes	Yes			Yes
Laborer	No	No	No	No	No	No	No	No	No	Yes	Yes	Day	No	Yes	Yes	No	NA	Expired
Laborer	Doesn't remember details	No	No	No	No	No	No	No	No	Yes	Yes	Day	Yes	No	Yes	No	No	Yes
Lighting Tech	Yes	Yes	No	No	Yes	Yes	Yes	No	No	No	Yes	Day	Yes	No	Yes	No	No	No
Material Handler	Yes-Doesn't remember details	Yes	N/A	No	No	No	No	No	No	No	No	Day	Yes	Yes	Yes	No	No	No
Material Handler	Yes	No	N/A	Yes	No	Yes	Yes	No	No	No	Yes	Day	No	Yes	Yes	No	No	No
Material Handler	No	No	N/A	No	No	No	No	No	No	No	No	Day	No	No	No	No	No	No
Painter	Yes	Yes	No	No	No	No	No	No	No	No	Yes	Day	Yes	Yes	Yes	No	No	No
Painter	No	No	No	No	No	No	Yes	No	No	No	Yes	Day	No	No	Yes	No	N/A	No

Painter	Yes	No	No	No	No	No	Yes	No	No	No	Yes	Day	No	No	Yes	No	No	Yes
Plumber	No	No	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Day	No	No	Yes	No	N/A	No
Plumber	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Day	Yes	Yes	Yes	No	No	Yes
PMT	Yes	No	No	Yes	No	No	Yes	No	No	No	Yes	Day	Yes	Yes	Limited answer	No	Yes	No
PMT	Yes	No	No	Yes	Yes	No	Yes	No	No	No	Yes	Day	Yes	Yes	Limited answer	No	Yes	Yes
PMT	No	No	Yes	No	Yes	Day	No	No		No	Yes	Yes						
PMT	Yes-Doesn't remember details	No	Yes	No	No	No	Yes	No	No	No	Yes	Day	No	Yes	Yes	No	Yes	Yes
PMT	No	No	No	No	No	Yes	Yes	Yes	Yes		Yes	Swing	No	No	Yes	No	N/A	No
PMT	No	No	No	Yes	No	No	Yes	No	No	No	Yes	Swing	No	No	Yes	No	No	No
PMT	Yes-Doesn't remember details	Yes	No	Yes	Yes	Owl	No	Yes	Yes	No	No	Yes						
PMT	Yes	Yes	No	No	No	No	Yes	No	No	No	Yes	Owl	No	Yes	Yes	No	No	Yes
PMT	Yes	No	No	No	No	No	Yes	No	No	No	Yes	Owl	No	No	Limited answer	No	Yes	Yes
Rigger	Yes-Doesn't remember details	No	Day	Yes	No	No	No	No	Yes									
Rigger	Yes	No	Day	Yes	No	Yes	No	No	Yes									
Rigger	Yes	No	Day	Yes	Yes	Yes	No	No	Yes									
Supervisor	No	No	Yes	No	Yes	No	Yes	No	No	No	Yes	Day	No	No	Yes	No	No	Yes
Supervisor	Yes		No	Yes	Yes	Day	Yes	Yes	Yes	No	Yes	No						
Truck Driver	Yes-Doesn't remember details	No	Yes	Yes	Day	Yes	Yes	Yes	No	Yes	Yes							
Truck Driver	No	No	No	Yes	No	Yes	No	Yes	Yes	No	Yes	Day	No	No	No	No	NA	No
Truck Driver	Yes	No	No	Yes	No	Yes	No	No	No	Yes	Yes	Day	Yes	Yes	Yes	No	Yes	Yes
Truck Driver	Yes	Yes	No	Yes	No	Yes	No	No	No	Yes	Yes	Day	Yes	No	Yes	No	Yes	Yes
Work Lead	No	No	No	No	No	No	No	No	No	No	Yes	Swing	No	No	Limited answer	No		No
Work Lead	Yes	Yes	Yes	No	Yes	No	Yes	No	No	Yes	Yes	Day	No	No	Yes	No	No	Yes
Work Lead	Yes-Doesn't remember details	No	Yes	Yes	Day	Yes	No	Yes	No	No	No							
Work Lead	Yes	No	No	No	No	No	Yes	No	No	Yes	Yes	Day	No	No	Yes	No	Yes	No
Work Lead	Yes-not formally	No	No	No	Yes	No	Yes	No	No	No	Yes	Swing	No	No	Limited answer	No	Yes	No

Work Lead	No	No	Yes	No	Yes	No	Yes	Yes	No			Day	No	No	Limited answer	No	No	No
Work Lead	Yes	Yes	Yes	No	No	Yes	No	No	No	Yes	Yes	Day	Yes	Yes	Yes	No	No	Yes
Work Lead	Yes	Yes	Yes	No	No	No	No	No	No	No	No	Day	Yes	No	Yes	No	No	Yes
WPC	Yes	Yes	No	No	No	No	No	No	No	Yes	Yes	Day	Yes	No	Yes	No	No	Yes
Total Interviewed-52	<p>16 individuals stated they had never heard of the work alone policy -9 remember hearing about- don't remember details of</p> <p>36 individuals state they had not seen the work alone policy on their JHA</p> <p>17 stated they work with a powered cutting tool when alone</p> <p>11 stated they work with chemicals that could blind or impair when working alone</p> <p>21 stated they could receive electrical shock or arc-flash injury when working alone</p> <p>12 stated they could be struck or trapped by heavy objects or suspended load when working alone</p> <p>25 stated they perform work at elevations above 6 feet when working alone</p> <p>10 Stated they perform work where they could be set on fire when working alone</p> <p>9 stated they could become trapped in or by moving machinery when working alone</p> <p>16 stated they have altered some work because of the policy</p> <p>44 stated they perform some work alone</p> <p>43 day- 5 swing- 3 owl employees interviewed</p> <p>29 interviewed indicated or demonstrated they did not understand the policy</p> <p>31 indicated they do not recall discussing the policy with their supervisor/work lead</p> <p>11 were unable to give examples of work that should not be performed alone or gave limiting/unclear</p> <p>0 felt pressured to perform hazardous work alone</p> <p>14 stated they have stopped or halted work because of policy</p> <p>28 currently have on their JHA</p>																	

Appendix C-Email to FAC Leads

On 6/6/2011 12:23 PM, Janice Sexson wrote:

"A 2009 Institutional Self -Assessment finding required the development of a new Work Alone Policy. This policy is under development and will soon be submitted for approval. Under this policy, workers would not be allowed to work alone when the mitigated hazards associated with their work could incapacitate them such that they cannot self-rescue or activate emergency services. Please identify work under your supervision that incorporates these hazards. Submit this information to me by the last day of June.

Working alone is defined as work where nobody is within sight or earshot of someone who can assist in the event of an emergency."

Thank
Janice

Appendix D -Policy Email to Department Heads

To Facilities

It is time to implement the new Pub 3000 Work Alone Policy. I have attached the Pub 3000 Work Alone Policy for your review.

In order to ensure that this policy is included in the Work Planning and Control processes please have your supervisors/work lead complete the following.

- Develop a list of tasks performed by your direct reports when the mitigated hazards associated with their work could incapacitate them to such a degree that they cannot "self-rescue" themselves or activate emergency services. Work where a plausible failure of hazard controls could result in an injury or exposure that may render an individual unable to take appropriate emergency actions should never be performed alone. Examples include:
 - Individual may be splashed with a corrosive chemical that blinds him or her (volume used and concentration, etc., should be considered)
 - Individual may be exposed to a chemical or trauma that impairs consciousness

- Individual may be set on fire
- Individual may receive severe electrical shock or arc-flash injury
- Individual may fall from an elevation above six feet
- Individual may be struck or trapped by a heavy object of suspended load
- Individual may become trapped in or by moving machinery
- Individual may be injured by a powered cutting tool