



U.S. ARMY CHEMICAL MATERIALS AGENCY

LIST OF ACRONYMS

ACAMS

automatic continuous air monitoring system

AEL

airborne exposure limit

CDC

Centers for Disease Control and Prevention

DA PAM

Department of the Army pamphlet

DAAMS

depot area air monitoring system

EPA

Environmental Protection Agency

GPL

general population limit

NRT

near real time

OSHA

Occupational Safety and Health Administration

PPE

personal protective equipment

STEL

short-term exposure limit

TWA

time weighted average

WPL

worker population limit

Questions and answers on AELs

Why have the AEL values been lowered?

There is no additional risk to workers as a result of these changes. In fact, the revised levels allow additional safeguards for identifying very low-level releases so that they can be corrected before they reach levels associated with any health effects. Occupational and general population health standards for all chemicals are periodically reevaluated by the agency responsible for them (e.g., OSHA, EPA and CDC). Evaluations may be done because new data becomes available or new risk assessment methods are developed. The Army initiated a reevaluation of the chemical agent standards several years ago in order to ensure that the values were developed in a manner consistent with other occupational and general public health standards. The Army's evaluation concluded that operations as conducted are safe, and there are no impacts to the health of workers. Part of the evaluation of the current values included a review of how the levels are currently applied to ensure that the values are developed in a manner consistent with other occupational and general public health standards, and applied consistently. The evaluation found that the Army has historically used values as alarm criteria that are really intended to be protective for long-term exposures. The evaluation also found that the Army monitored to levels that are actually a fraction of the standard, to increase safety. After reviewing the methods used and the use of the current AEL values, the Army Surgeon General made recommendations for modifications and provided these to the CDC, the organization responsible for oversight of the demilitarization process, to ensure that the health of workers and the general population is protected.

How will these revised levels be monitored, and how is that different from how current levels are monitored?

We will continue to use NRT monitors to identify alarm-level agent concentrations. The alarm level under the revised AELs is set at the same concentration as the current WPL (or TWA), but will now be called the STEL. With the exception of the Newport Chemical Agent Disposal Facility, facilities will monitor the revised WPL historically with DAAMS tubes. Samples will be analyzed with variable frequencies up to once every month, depending on the monitoring location. Newport plans to use the NRT monitors as early indicators at levels near the WPL and collect DAAMS for reporting. Currently there is no monitoring at levels as low as the revised WPL levels. Under the current WPL, NRT monitors are used in work areas, with DAAMS as confirmation for NRT monitor readings.

We will continue to use DAAMS for GPL monitoring around the perimeter of our facilities.

I worked in a storage area for several years. Now that monitoring levels are lower does that mean I have been exposed or that I am at risk?

No. You have not been exposed at levels of health concern. The level at which we currently alarm (the current WPL or TWA) is the same level at which we will alarm with the revised AELs. The new terminology for this level is "STEL." When the alarm sounds, the same protective procedures and medical monitoring will be performed. The revised, lower WPL serves as an added layer of protection, and is a level at which corrective action can be taken before levels reach the STEL.

For more information, contact the CMA Public Affairs Office at (410) 436-3629 (800) 488-0648

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Questions and answers on AELs (continued)

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If we did not monitor to low enough levels in the past, did I carry contamination home?

No. The levels that we monitored in the past were low enough to ensure that no one was exposed to levels of health concern—including workers or their families and friends. The CDC, in its oversight role, has stated that we are currently operating safely and that workers' health hasn't been impacted. The revised WPL represents a level that workers should avoid as a day-in, day-out workplace exposure over a working lifetime. It is not a level that would impact a worker's health, or his family's health, if it occurred occasionally. The alarm level (now called the STEL) has not changed for NRT monitoring. This value remains the level at which an alarm will ring, protective measures taken, and medical monitoring performed.

What is the difference between a 'potentially exposed' person and one who is determined to be 'exposed'?

Due to the nature of their work, personnel routinely working in limited access areas involving agent operations are considered at risk for exposure, and therefore could potentially be exposed. Because of this, they are required to be in a medical surveillance program. Individuals who work with nerve agents will have periodic medical examinations, which will include determining red blood cell cholinesterase levels. Red blood cell cholinesterase levels are compared to baseline levels for each individual. Cholinesterase depression is considered a sensitive marker for exposures, and other industries use it to identify individuals who have been exposed to pesticides similar to nerve agent. Routine monitoring of chemical demilitarization workers has shown that cholinesterase levels are not affected with the current monitoring, policies, and procedures. Individuals who work with mustard agent will have periodic physical examinations and laboratory testing designed to screen for mustard agent exposure effects.

Individuals in an area where NRT monitors indicate potential exposure above the alarm level will be referred for an exposure evaluation. The NRT alarm concentration remains the same and is now called the STEL. If alarms indicate a potential exposure at the STEL, the physician will evaluate the individual involved. In the case of nerve agent, the physician will examine the patient for early signs of nerve agent exposure, such as miosis and other typical findings. A red blood cell cholinesterase level will also be drawn as an indicator of exposure, and urine can be obtained to determine if nerve agent was absorbed and excreted. Putting this information together with the monitoring results and any confirmatory monitoring, the physician can determine if the individual was actually exposed. Similarly, for individuals in an area where NRT monitoring indicates a potential exposure above the STEL, individuals will be evaluated for skin redness or blistering, and urine or blister fluid will be analyzed for confirmatory findings of mustard exposure.

Do we have to track every individual at a site or facility?

No. The primary concern is to track individuals while they are in limited-access areas with the potential to exceed the STEL, requiring medical evaluation. We will identify and evaluate any individual exposed at or above the STEL. In transient areas such as lunchrooms, public access areas or general administrative areas, we do not expect to find agent. We may conduct periodic historical monitoring to continue to document that these locations are safe, even from very low levels of agent. On rare occasions, we may detect low levels of agent with a historical monitor where it is not expected. If that occurs, we will take the appropriate action to identify the reason and circumstances, and take corrective action to protect your health. It is not necessary to identify everyone who may have passed through the location, particularly if his or her time in that area was brief.

Questions and answers on AELs (continued)

What happens if WPL monitoring in these general/transient areas shows an exceedance of the WPL concentration?

This would be considered a “sentinel event” or signal to take corrective action and determine the cause before higher levels are reached. The revised WPL is a level that will not produce health effects even if someone were exposed to it for a long time—eight hours per day for a working lifetime. It includes safety factors making it lower than a threshold for effects, particularly if the exposure doesn’t last very long. When an exceedance of the concentration occurs, the information could be posted as a general notification announcement. No medical action is required for such an occurrence, because this value is lower than the value known to produce any health effects.

What is the health significance from exposure to a concentration above the revised WPL?

The revised WPL represents a time-weighted concentration that a worker can be exposed to repeatedly for eight hours every day for up to 30 years without any measurable health effect. As applied by CMA, there is no health significance from a single or short-term exceedance of this concentration. Historical monitoring will provide information about very low-level exposures, so corrective action can be taken to ensure that no one is continuously exposed at the revised WPL. If an operation continually exposes workers to agent levels in excess of the WPL, we will evaluate the exposures and implement controls to protect your health. These controls may include increased ventilation or require you to wear personal protective equipment. Each operation must be evaluated separately to determine how best to protect your health.

Will alarm levels be changed to reflect the revised AELs?

Alarm levels will not change under the revised AELs because alarms will now be set at the STEL, which is the same level as the current WPL (or

TWA). In the past, the Army used the WPL as a “ceiling” level, rather than as it is used in industry, which is the time-weighted average below which workers may safely operate over a 30-year career without health effects. Under the revised AELs, momentary fluctuations above the WPL but below the STEL will not result in alarms, since it is the average over a workday that is of concern, not a momentary fluctuation.

The Department of the Army pamphlets regulating chemical agent exposure describe exceeding the WPL as a potential exposure. Will this be true for the revised WPL?

The numeric concentration used for the current WPL will be called the STEL under the revised AELs. The STEL will be used as the concentration for alarms and to indicate the need for acute exposure evaluations. The revised WPL is too low to be associated with any measurable health effect that could identify anyone as exposed.

If we send casualties off post using the STEL as a clearance level, what is the risk to transporters, medical personnel, etc?

There is no risk of health concern if clearance monitoring is below the STEL. Transporters and medical responders are not routinely exposed to agent. Therefore, infrequent exposure to a level below the STEL will not impact their health. If, in a rare event, the transporters or medical personnel exhibit signs or symptoms of agent exposure, they must immediately report to the health clinic for evaluation.

If real-time monitoring cannot be done at the STEL, how long will it be before a ‘potential exposure’ can be identified?

Facilities will use ACAMS and MINICAMS® to monitor at the STEL, so potential exposures will be identified in the 5- to 15-minute cycle of these monitors.

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Will this impact the time it takes to get medical care?

No. There are no additional procedures or constraints that will affect our ability to provide immediate medical attention to exposed workers.

Will site visits need to be terminated?

No. The revised AELs are not expected to affect the rules or procedures for site visits.

How do sites, storage yards, and training facilities handle limited exposure frequencies?

If there is a confirmed STEL exceedance, unprotected workers will evacuate the area, and cannot return to areas where there is an expectation or probability of another exceedance for that day. Potentially exposed workers may still operate in corridors or other areas where agent is not expected. For some operations, PPE may be used to limit the possibility of exposures above the WPL but below the STEL. All sites will meet the frequency standard and will have provisions for assigning workers to clean work areas and assignments.

What is the definition of a 'chemical event'?

The term "chemical event" encompasses:

- all chemical accidents, incidents and political or publicly sensitive occurrences of confirmed agent releases outside of munitions or bulk items into the atmosphere outside of a closed containment system;
- discovery of an actual or suspected chemical agent munition or container;
- confirmed detection of agent above threshold concentrations occurring for any period outside the primary engineering controls;
- actual exposure of personnel to agent above the allowable limits contained in AR 385-61, DA PAM 40-8, and DA PAM 40-173 that is confirmed by clinical evaluation;

- any terrorist or criminal act directed toward a chemical agent storage, laboratory or demilitarization facility or any deliberate release of chemical agent;
- loss of chemical agent; and
- any malfunction or other significant activity at a chemical demilitarization plant that could reasonably be expected to cause concern within the local community or press.

Will this change the way I do my job—will I need new training, etc.?

Yes. There will be a new set of terms and definitions that will be implemented for all sites. Procedures will be modified to reflect the additional monitoring to the revised WPL, and workers will be trained in those new procedures. These will be addressed on a site-specific basis.

Do the revised levels require additional PPE?

At the disposal facilities, there generally will be little or no additional PPE requirements. Depending on the nature of the work, some operations may have situations in which PPE use is increased.

Are existing PPE certifications adequate to provide workers protection?

Yes. In addition to providing supplied air, PPE is for skin protection. The new AELs don't affect the risk of exposure through the skin. Where PPE is used, workers' breathing air is protected by use of respirators or supplied air.

Can laundry workers process PPE cleared under existing procedures, and will they have to wear PPE themselves?

Workers can process used laundry that has been cleared to the STEL. Workers will not have to wear respiratory protection, provided the work area is monitored to the revised WPL. For laundry that has been cleared to revised WPL, no laundry area monitoring is required.

Questions and answers on AELs (continued)

What will be the basis to allow workers to leave airlocks? What, if any, additional monitoring will be needed?

Workers can exit an airlock after it has cleared to the STEL. During emergency situations, if medically necessary, workers can be taken immediately to receive medical treatment without decontamination. No additional monitoring is necessary for egress from the airlocks.

Given the gap between near real-time and the revised WPL monitoring levels, are wastes previously shipped to TSDFs safe?

Yes. For any wastes cleared to the STEL, workers are fully protected from acute exposure. 3X wastes are containerized and isolated at the receiving facility, therefore workers handling the waste in transit or at the storage facility would not be continuously exposed to concentrations equivalent to 3X wastes or the STEL.

How will 3X wastes be handled on site?

Wastes will be handled as required by the existing permits, as specified in the Interim Policy Guidance. If your permit has requirements for 3X wastes, your handling methods will not change. However, you will not be able to open a 3X container without respiratory protection.

What are the criteria for shipping new 3X wastes off site?

Again, wastes will be handled IAW your permits. There are no additional DA safety requirements on the shipment of wastes beyond the generator site and receiving sites meeting all Federal, State, and local regulations. However, AMC and CMA may add constraints based upon political requirements.

How will the gap between the revised WPL and 3X screening levels be addressed?

Although still in negotiation, it is planned at the AMC/CMA levels to institute a 4X criteria which is based on monitoring at the WPL concentration equivalent. The traditional 0, 5X, 3X, and 1X definitions will be expanded to address risk assessments, other technologies, and other forms of sampling. In areas where unprotected workers are around potentially contaminated materials, their work areas must be periodically monitored to the WPL and continuously monitored to the STEL.

Does this mean my job will last longer, or the opposite—could I be laid off?

Although the impacts from the revised AELs are not fully understood for each site, it is possible that implementation may create some schedule delays. As each site implements the revised AELs, a better understanding of job impacts will emerge. It is important that you stay aware of future communications concerning AELs. Your immediate supervisor and manager are your primary points of contact for receiving information on job impacts.

Does the new Army AEL policy guidance require that storage igloos be monitored at the revised WPL when checking for leaking munitions?

No. The issue is addressed in the new Monitoring Concept Plan, which requires NRT monitoring at the STEL upon first entry into a storage igloo. Remember, the purpose of the revised WPL is to provide routine monitoring of work areas where workers do not wear PPE to make sure that low-level, chronic exposure is not occurring.

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