

# Division of Military and Naval Affairs

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## Lead Contamination of State Armories

Report 2019-S-50 | September 2020

OFFICE OF THE NEW YORK STATE COMPTROLLER

Thomas P. DiNapoli, State Comptroller

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Division of State Government Accountability



# Audit Highlights

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## Objectives

To determine whether the Division of Military and Naval Affairs (DMNA) has implemented adequate controls to ensure all armories are tested for lead and are remediated where excessive levels are detected. The audit covers the period January 1, 2015 through March 12, 2020.

## About the Program

Historically, armories were built with an indoor firing range (IFR), used for training purposes. The firing of weapons inside the IFR resulted in lead dust accumulation throughout. Although IFRs in New York have not been used in more than 20 years, over time, the accumulation of lead dust has been transported to other areas of the armory on Soldiers' shoes; through the heating, ventilation, and air conditioning system; and as a result of weapons cleaning, maintenance, movement, or storage. Personal exposures to lead can occur through ingestion, inhalation, and dermal contact and can result in growth disorders as well as damage to the nervous system, kidneys, and reproductive system. Lead is considered a cumulative poison, as it is transported by the bloodstream and accumulates in the bones and organs. Exposure to lead is especially dangerous for young and unborn children.

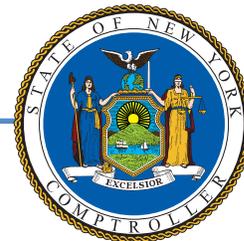
DMNA is the State's executive agency responsible for managing New York's military forces, including the New York National Guard. The Department of Defense (DOD) National Guard Bureau (NGB) acts as a federal authority over the New York National Guard, and provides them with federal resources, including funding, regulatory guidance, and equipment. In September 2015, the NGB's Army National Guard (ARNG) issued guidance to all states regarding a possible lead dust hazard in ARNG armories. The guidance issued a new acceptable level for surface lead dust of 40 micrograms per square foot ( $\mu\text{g}/\text{ft}^2$ ). It required that all facilities be tested, and if lead surface contamination above the 40  $\mu\text{g}/\text{ft}^2$  threshold is confirmed, public rental of the armory must be immediately suspended and access to family members, the general public, and pregnant women no longer permitted. Once the armory is remediated and lead testing confirms compliance below 40  $\mu\text{g}/\text{ft}^2$ , public access may resume. The guidance also requires the implementation of safety measures such as posting warning signs and training all armory employees in lead hazard awareness. ARNG guidance issued in December 2016 stipulates the cost of lead remediation efforts will be 100 percent federally funded.

## Key Findings

- Public access has continued at four armories that contain lead levels exceeding the acceptable threshold. None of these four armories disclosed the excess lead levels to the public. Three are allowing public access through a non-military use agreement and one is a military museum in a former armory building.
- Lead hazard awareness training was not provided to employees at three armories.

## Key Recommendations

- Update non-military use agreements to disclose lead issues to armory occupants.
- Post signs warning of potential lead hazards in public areas.
- Ensure that new staff receive lead hazard awareness training upon hire and that this training is provided to all staff annually.



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## Office of the New York State Comptroller Division of State Government Accountability

September 3, 2020

Major General Raymond F. Shields, Jr.  
Adjutant General  
Division of Military and Naval Affairs  
330 Old Niskayuna Road  
Latham, NY 12110-3514

Dear Major General Shields:

The Office of the State Comptroller is committed to helping State agencies, public authorities, and local government agencies manage their resources efficiently and effectively. By so doing, it provides accountability for the tax dollars spent to support government operations. The Comptroller oversees the fiscal affairs of State agencies, public authorities, and local government agencies, as well as their compliance with relevant statutes and their observance of good business practices. This fiscal oversight is accomplished, in part, through our audits, which identify opportunities for improving operations. Audits can also identify strategies for reducing costs and strengthening controls that are intended to safeguard assets.

Following is a report of our audit titled *Lead Contamination of State Armories*. This audit was performed pursuant to the State Comptroller's authority as set forth in Article V, Section 1 of the State Constitution and Article II, Section 8 of the State Finance Law.

This audit's results and recommendations are resources for you to use in effectively managing your operations and in meeting the expectations of taxpayers. If you have any questions about this report, please feel free to contact us.

Respectfully submitted,

*Division of State Government Accountability*

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# Glossary of Terms

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<b>Term</b>	<b>Description</b>	<b>Identifier</b>
ARNG	Army National Guard	<i>Federal Agency</i>
Conservancy	Seventh Regiment Armory Conservancy	<i>Key Term</i>
DHS	New York City Department of Homeless Services	<i>City Agency</i>
DMNA	Division of Military and Naval Affairs	<i>Auditee</i>
DOD	Department of Defense	<i>Federal Agency</i>
HCZ	Harlem Children's Zone	<i>Key Term</i>
IFR	Indoor firing range	<i>Key Term</i>
Lenox Hill Shelter	Lenox Hill Neighborhood House homeless shelter	<i>Key Term</i>
NGB	National Guard Bureau of the Department of Defense	<i>Federal Agency</i>
OGS	Office of General Services	<i>State Agency</i>
PRIDE	Department of Defense's Planning Resources for Infrastructure Development and Evaluation inventory database	<i>Key Term</i>
$\mu\text{g}/\text{ft}^2$	Micrograms per square foot, the unit by which surface lead dust is measured	<i>Key Term</i>

# Background

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The Division of Military and Naval Affairs (DMNA) manages New York State's military forces, which comprise the New York Army National Guard, New York Air National Guard, New York Naval Militia, and New York Guard. In support of its military mission, DMNA maintains and secures more than 50 armories, Armed Forces Readiness Centers, and training sites throughout the State, which employ about 3,880 federal and 400 State employees. While DMNA oversees the New York National Guard at the State level, the Department of Defense (DOD) National Guard Bureau (NGB) has federal authority.

At the time of their construction – generally dating back to the 19th century – armories in New York State were equipped with indoor firing ranges (IFRs). Although IFRs have not been in use for more than two decades, the lead dust from expended ammunition that accumulated in these areas continues to pose health and safety risks, as lead has been transported to other areas of the armory on Soldiers' shoes; through the heating, ventilation, and air conditioning system; and as a result of weapons cleaning, maintenance, movement, or storage. Personal exposures to lead can occur through ingestion, inhalation, and dermal contact and can result in growth disorders as well as damage to the nervous system, kidneys, and reproductive system. Lead is considered a cumulative poison, as it is transported by the bloodstream and accumulates in the bones and organs. Exposure to lead is especially dangerous for young and unborn children.

In September 2015, the NGB's Army National Guard (ARNG) issued guidance regarding lead dust in ARNG armories. To protect the military and civilian workforce and their families, as well the general public who access armory facilities, the ARNG established a standard of 40 micrograms per square foot ( $\mu\text{g}/\text{ft}^2$ ) – compared with U.S. Occupational Safety and Health Association's current recommendation of less than 200  $\mu\text{g}/\text{ft}^2$  – as an acceptable level of surface lead dust for armories that are federally supported and under its jurisdiction. Of the 44 armories that DMNA currently oversees, 41 are subject to the federal surface lead contamination guidance. (Three armories have been excessed to the Office of General Services [OGS] – two in 2011 and one in 2016 – for sale or other use in the State, and are no longer occupied by Soldiers or military employees or federally supported.) At 3 of the 41 armories, certain areas have been repurposed for use by third-party entities through a non-military use agreement (e.g., a lease or revocable license) with DMNA. According to DMNA officials, armory areas occupied by third-party entities – and not used by the New York National Guard – do not receive federal funding and are not subject to federal guidance.

Lead remediation guidance issued by the ARNG declared the cost of lead cleanup and remediation to be 100 percent federally funded and listed several tasks that must be accomplished to establish the existence and status of lead contamination in all IFRs. These tasks required each state to:

- Identify any space that is currently or was formerly an IFR; and
- Evaluate all facilities with an IFR to identify and quantify potential lead hazards using surface wipe sampling collected by the state's industrial hygiene technician.

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Where surface wipe testing confirmed a lead surface contamination above 40 µg/ft<sup>2</sup>, the guidance generally required facilities to immediately:

- Suspend public rental space agreements;
- Close the facility to family members, the general public, and pregnant women;
- Post warning signage (“Danger – Lead Hazard Area” and “Pregnant Women Not Permitted”); and
- Provide lead hazard awareness training to all employees in the facility.

Additionally, as stated in its January 5, 2017 guidance, DMNA would take precautions to install signage at areas that tested positive for elevated lead levels to warn the public to stay away until these areas are properly cleaned and to provide a safe workplace for all employees.

In compliance with the ARNG’s guidance, 42 armories (including the one that was eventually exceeded in 2016) were tested for lead contamination between December 1, 2015 and September 29, 2016. Initial testing included the entire facility (both federally and non-federally supported areas), and subsequent testing addressed only federally utilized and funded areas. The testing was conducted by New York ARNG safety and occupational health personnel and consisted of surface wipe sampling on areas such as floors, walls, and furniture tops. Initial test results determined 35 of the 42 armories had lead dust surface levels above 40 µg/ft<sup>2</sup>; for the remaining 7, test results confirmed lead dust levels below 40 µg/ft<sup>2</sup>. Of the 35 armories that tested above the threshold, DMNA scheduled 30 for remediation under the federally funded lead remediation project. The 5 armories not scheduled for remediation included the armory that was exceeded to OGS in 2016 and 4 others that either had already been remediated or were expected to be remediated through other capital rehabilitation projects.

Following ARNG guidance, DMNA created a plan of action for lead remediation and conversion of the 30 identified armories. During the remediation process, regular lead testing is conducted at each phase of the project by OGS and the lead remediation project subcontractor, and results are provided to DMNA for reference. DMNA also requires that a final cleaning and test of the entire building be completed after the remediation project to confirm compliance with the 40 µg/ft<sup>2</sup> lead level threshold; DMNA sends test results to the ARNG as evidence of compliance. As resources allow, the ARNG also conducts annual testing at all federally supported armories to monitor the status of compliance with the threshold of 40 µg/ft<sup>2</sup>.

In addition to providing 100 percent federal funding for all remediation costs, the ARNG agreed to fund up to 15 percent of the total OGS Design and Construction contract fees, which cover planning, design, and construction oversight of the lead remediation projects. Contract fees over 15 percent are the responsibility of DMNA. In 2017, DMNA estimated total project costs at \$97.8 million over four years, including \$5 million being paid by the State to cover the non-federally funded portion of contract fees. Based on DMNA’s cost estimates, since 2017, more than \$90 million

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in federal funding has been obligated for remediation of the 30 armories, with the State incurring costs of \$2.7 million. As of March 12, 2020, projects at 6 armories have been completed, and 19 are in process. The remaining 5 armory projects are expected to begin in 2020 and have already incurred planning and design costs. The ARNG has yet to provide the federal funding required to award construction contracts for these remaining projects.

# Audit Findings and Recommendations

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DMNA has generally established adequate controls to ensure that the federally funded areas of all armories are tested for lead and that necessary steps are taken to address remediation when high levels are detected. Based on our site visits to a sample of 12 armories undergoing lead remediation, we found DMNA is generally abiding by ARNG requirements to protect the health and safety of Soldiers and armory employees in these areas. While DMNA's controls provide reasonable assurance that the public is not being unnecessarily exposed to lead at most armories, in certain instances, more could be done.

DMNA's remediation efforts are focused on federally funded areas of armories. However, we determined non-federally funded areas, which pose the same risks to human health, are not being similarly targeted to protect the public against exposure.

- At 3 of the 12 armories we selected for site visits, public access to non-federally funded areas has not been suspended. One is still allowing public access in a federally funded area despite test results from within the facility indicating lead levels above the ARNG-established threshold.
- DMNA does not monitor the lead concentrations in non-federally funded areas, nor is it required to by the ARNG. However, it also does not take basic precautionary measures, such as posting signage to inform the public of the potential hazard, as it initially determined necessary and previously conveyed it would.

## Public Access

According to DMNA officials, public access was suspended at all 35 armories where initial lead dust surface testing results showed lead levels above 40 µg/ft<sup>2</sup>. However, at 4 of the 12 armories we visited, the public had access to areas that have been repurposed for non-military use, including two homeless shelters, a community center, and a museum. Only one of the four non-military use agreements covering the areas within these facilities disclosed the potential lead hazard. Further, despite its commitment to post warning signage at the onset of the lead remediation, none of the four facilities had warning signage posted or otherwise clearly alerted the public to the potential lead hazard. Although not federally supported and not subject to ARNG guidelines, these areas were included in initial testing, and DMNA's maintenance team remediated areas utilized by lessees where test results exceeded the threshold.

In response to our findings, DMNA officials acknowledged that the public is accessing and actively using these four armories on a daily basis, and affirmed that no warning signs were posted, despite a policy directing such signage. As a result, people accessing the armories, who are otherwise uninformed about the potential lead exposure in the area, are unwittingly placing themselves, and possibly their children, at risk.

DMNA officials also stated that non-military use agreements did not explicitly disclose or address the lead contamination in the armory because it was not a requirement.

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Nevertheless, DMNA also stated that future leases, revocable licenses, permits, and non-military use agreements between DMNA and lessees would contain a disclosure of possible lead contamination in facilities that housed a former IFR.

## Park Avenue Armory

The nearly 195,000-square-foot Park Avenue Armory is no longer used as a functioning armory for military purposes. Most of the armory – 172,638 square feet (89 percent) – is managed and occupied by the Seventh Regiment Armory Conservancy (Conservancy), a non-profit cultural and arts institution that is open to the public. An additional 20,538-square-foot area (10 percent) of the armory is occupied by Lenox Hill Neighborhood House (Lenox Hill), a women’s homeless shelter. Only about 1 percent, an area of 1,500 square feet in the armory, remains a federally funded, military-occupied space that is subject to annual testing under ARNG guidance.

In 2006, DMNA and the Conservancy entered into an 89-year lease, which disclosed the lead contamination issues and identified the Conservancy as the entity responsible for lead remediation. Under the Conservancy’s tenure, and at its own expense, the building has undergone major renovation projects, including lead remediation, which covered both the DMNA and homeless shelter space as well as the conversion of the IFR. While Conservancy officials did not indicate whether annual testing of lead in the armory is conducted, the Conservancy’s Director of Design and Construction confirmed their responsibility for all renovations, including lead remediation. The Director also explained, and recent test results confirmed, that lead dust exceeding 40  $\mu\text{g}/\text{ft}^2$  was detected on the floor of a hallway and in a stairwell. DMNA and Conservancy officials stated the lead was a result of water damage to a ceiling with lead paint from a leaking roof. While on site, we witnessed contractors fixing the roof and associated water damage in that area, but noted that no signs were posted warning Conservancy visitors of the lead hazard in the building. Subsequently, DMNA officials provided emails from the Conservancy stating that the work on the lead paint and water issues was complete, but it did not yet have test results to confirm.

The federally supported space occupied by DMNA military personnel within the Park Avenue Armory was not planned for remediation per the ARNG’s guidance, even though the 2016 initial testing results showed three of the seven samples tested had lead dust concentrations above the 40  $\mu\text{g}/\text{ft}^2$  threshold, including one sample that exceeded 150  $\mu\text{g}/\text{ft}^2$ . According to DMNA, annual testing for the federally funded area of the armory was not completed by the ARNG in 2017 and 2018 as a result of personnel and resource constraints. The most recent testing conducted by the ARNG in 2019 showed two samples were still returning lead dust concentrations above the threshold, one of which was more than 500  $\mu\text{g}/\text{ft}^2$ . DMNA officials attributed this to the same leaking roof that was remediated by the Conservancy.

The Lenox Hill shelter is operated by the New York City Department of Homeless Services (DHS) with whom DMNA has a lease agreement. Unlike the lease

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agreement with the Conservancy, the agreement with DHS does not specifically disclose or address responsibility for lead remediation, stating only that DHS bears responsibility for meeting code standards. According to officials from DHS, they were never notified of the potential lead hazard in the Park Avenue Armory.

The Lenox Hill shelter is not accessed through the main armory and instead has a separate side entrance. Due to the sensitive nature of the homeless shelter, we did not access the space; however, we saw no signs present near the entrance of the shelter warning of the potential lead danger in the building.

## Harlem Armory

The Harlem Armory is largely used for military purposes; however, approximately 28 percent of the armory is occupied by the Harlem Children's Zone (HCZ), a 74,524-square-foot multi-purpose community center for children and adults. The Harlem Armory is currently undergoing lead remediation and conversion of the IFR located in the basement. At our site visit, we noted that the HCZ has remained open and accessible to the public during the remediation efforts without any signage to warn visitors of the possible lead danger. We also note that the lease agreement between DMNA and the HCZ did not disclose the lead contamination hazard.

The HCZ space was included in the armory's initial lead testing in 2016. At that time, the one sample taken from the HCZ-occupied space tested below 40  $\mu\text{g}/\text{ft}^2$ . However, according to a subsequent test report, "building spaces tested within the scope of this project exhibited at least one lead concentration greater than 40  $\mu\text{g}/\text{ft}^2$ ; therefore, the entire subject facility is lead-impacted."

Controls were put in place at the Harlem Armory to address the potential lead hazard concern at the HCZ, including separate ventilation ductwork from the main armory. In addition, a cement block wall was specially constructed for partition purposes, allowing a single locked door as the only potential entry point between the two spaces. As such, DMNA officials consider the HCZ to be a separate and distinct location.

While the HCZ has not been part of the subsequent annual testing conducted by the ARNG, and HCZ officials did not disclose whether they are testing their space for lead, they stated that DMNA has been forthright about the lead issues in the armory. HCZ management has been included in monthly tenant meetings and engages in ongoing communication with DMNA regarding the lead remediation efforts.

## Jamaica Armory

DMNA has a revocable license with DHS effective March 13, 2007 through March 31, 2048 to use approximately 20 percent of the armory to operate a women's homeless shelter on the fourth floor – which is accessed through the main entryway of the armory. Initial testing conducted in the armory in 2016 showed that about half of the wipe samples taken exceeded the threshold of 40  $\mu\text{g}/\text{ft}^2$ . Subsequent testing in 2017 indicated that 90 percent (312 of 345) of wipe samples exceeded 40  $\mu\text{g}/\text{ft}^2$ , including

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one sample taken from inside the women's shelter. DMNA officials stated that the area occupied by the women's shelter is not federally supported and thus not subject to ARNG's guidance regarding lead remediation, and the area inside the shelter was cleaned and tested again and came back below 40 µg/ft<sup>2</sup>. The armory, including the shelter, has not been tested since 2017.

The revocable license stipulates the women's shelter is responsible for the maintenance of the space and compliance with local and State codes and permits, but does not disclose the lead contamination in the armory. DMNA officials stated that the homeless shelter director was verbally notified and allowed DMNA access to conduct the lead testing and cleanup in 2017. However, DHS officials indicated they were unaware of the lead contamination in the building.

During our site visit to the armory, we found DMNA had been allowing the shelter to continue to operate despite the ARNG requirement that rental space agreements be suspended. While DMNA requested a waiver from ARNG to allow the shelter to continue operating despite the lead contamination, the waiver was never granted. Furthermore, we did not observe any signs, at the entryway or elsewhere, warning shelter clients and other visitors about the potential lead hazard.

According to DMNA officials, the Jamaica Armory is scheduled to be remediated through a separate \$91 million federal military construction project in 2020, which will also address lead remediation and conversion of the IFR. However, until that project is underway, the shelter will continue to operate and lead exposure will continue to pose health risks. Especially given the vulnerable shelter population, DMNA should take at least the basic precaution of posting warning signage.

## Saratoga Armory

The Saratoga Armory continues to operate as a military facility, but also contains a first-floor military museum, which is open to the public. In the basement below, the museum uses the former IFR area, which has been converted to a vault, to store its war artifacts.

The most recent surface wipe sample tests, from 2017, showed that 5 of 76 samples exceeded the lead threshold of 40 µg/ft<sup>2</sup>, including one that was above 200 µg/ft<sup>2</sup>. All the samples that exceeded the threshold were taken from the basement boiler room and the vault. This area is locked and not accessible to the public and has lead hazard signs posted. DMNA continues to clean the boiler room. The vault poses a risk due to the storage of old weapons, cannons, muskets, and other museum artifacts, which contain lead. When these weapons are moved, the lead dust is disturbed, making the area much more likely to test high for recurring lead dust. Despite this hazard, DMNA has not posted any signs in the publicly accessible areas of the museum alerting visitors to the potential lead hazard.

We were provided a memo for the record of a conversation between DMNA and the ARNG regarding the museum's public access. In the memo, ARNG officials stated that their lead guidance applies to the museum. DMNA responded that the slightly

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elevated levels are in a remote area of the basement, not accessible to the public and, as a result, DMNA will continue to assume the minimal risk and continue to allow public access to the museum.

## Other Compliance Findings

All armory IFRs are reflected in the DOD's Planning Resources for Infrastructure Development and Evaluation (PRIDE) inventory database. The database houses a broad range of information on all federal real property, including State armories with a federal component and IFR status. With no active IFRs operating in the State, IFRs are classified in PRIDE as either non-functional (i.e., the IFR has been removed from active use but has not been successfully cleaned or converted) or closed (i.e., the IFR was removed from active use, was successfully cleaned and converted under ARNG guidelines, and was verified by an ARNG industrial hygienist as having acceptable surface lead levels).

At the time of our site visits, the 12 armories in our sample were in varying stages of the lead remediation process. We determined that while most of the requirements prescribed in the ARNG guidance were adhered to, some were not. We found one armory's IFR was not locked to prevent access and exposure. That same armory was one of two with warning signs that did not contain the required wording. Three additional armories' staff did not receive the required training regarding lead hazard awareness. By not following all the requirements as prescribed by the ARNG, Soldiers and employees may be at risk of unnecessary exposure to lead dust.

## No IFRs

Although the federally supported spaces within 2 of the 12 armories (Park Avenue and 10 West 195th St. armories) we visited do not contain an IFR, both armories were included in the initial lead testing conducted by the ARNG in 2016.

As previously discussed, the federally supported space at the Park Avenue Armory comprises approximately 1 percent of the entire armory – an area that did not itself house an IFR. (The IFR was located in the armory and has since been converted and remediated.) As such, the Park Avenue Armory's IFR is not listed in the PRIDE database. Despite not having an IFR, the ARNG continues to test the federally funded area as detailed in the Public Access section of our report.

Similarly, the main building of the 10 West 195th St. Armory contains an IFR. However, DMNA no longer owns the main building and only occupies the adjacent federally supported annex and motor vehicle storage buildings, neither of which ever contained an IFR. As a result, the 10 West 195th St. Armory is not listed in the PRIDE database as having an IFR. Despite never having an IFR, the ARNG has tested the annex and motor vehicle storage buildings for lead. While DMNA did not initially plan to remediate the annex building, recent test results detected lead dust levels above 40 µg/ft<sup>2</sup>. As a result, the 10 West 195th St. Armory was scheduled for remediation.

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## Non-Functional IFRs

IFRs that are classified in PRIDE as non-functional are those that are no longer used but have not yet met the 40 µg/ft<sup>2</sup> threshold – a criterion that ARNG requires in order to reclassify an IFR as closed. Nine of the armories in our sample (Utica, Lexington, Jamaica, Whitestone, Geneseo, Kingston, Saratoga, Rochester, and Harlem) were listed in the PRIDE database as containing a non-functional IFR. During our site visits, we determined that three of these armories (Saratoga, Rochester, and Harlem) no longer have a physical IFR on site. However, ARNG will not recategorize an armory in the PRIDE database until test results meet the 40 µg/ft<sup>2</sup> threshold. The IFRs at the Saratoga and Rochester armories were remediated and converted around 2002, when the lead threshold was 200 µg/ft<sup>2</sup> (before the new guidance of 40 µg/ft<sup>2</sup>). Recent tests at both armories have exceeded the current limit of 40 µg/ft<sup>2</sup>. As noted earlier, the boiler room of the Saratoga Armory continues to be cleaned. However, because artifacts containing lead are stored in the vault, lead results may continue to exceed the threshold – a risk that DMNA officials have accepted. The Rochester Armory is undergoing lead remediation, which is approximately 30 percent complete. As reported earlier, the remediation of the Harlem Armory is also currently underway. During our January 2020 site visit, we confirmed that, while the IFR at the Harlem Armory has been remediated and converted, the rest of the armory remediation was only 4 percent complete.

We assessed the level of compliance of the remaining six armories containing non-functional IFRs with the requirements of the ARNG guidance. While the guidance states that DMNA must prohibit entry into, seal, and lock the area containing the non-functional IFR, we found this area at the Geneseo Armory was not locked. DMNA officials stated they believed the unlocked door was opened in anticipation of the audit team’s visit; however, at the time of our departure, the door remained open and unlocked.

The ARNG guidance also requires that armories containing a non-functional IFR post signs that state “Danger – Lead Hazard Area” and “Pregnant Women Not Permitted.” While four of the six armories (Lexington, Utica, Jamaica, and Kingston) had the appropriate signs posted, signs at the Geneseo and Whitestone armories did not contain the required wording to address pregnant women. DMNA officials stated that the signs at one of the armories were not in compliance because remediation efforts had not started there yet, and they were unable to provide a reason for the non-compliant signs at the other armory. In response to our preliminary report, DMNA officials reported that they had addressed the discrepancy, and all facilities now have the correct signage posted.

The ARNG guidance requires that all employees in the facility containing a non-functional IFR receive lead hazard awareness training. During our site visits, we found that DMNA officials have not ensured all Soldiers and employees receive the proper training. Employees at three armories (Harlem, Rochester, and Kingston) did not receive any training regarding lead hazard awareness. At the six armories that did provide training, it was only given at the start of the lead initiative in 2017.

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As a result, new employees and anyone not working in the armories at the time the training was initially given would not have received it. DMNA officials acknowledged that training should be given to all new armory employees and on an annual basis to all employees thereafter, and are currently working to correct this.

## Closed IFRs

The ARNG guidance states that armories containing a closed IFR must ensure annual wipe samples are collected to monitor for deterioration of the encapsulate barrier. The acceptable level of the annual wipe tests is 40  $\mu\text{g}/\text{ft}^2$ . We found that the one armory in our sample with a closed IFR, the Gloversville Armory, generally met all the requirements of the ARNG guidance.

## Recommendations

1. Update non-military use agreements to disclose lead issues to armory occupants.
2. Post signs warning of potential lead hazards in public areas.
3. Disclose lead contamination to co-tenants of the armory when testing results return over the ARNG threshold.
4. Obtain clarification from the ARNG regarding compliance requirements for non-military use areas of the armory buildings.
5. Ensure that new staff receive lead hazard awareness training upon hire and that this training is provided to all staff annually.

# Audit Scope, Objectives, and Methodology

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The objectives of our audit were to determine whether the DMNA has implemented adequate controls to ensure all armories are tested for lead and are remediated where excessive levels are detected. The audit covers the period January 1, 2015 through March 12, 2020.

To accomplish our audit objectives and assess internal controls related to our objectives, we reviewed federal and State laws and regulations as well as ARNG and DMNA guidance relating to lead surface dust. We interviewed DMNA officials and armory staff to gain an understanding of their practices at the armories related to lead remediation and to obtain the relevant data used to monitor those operations.

We obtained test results and remediation data from DMNA and selected a judgmental sample of armories. We visited 12 of the 44 armories in varying stages of lead remediation that are overseen by DMNA. Our sample of 12 armories included: 10 West 195th Street, Geneseo, Gloversville, Harlem, Jamaica, Kingston, Lexington, Park Avenue, Rochester, Saratoga, Utica, and Whitestone.

We judgmentally selected our sample of armories based on their lead test results, the status of remediation, level of public access, and geographic location. We judgmentally selected armories to ensure our sample included a representation of armories with a non-functional IFR, a closed IFR, and armories that do not contain an IFR. Due to the methods we used to select our judgmental samples, the results cannot be projected to the population as a whole.

# Statutory Requirements

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## Authority

The audit was performed pursuant to the State Comptroller's authority as set forth in Article V, Section 1 of the State Constitution and Article II, Section 8 of the State Finance Law.

We conducted our performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

In addition to being the State Auditor, the Comptroller performs certain other constitutionally and statutorily mandated duties as the chief fiscal officer of New York State. These include operating the State's accounting system; preparing the State's financial statements; and approving State contracts, refunds, and other payments. In addition, the Comptroller appoints members to certain boards, commissions, and public authorities, some of whom have minority voting rights. These duties may be considered management functions for purposes of evaluating organizational independence under generally accepted government auditing standards. In our opinion, these functions do not affect our ability to conduct independent audits of program performance.

## Reporting Requirements

A draft copy of the report was provided to DMNA officials for their review and formal comment. Their comments were considered in preparing this final report and are attached in their entirety at the end of it. While DMNA officials generally agreed with the recommendations, they were concerned that the public may not realize the NGB-ARNG standard is more stringent than that of other oversight bodies. Our State Comptroller's Comments, which have been embedded in DMNA's response, include a clarification of this point.

Within 180 days after the final release of this report, as required by Section 170 of the Executive Law, the Adjutant General of the Division of Military and Naval Affairs shall report to the Governor, the State Comptroller, and the leaders of the Legislature and fiscal committees, advising what steps were taken to implement the recommendations contained herein, and where recommendations were not implemented, the reasons why.

# Agency Comments and State Comptroller's Comments



**ANDREW M. CUOMO**  
Governor  
Commander-in-Chief

**RAYMOND F. SHIELDS, JR.**  
Major General  
The Adjutant General

July 31, 2020

Ms. Lauren Bizzaro  
State Program Examiner  
Office of the State Comptroller  
110 State Street  
Albany, NY 12236

Dear Ms. Bizzarro:

The following are the OSC Audit Key findings listed in the Division of Military and Naval Affairs's (DMNA) OSC report, 2019-S-50, dated July 2020:

- a. Public access has continued at four armories that contain lead levels exceeding the acceptable threshold. None of these four armories disclosed the excess lead levels to the public. Three are allowing public access through a non-military use agreement and one is a military museum in a former armory building.
- b. Lead hazard awareness training was not provided to employees at three armories.

While the OSC Audit on lead dust in New York Army National Guard (NYARNG) Armories is factual, it could be misunderstood by the general public who may not know the federal standards for lead dust as they compare to the very stringent National Guard Bureau - Army National Guard (NGB-ARNG) standard for lead dust set at 40 µg/ft<sup>2</sup> on all surfaces facility-wide. A review of EPA, HUD and OSHA published standards demonstrates a significant difference from the NGB-ARNG standard currently utilized to determine public access into NYARNG spaces (see Comparison of Standards chart below). This NGB-ARNG standard also drives the federal funding decisions made by NGB-ARNG to support DMNA's efforts to clean the effected NYARNG Facilities.

Comparison of Standards: HUD vs ARNG vs OSHA			
<b>Dust-Lead - HUD</b>		<b>Air-Lead - OSHA</b>	
<40 µg/ft <sup>2</sup>	HUD/EPA Lead Clearance Level for Horizontal Surfaces (i.e. floors hard or carpeted)	0.15 µg/m <sup>3</sup>	EPA/NAAQs (PM-10) Ambient Air Quality Standard (rolling 3-month average) - revision from 1.5 µg/m <sup>3</sup>
<250 µg/ft <sup>2</sup>	HUD/EPA Lead Clearance Level for Interior Window Sills	30 µg/m <sup>3</sup>	OSHA Action Level (AL) (8hr TWA)
<400 µg/ft <sup>2</sup>	HUD/EPA Lead Clearance Level for Interior Window Wells (Troughs)	50 µg/m <sup>3</sup>	OSHA Permissible Exposure Limit (PEL) (8hr TWA)
		50 µg/m <sup>3</sup>	ACGIH Threshold Limit Value for a Time Weighted Average (TLV/TWA)
<b>Dust-Lead - ARNG</b>		50 µg/m <sup>3</sup>	NIOSH at CDC Recommended Exposure Limit (REL)
<40 µg/ft <sup>2</sup>	ARNG Lead Clearance Level for all Surfaces required to allow for Public Access	> 200 µg/m <sup>3</sup>	OSHA Lead in Construction (29 CFR 1926.63) Employer Requirement to provide daily clean work clothing weekly
<200 µg/ft <sup>2</sup>	Referenced as OSHA's requirement* for the use of HUD's acceptable decontamination level of 200 µg/ft <sup>2</sup> for floors		
<250 µg/ft <sup>2</sup>	Not referenced		
<400 µg/ft <sup>2</sup>	Not referenced		

\* OSHA, 29 CFR 1926.62: The requirements of 29 CFR 1926.62 at Section 1926.62(h)(1) state that "All surfaces shall be maintained as free as practicable of accumulations of lead." Section 1926.62(i)(2)(i) of this standard requires that "The employer shall provide clean change areas for employees whose airborne exposure to lead is above the permissible exposure level..." Section 1926.62(j)(4)(ii) requires that "The employer shall assure that lunchroom facilities or eating areas are as free as practicable from lead contamination..." Also, in the Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2-58, OSHA recommends the use of HUD's acceptable decontamination level of 200 µg/ft<sup>2</sup> for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

**EPA Standard Further Defined:** Under these standards, lead is considered a hazard when equal to or exceeding 40 micrograms of lead in dust per square foot on floors, 250 micrograms of lead in dust per square foot on interior window sills, and 400 parts per Million (ppm) of lead in bare soil in children's play areas or 1200 ppm average for bare soil in the rest of the yard. In addition, paint in deteriorating condition, on a friction or impact surface, or on certain chewable surfaces is also defined as a hazard.

**State Comptroller's Comment** – We measured DMNA's performance only against the NGB-ARNG prescribed standard of 40 µg/ft<sup>2</sup>, as DMNA states this standard drives the federal funding decisions to support its lead remediation efforts. We understand that this standard is more aggressive than that of other oversight bodies.

DMNA provides the following response to the key findings listed:

Public access has continued at four armories that contain lead levels exceeding the acceptable threshold. None of these four armories disclosed the excess lead levels to the public. Three are allowing public access through a non-military use agreement and one is a military museum in a former armory building.

**DMNA Response:** While this finding is true, DMNA did not allow public access into areas that tested above 40 µg/ft<sup>2</sup>.

**State Comptroller's Comment** – As stated in our report, according to a subsequent lead test report, "building spaces tested within the scope of this project exhibited at least one lead concentration greater than 40 µg/ft<sup>2</sup>; therefore, the entire subject facility is lead-impacted."

This NGB-ARNG standard is more stringent than the Federal Environmental Protection Agency, Housing Urban Development or Occupational, Safety and Health Agency standards and DMNA is not required by any federal or state authority to make notification based on the NGB-ARNG standard.

Lead hazard awareness training was not provided to employees at three armories.

**DMNA Response:** DMNA attributes this lack of training to personnel turnover and agrees that a more proactive annualized training effort on lead dust hazard awareness training is an appropriate solution.

DMNA concurs with all OSC's Audit recommendations.

Update non-military use agreements to disclose lead issues to armory occupants.

**Concur** – DMNA will disclose the potential for lead dust hazards in non-military use agreements when applicable.

Post signs warning of potential lead hazards in public areas.

**Concur** – When a hazard is present in Publicly Accessible Areas, DMNA will post potential lead hazard signage.

Disclose lead contamination to co-tenants of the armory when testing results turn over the ARNG threshold.

**Concur** - DMNA will disclose to co-tenants in Armories the hazards that are present.

Obtain clarification from the ARNG regarding compliance requirements for non-military use areas of the armory buildings.

**Concur** – DMNA has requested clarification from NGB-ARNG on standards for allowing public access in federally supported armories.

Ensure new staff receives lead hazard awareness training upon hire, and that this training is provided to all staff annually.

**Concur** – Due to frequent personnel turn-over many personnel who had received training at affected facilities have since moved on to other assignments. As such, DMNA will conduct general awareness lead hazard training on an annual basis for all facility occupants.

The point of contact in this matter is Patrick Center, Chief of Staff, State, at (518) 786-6125 or [patrick.j.center.nfg@mail.mil](mailto:patrick.j.center.nfg@mail.mil).

Sincerely,



Raymond F. Shields, Jr.  
Major General, New York Army  
National Guard  
The Adjutant General

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