NAVY AND MARINE CORPS PUBLIC HEALTH CENTER
PREVENTION AND PROTECTION START HERE

# Navy and Marine Corps Public Health Center

## Appendix F
## Status of Previous Public Health Review Risk Management Recommendations

February 2017

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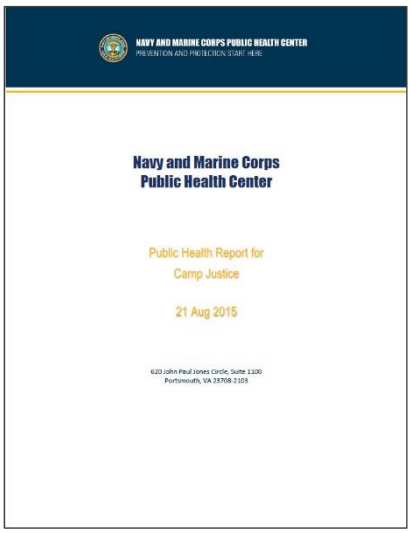
| Acronym | Definition |
|---|---|
| ACM | Asbestos Containing Material |
| AHERA | Asbestos Hazard Emergency Response Act |
| AIHA | American Industrial Hygiene Association |
| AMP | Asbestos Management Program |
| ASHRAE | American Society of Heating, Refrigerating, and Air-Conditioning Engineers |
| BEEF | Base Engineer Emergency Force |
| BOS | Base Operation Support |
| C&D | Construction and Demolition |
| CNIC | Commander, Navy Installations Command |
| CO | Commanding Officer |
| DOEHRS-IR | Defense Occupational and Environmental Health Readiness System – Incident Report |
| EBS | Environmental Baseline Study |
| ELC | Expeditionary Legal Complex |
| EMS | Environmental Management System |
| ESAMS | Enterprise Safety Application Management System |
| ESO | Environmental Science Officer |
| FFHC | Fit for Human Consumption |
| FGS | Final Governing Standards |
| FHP | Force Health Protection |
| GTMO | Guantanamo Bay |
| HSS | Health Service Support |
| HVAC | Heating, Ventilation, and Air Conditioning |
| IH Baseline Survey | Industrial Hygiene Baseline Survey |
| ISO | International Organization for Standardization |
| ISSA | Interservice Support Agreement |
| JPMG | Joint Preventive Medicine Group |
| JTF | Joint Task Force |
| MICA | Microscopy Instruction, Consultation, and Analysis |
| MILCON | Military Construction |
| MSWCI | Municipal Solid Waste Curtain Incinerator |
| MSWLF | Municipal Solid Waste Landfill |
| MTTP | Multi-service Tactics, Techniques and Procedures |
| MWC | Municipal Waste Combustion |
| NAVFAC | Naval Facilities Engineering Command |
| NAVFACLANT | Naval Facilities Engineering Command Atlantic |

| Acronym | Definition |
|---|---|
| NIST | National Institute for Standards Technology |
| NMCPHC | Navy and Marine Corps Public Health Center |
| NS | Naval Station |
| NVLAP | National Voluntary Laboratory Accreditation Program |
| O&M | Operations and Maintenance |
| OEBGD | Overseas Environmental Baseline Guidance Document |
| OEHSA | Occupational Environmental Health Site Assessment |
| OIC | Officer in Charge |
| OMC | Office of Military Commissions |
| OSHA | Occupational Safety and Health Administration |
| PAT | Proficiency Analytical Testing |
| PCM | Phase Contrast Microscopy |
| PLM | Polarized Light Microscopy |
| PM | Particulate Matter |
| POA&M | Plan of Action and Milestones |
| POM | Program Objectives Memoranda |
| PWD | Public Works Department |
| QRP | Qualified Recycling Program |
| SOP | Standard Operating Procedure |
| SOUTHCOM | United States Southern Command |
| UIC | Unit Identification Code |
| USNH | United States Naval Hospital |
| VSMG | Visible Suspect Microbial Growth |
| WQOC | Water Quality Oversite Council |
| WTE | Waste-to-Energy |

# From 21 August 2015 NMCPHC Public Health Review Report for Camp Justice:




## Epidemiology (Page 12):

1. **Recommendation**: Based on the types and number of cancers observed, the recognized risk factors and latency periods, it is unlikely that an environmental or occupational exposure is associated with the cancers. The term "unlikely" is used in this case due to the uncertainty created by the lack of a complete environmental site assessment of the Office of Military Commissions (OMC) site. Review of the limited environmental data did not indicate any unexpected environmental exposures. Further study will be considered if the recommended public health review determines that there is an elevated human health risk due to environmental exposures.

   **Status**: Refer to Appendix E (Epidemiological Evaluation for Camp Justice December 2016) for findings and conclusions.

2. **Recommendation**: Make this report available to OMC personnel. Feedback from other investigations has indicated that the contents of this report provided useful information when discussing an individual's cancer risk with a medical provider.

   **Status**: This report and all other technical reports were posted online at the NSGB Public Health Review Website at: https://cnic.navy.mil/regions/cnrse/installations/ns_guantanamo_bay/om/environmental_support/Guantanamo_Bay_PHR.html

## Industrial Hygiene (Page 16):

**Recommendation**:
United States Naval Hospital (USNH) Guantanamo Bay (GTMO) to coordinate with Joint Task Force (JTF) GTMO to determine assets available to conduct a baseline industrial hygiene survey of Camp Justice.

**Status**: In July 2016, the Officer in Charge (OIC) of OMC South established a working group comprised of representatives from OMC, JTF, Naval Station Guantanamo Bay (NSGB), Naval Facilities Engineering Command (NAVFAC) PW, and USNH GTMO. The purpose of the working group is to address the data gaps and recommendations identified in the NMCPHC reports. Because the JTF Preventive Medicine Group does not have an industrial hygienist, the Industrial Hygiene Officer from USNH will conduct an IH baseline survey in the December 2016 timeframe.

## Asbestos (Page 16):

**Recommendation**:
NAVFAC to update the current asbestos and lead survey and coordinate with the NS GTMO Asbestos Program Manager to either develop or include Camp Justice in the current operations and maintenance (O&M) asbestos containing material (ACM) plan.

**Status**: OMC South has not established an Asbestos Management Program (AMP). Typically tenant commands such as OMC will rely on and come under the host installation AMP which is now located in the NSGB Public Works Department (PWD). However, when the maintenance unit identification code (UIC) for the older buildings (AV-29, AV-31, AV-32, and AV-34) on Camp Justice was turned over to the Army, it appears that a turnover discussion regarding responsibilities to manage asbestos in those buildings did not occur.

However, the current Interservice Support Agreement (ISSA; ISSA - N60514-20150819-0015 period of performance 1 October 2015 - 30 September 2017) between NSGB and JTF GTMO states:

Page 6, para 6. Responsibilities*: "The Commanding Officer, NAVSTA Guantanamo Bay, as landlord and owner/operator of Government property is entrusted with the responsibility for ensuring that the property is used in a manner that is in the best interest of the government. As such, the maintenance, environmental and safety responsibilities associated with the property reside primarily with the Commanding Officer."*

Page 6, para 6.a.: *"The Commanding Officer, NAVSTA Guantanamo Bay, retains the right to be informed of operational decisions that have safety and environmental consequences to NAVSTA Guantanamo Bay."*

Page 7, para 8.d: *"Due to the age of most buildings on NAVSTA Guantanamo Bay, the presence of asbestos must be considered prior to building or space alterations and before undertaking any construction, modifications, or repairs to assigned space. Specifically prohibited related activities include cutting, drilling, scraping, sanding, sawing, grinding, or any other action that would alter the walls, floors, ceilings or other portions of the building structure. JTF GTMO-constructed buildings are exempt from this requirement, since they were all constructed in the last 10 years."*

We interpret this as the Commanding Officer (CO) NSGB is ultimately responsible for environmental program compliance on Camp Justice and that he should be kept informed of any decisions that have safety and environmental consequences to NSGB (e.g., asbestos). We did not find evidence that these specific ISSA requirements were in place and working as intended with regard to asbestos management.

Also, as might have been expected, this potential health risk (asbestos) was not identified in an OEHSA for Camp Justice as this type of assessment was never done. Further, it had not been identified by those who provide preventive medicine services (JTF preventive medicine group) to Camp Justice even though the current ISSA (page 6, para 8.a. Specific Requirements) states:

*"RECEIVER shall comply with DoDI 6490.03 Deployment Health, DoDI 6055.05 Occupational and Environmental Health, and Joint Chiefs of Staff Memorandum MGM 0028-07 Procedures for Deployment Health Surveillance and perform any actions to identify deployment health resource requirements, perform OEH risk assessments, conduct risk assessments and preliminary hazard assessments, and implement OEH risk management and surveillance requirements as required."*

At the time of the first NMCPHC site visit in August 2015, the NSGB had no designated or trained Asbestos Program Manager therefore it was unclear to what degree the NSGB AMP was implemented. The PWD APM is the cornerstone of the asbestos management program. It is the responsibility of the APM to:

- Account for asbestos located at the installation/PWD
- Ensure that ACM does not present a risk to facility users
- Ensure that PWD personnel who work with or encounter asbestos are properly trained
- Ensure that asbestos at the PWD is properly abated/removed and disposed of
- Interface with regulators

In March 2016 CNRSE (CNRSE letter 5090 Ser N04/099 of 14 March 16) recommended to OMC:

> *"Recommend OMC stand up an internal ACM O&M plan or fund Naval Station Guantanamo Bay to provide an ACM O&M plan to include work order tracking for the subject buildings to ensure work activity does not disturb ACM materials "managed in place", and all required personnel are properly trained, have the proper asbestos abatement qualifications and ACM inspections and periodic assessments are completed."*

In response in September 2016, OMC South contracted with Naval Facilities Engineering Command Atlantic (NAVFACLANT) to conduct/update an asbestos survey (in accordance with Asbestos Hazard Emergency Response Act [AHERA] requirements) for the five Camp Justice buildings of interest (AV-29, AV-31, AV-32, AV-34, and AV-624 [future OMC berthing site on Leeward side]). Contract completion date is 11 March 2017.

On 5 January 2017, NMCPHC received a report (NSGB Asbestos Management Program Review December 26, 2016) conducted by a two-person team of asbestos subject matter experts from NAVFAC SE sent to NSGB on 25 October 2016 to review the status of implementation of the NSGB APM both now and in the past. This team's findings were consistent with those found in the 2011 NAVFAC Audit Report (see below) in that the AMP was not fully implemented. This report lays out a series of recommendations that if implemented, would bring the NSBG AMP into full compliance. No timeline for full implementation was specified.

The only document NMCPHC has regarding the current and historical status of the NSGB AMP is a 2-6 May 2011 NAVFAC SE Environmental Audit Report. There was a "Major" finding under compliance for management of asbestos which required NS to submit a plan of action with corresponding plan of action and milestones (POA&M) to address the deficiency. The 2011 audit acknowledges that due to time constraints, a complete review of all NSGB asbestos management records was not performed. Specifically, no building inspections were performed to assess the physical condition of existing ACM. Findings from the audit team were:

- The NAVSTA GTMO PWD-FMD reviews project planning documents for demolition and renovation of existing facilities, using the Asbestos Survey and Assessment, O&M Plan, which was prepared in September 1998. This O&M Plan is similar to, but does not meet all the OEBGD requirements for an asbestos management plan. Section 1.3.6 of the O&M Plan, states that the

APM is responsible to evaluate and update the O&M Plan annually. The O&M Plan has not been updated in the last 13 years.

- The OEBGD, Section C15.3.2.1 requires that a current ACM inventory is required to be included in the asbestos management plan. The O&M Plan has an out-of-date ACM inventory, which becomes less-and-less accurate with each passing year. Since 1998, all of the ACM, that was abated or removed during facility demolition and renovation projects, has not been updated in the O&M Plan as required. The preferred method of keeping a current ACM inventory is to update information in an electronic ACM database; which does not occur at NAVSTA GTMO.
- The OEBGD, Section C15.3.2.3 requires that regular ACM surveillances be conducted to assess and document any changes in the ACM condition and inventory. There is nothing written in the O&M Plan to meet this requirement. Presently, the Installation Safety Office conducts annual building inspections which could possibly identify problems with ACM; and these inspection results are entered into the Navy's Enterprise Safety Application Management System (ESAMS) database. It is also possible that ACM inspections or surveillances could be conducted annually by the PWD FMD staff, as part of the annual O&M Plan updating process, which is required by Section 1.3.6 of the O&M Plan.
- The OEBGD, Section C15.3.2.8 requires that procedures be included to assess and prioritize identified ACM hazards for abatement. There is nothing written in the O&M Plan to implement this requirement. Currently, there are a few qualified personnel on NAVSTA GTMO who can conduct ACM visual assessments or ACM sampling and analysis, which are limited in scope. It is also possible that ACM assessments could be performed by the PWD FMD staff, if they received Asbestos Inspector Training.
- The OEBGD, Section C15.3.2.9 requires that procedures be included to prevent the use of ACM in new construction projects. There is nothing written in the O&M Plan to implement this requirement.

The conclusion of the Audit Team was:

- The root cause of these deficiencies is an out-of-date asbestos management plan, most probably caused by frequent turnover of NAVSTA GTMO asbestos-trained managers, and insufficient personnel resources available to update the management plan and maintain the ACM inventory.

The recommendation was:

1. Update the existing 1998 Asbestos O&M Plan to meet all OEBGD requirements for an asbestos management plan to be consistent with current asbestos policies at NAVSTA GTMO;
2. Update the ACM inventory into a centrally maintained database; and
3. Ensure that all personnel who will be designated to conduct facility ACM surveillances and assessments receive Asbestos Inspector Training. Note: per discussion with the base Safety Manager, a change is being considered that would transfer the APM duties to the PWD asbestos-trained Safety Manager in FY12

Subsequent EMS Audits (the 6-11 November 2016 and the 28 April – 02 May 2014 NAVFAC SE External Environmental Management System and Compliance Audit Reports) for NSGB do not mention the AMP as a repeat finding which would indicate it was not evaluated for reasons that are unclear with respect to its current and past history as detailed in the previous 2011 audit (cited above).

## Lead

**Finding**: There was visual determination that paint was deteriorating on the exposed underside of the roof in AV-32 hangar. Paint chips were observed lying on the deck. This material should be assumed to be lead based paint until otherwise tested.

**Recommendation**: Update the 2004 lead inspection report for Camp Justice.

**Status**: Unknown. OMC provide status on actions or housekeeping actions.

## Drinking Water (Page 20):

1. **Recommendation**: Preliminary assessments of the drinking water system and review of records provided would indicate the water being supplied to various locations of Camp Justice may be fit for human consumption (FFHC). Immediate exceptions due to lack of information would be the tent latrine hand sinks, the Marshalls Tent, and all hand sinks located at the Expeditionary Legal Complex (ELC). Both these locations are being supplied water via potable drinking hoses connected to hydrants which are connected to the NS GTMO drinking water supply. However, due to the lack of laboratory analysis within Camp Justice, and the continued use of above ground portable hoses throughout the tented portion of the camp, the drinking water to ELC, Marshall's tent, and all tent latrines cannot be declared FFHC without a comprehensive review and testing of all backflow prevention devices, and assurance that any and all devices connected to the installation water supply are intended for drinking water and meet NSF standard 61.

   **Status**: According to the JPG Environmental Science Officer, drinking water samples have been taken and are awaiting results to determine if the water meets field potability standards. Results are expected approximately 1 December 2016. JPG Environmental Science Officer (ESO) will then provide test results for the buildings to NS PWD. Base Engineer Emergency Force (BEEF) has provided OMC the requirements for the NSF 61 hose standard and OMC will procure. Once procured, BEEF will replace the old hoses.
2. **Recommendation:** Recommend expansion of NAVFAC Public Works to include one or two locations within Camp Justice on their routine required compliance sampling.

   **Status:** OMC states that this is not a requirement because all the buildings, tents, trailers in Camp Justice are officially considered "Expeditionary" although there has been no definitive documentation provided on this determination. To resolve this issue, recommend providing the official classification of these locations as "Expeditionary" in writing. NSGB provides water to all structures (tents, trailers, buildings) at Camp Justice. Due to the potential for cross contamination of the NSGB (fixed installation) drinking water system by the Camp Justice (Expeditionary) drinking water distribution systems (both hard piping and portable hoses), additional sampling points should be added to the drinking water surveillance plan. Additionally, since they are on the same (hard piped) distribution system as the NSGB, we continue to recommend that NSGB PWD ensure water supply for AV-29, AV-31, and AV-34 is FFHC and proper backflow prevention devices are in place to protect the NSGB water supply. OMC South has agreed to fund NSBG PWD to conduct additional sampling in these buildings.
3. **Recommendation:** Recommend that USNH and JTF Preventive Medicine personnel collaborate to ensure Public Health Drinking Water Surveillance for the installation incorporates additional locations throughout Camp Justice.

**Status:** OMC states that this is not a requirement because all the buildings, tents, trailers in Camp Justice are officially considered "Expeditionary". Regardless of the designation, the recommendation is still valid. Adding one or two sampling points, post the agreed upon baseline sampling, is a good preventive medicine practice. The recommendation reiterates that a sampling plan should be representative of the entire drinking water distribution system (Sanitary Control and Surveillance of Field Water Supplies TB MED 577/NAVMED P5010-10/AFMAN 48-138_IP). This is a good business practice for sampling protocols for preventive medicine adherence. NH EHO and Joint Preventive Medicine Group (JPMG) ESO already collaborate on preventive medicine issues. Routine drinking water sampling is already being performed. Lastly, because there was no documented occupational environmental health site assessment (OEHSA) for Camp Justice as would have been expected under current DoD requirements (e.g., DoDI 6490.03, 11 August 2006 "Deployment Health"), there was no baseline document to establish what drinking water surveillance should be done and in what periodicity. So in the absence of compliance with the OEHSA recommendation, the above recommendation should be implemented until such time enough surveillance data is collected to suggest a different surveillance approach.

JPMG ESO and USNH EHO should collaborate and exchange information. Drinking water sampling locations should include the various structures throughout Camp Justice. This is due to the various conveyances of water used throughout each structure.

4. **Recommendation:** Recommend all significant deficiencies noted in the 2012 Sanitary Survey and the 2015 Sanitary Survey (when released) be addressed expeditiously.

   **Status:** As of the October 2016 Sanitary Survey POAM status that was reported to the Commander, Navy Installations Command (CNIC) Water Quality Oversight Council (WQOC), three of eleven significant deficiencies from the 2015 Sanitary Survey remain open. The three open significant deficiencies are currently being addressed.

5. **Recommendation:** Recommend disconnecting all hoses from hydrants and connecting directly to available installation drinking water risers. If hoses are used they must meet NSF 61 drinking water equipment standards.

   **Status:** OMC has decided to keep this part of Camp Justice "Expeditionary" and to continue using the current distribution system (e.g., hoses) for delivery of drinking water.

6. **Recommendation:** Ensure all hoses and drinking water equipment (e.g., couplers) meet NSF 61 drinking water equipment standards and are intended for the distribution of drinking (potable) water (Figures 16 and 17).

   **Status:** OMC will purchase NSF 61 compliant hoses and the BEEF will install. We continue to recommend that all equipment in contact with the drinking water supply (e.g., couplers) meet NSF 61 drinking water equipment standards. Also, a standard operating procedure (SOP) for proper disinfection of hoses and couplers should be in place and followed to prevent contamination of the drinking water supply.

7. **Recommendation:** Recommend hard plumbing of all drinking water supply, to include but not limited to, all hand sinks and showers to all portions of Camp Justice currently being fed by above ground hoses.

   **Status:** OMC has decided to continue using the current distribution system (e.g., hoses) for delivery of drinking water. The decision is based on using "Expeditionary" standards.

## Occupational and Environmental Health (OEH) Surveillance (Page 29):

1. **Recommendation:** Perform an Environmental Baseline Survey (EBS) or OEHSA (based on the multi-service tactics, techniques and procedures [MTTP] for conducting deployment occupational and environmental health assessments), or a similarly rigorous standard practice for conducting environmental health site assessments. The goal of an EBS, OEHSA or similar method for conducting the environmental health site assessment should be to determine if there are completed onsite or off-site pathways of exposure for chemicals of concern that could be related to past industrial chemicals, usage, storage, or disposal practices.

   **Status:** Because there was no documented EBS or OEHSA for Camp Justice as would have been expected under current DoD requirements,[1,2,3] the ISSA and past land use (e.g., former airfield and associated operations), in response to the DoD IG investigation, a PHR, multiple site visits, risk management actions, and environmental sampling and technical reports have been conducted to address this recommendation and include:

   - Navy and Marine Corps Public Health Center, Public Health Review Report for Camp Justice, August 2015.
   - Navy and Marine Corps Public Health Center, Preliminary Public Health Screening Risk Assessment Report for Camp Justice, February 2016.
   - Resolution Consultants, Environmental Investigation Report - Office of Military Commissions - Camp Justice – Naval Station Guantanamo Bay, Cuba, December 2015.
   - Resolution Consultants, Indoor Air Quality Assessment Report – Office of Military Commissions-Camp Justice – Naval Station Guantanamo Bay, Cuba, January 2016.
   - Resolution Consultants, Overseas Baseline Environmental Assessment Report - Office of Military Commissions - Camp Justice – Naval Station Guantanamo Bay, Cuba, January 2016.
   - Navy and Marine Corps Public Health Center, Final Public Health Risk Assessment Report for Camp Justice, February 2017.

   These reports fulfill the recommendations above and form the basis for any future OEH Surveillance efforts[4] as carried out by the JPMG and/or USNH GTMO.

   Recommend as per DoD 6490.03 (Deployment Health), submit the NMCPHC Final Public Health Review Report as a Defense OEH Readiness System Exposure Incident Report (DOEHRS-IR).

   Note: In addition to the DoD level Deployment Health Instruction requiring deployment health action and surveillance, the ISSA between NSGB and JTF GTMO (1 October 2015 – 30 September 2017), also requires (Page 7, para 8.b.) JTF GTMO to:

   > "RECEIVER shall comply with DoDI 6490.03 Deployment Health, DoDI 6055.05 Occupational and Environmental Health, and Joint Chiefs of Staff Memorandum MGM 0028-07 Procedures for Deployment Health Surveillance and perform any actions to identify deployment health resource requirements, perform OEH risk assessments, conduct risk assessments and

[1] MCM 0028-07, 02 Nov 2007, “Procedures for Deployment Health Surveillance”
[2] DoDI 6490.03, 11 Aug 2006 “Deployment Health”
[3] DoDI 6200.04, 09 Oct 2004 “Force Health Protection
[4] DoDI 6490.02E February 8, 2012 (CH-1 03 Oct 2013) “Comprehensive Health Surveillance”

preliminary hazard assessments, and implement OEH risk management and surveillance requirements as required."

2. **Recommendation:** Characterize AO Patriot by conducting environmental sampling to include at a minimum ambient air sampling for volatile organic compounds (VOCs), metals and particulate matter less than 2.5 microns in diameter (PM2.5), soil sampling, and water to assess the potential for vapor intrusion into work and living spaces.
   **Status:** See status above in #1.

3. **Recommendation:** Incorporate continuous OEH surveillance into health service support (HSS) and Force Health Protection (FHP).
   **Status:** This is the task for the OMC/JTF GTMO/NSGB/USNH GTMO working group to develop.

4. **Recommendation:** Limit soil excavations in uncharacterized areas to minimize inhalation and dermal exposure caused from potential soil contamination.
   **Status:** Soil excavations follow normal dust suppression methods implemented for construction activities. As provided by NSGB, the default dust control clause appearing in their contracts is:
   > "DUST CONTROL - Keep dust down at all times, including during nonworking periods. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing will be permitted only for cleaning nonparticulate debris such as steel reinforcing bars. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete. Do not unnecessarily shake bags of cement, concrete mortar, or plaster."

5. **Recommendation:** Conduct a complete environmental audit for NS GTMO.
   **Status:** On 6 -11 August 2016, NAVFAC SE conducted an External Environmental Management System and Compliance Audit Report of NSGB. The purpose of this audit is to meet the OPNAV M-5090.1, Chapter 18-3.1, requirement that an external compliance audit be periodically conducted to evaluate compliance with applicable environmental regulations. The budget submitting office, CNIC, has directed NAVFAC to conduct external compliance audits at CNIC installations at intervals not to exceed every three years. During this external compliance audit, compliance with applicable OEBGD environmental requirements was evaluated. In addition, compliance with DoD, Navy, regional, and installation policies was evaluated.

Audit activities were conducted in accordance with International Organization for Standardization (ISO) 14001:2004, ISO 19001:2002, and OPNAV M- 5090.1. Procedures for both the Environmental Management System (EMS) and the compliance audit included:

- Review of appropriate documentation, records, and reports, including EMS procedures and implementation manuals, environmental management plans, assessment plans, environmental sampling and monitoring records, and other relevant files
- Interviews with various installation, tenant, and contractor representatives
- Site visits to host command, tenant commands, and contractors' operational areas with environmental compliance concerns.

For a facility to be in full conformance, the EMS shall be implemented from fence-line to fence-line including all tenants. The scope of the EMS audit included all the components and elements of the EMS as identified in the ISO 14001:2004 standard as they apply to NSGB. The audit found that:

> "NSGB has not established, documented, and implemented an EMS in accordance with the requirements of ISO 14001:2004 and OPNAV M-5090.1. Eleven (11) major nonconformances were identified in 11 out of the 18 EMS elements."

Within 30 days of the out-brief, NSGB shall develop and submit to the audit team lead a POA&M to address the identified EMS nonconformances and compliance deficiencies. The POA&M shall be developed and submitted to the Audit Team Leader and shall detail how each identified nonconformity and compliance deficiency has been or will be resolved, as well as its root cause. The POA&M must include a detailed description of tasks that will be completed to correct each issue and prevent recurrence, with associated timeframes and responsible personnel. The Audit Team Leader and EMS Lead Auditor will review proposed corrective and preventive actions submitted by NSGB and provide comments to the NSGB installation environmental program director.

## NS Gitmo - Solid Waste Disposal and Air Curtain Incinerators (Page 32)

**Background:** NS GTMO currently uses an air curtain incinerator (burn box) for use at the landfill. The air curtain portion of the incinerators is not functional (at the time of the August NMCPHC report) and compliance monitoring is not being performed. Monitoring was performed in 2012 as part of a Visual Emissions testing and Atmospheric Dispersion Modeling Report when the air curtains were functional. The units were not in compliance with the emissions limits at that time. It appears, based on available documentation that this is operating now as an open burn pit, not in compliance with the OEBGD (DODI 4715.05) Chapters 7 (Solid Waste Requirements - C7.3.12.5 and C7.3.13) and Chapter 2 (Air Emissions), which is prohibited.

**Recommendation:** Recommend expediting the repair of the air curtain (already under consideration by CNRSE). In addition, in lieu of requesting an exemption from SOUTHCOM to continue to operate the burn box, consider installation of emissions compliant incinerators to avoid open burning and the potential impacts on human health, and future liability (e.g., Burn Pit Registry) associated with burn boxes.

**Status:** An environmental audit conducted by NAVFAC SE on 2-6 May 2011 found the following with regard to the burn boxes:

- 60514-E-SO-RC-01-2011: The burn boxes currently used at the MSWLF are sized and designed to operate most efficiently when incinerating relatively small amounts of material which results in little-to-no smoke and flame being generated and/or visible above the top sill. According to the manufacturer's operating specifications, when the equipment is operated properly, no flaming/unburned debris should remain after the box is removed from the burn location.
- Such is not the current case as the burn boxes are typically overloaded to keep up with the incoming daily loads of trash; and smoldering pits of burning debris remain long after the burn box (es) are removed and/or relocated.
- The installation should purchase and place into operation a waste-to-energy (WTE) landfill incinerator designed for larger batch loadings, thereby capable of handling the current daily

volume of generated trash. In the interim, a training program could be implemented so that the existing burn boxes would be operated properly.

**Status:** An environmental audit conducted by NAVFAC SE on April – 02 May 2014 found the following with regard to the burn boxes:

- Compliance Deficiency Reference Number: N60514-E-AE-RG-01-2014
  - REQUIREMENT: Each municipal waste combustion (MWC) unit must comply with the applicable emission standards in OEBGD Table C2.T3 and with the operating limits in OEBGD Table C2.T4. C2.3.2.2. MWC Units. Each MWC unit must comply with the applicable emission standards in Table C2.T3. and operating limits in Table C2.T4. Table C2.T3. Emission Standards for Incinerators and Table C2.T4. Carbon Monoxide Operating Limits for Incinerators Pollutant Emission Standards.
  - REGULATORY CITATIONS: OEBGD, 2.3.2.2
  - EVIDENCE OF COMPLIANCE DEFICIENCY: Emissions-modeling calculations performed in January 2013 by AMEC Environment and Infrastructure Inc. (under contract with NAVFAC SE) show the emission rates of particulate matter (PM), cadmium, lead, and dioxins/furans exceeded the standards listed in OEBGD Table C2.T3.
  - RECOMMENDATIONS: Based on the January 2013 study, the burn boxes are not a viable method to reduce garbage volume since the OEGBD requirements are not being met.

- Compliance Deficiency Reference Number: N60514-E-SO-RG-03-2014
  - REGULATORY CITATIONS: OEBGD 7.3.12.5.
  - EVIDENCE OF COMPLIANCE DEFICIENCY: Two of the three air curtain burn boxes at the MSWLF have nonfunctioning engines. Without functional air curtains, the burn boxes are considered open burning when operating even when the boxes are used. In addition, the municipal solid waste being burned in these boxes does not fall under the allowable exceptions for open burning. Government personnel have not been made aware of the issue and while a maintenance ticket was submitted, there is no immediate time frame for the repair of the boxes.
  - RECOMMENDATIONS: NAVSTA GTMO shall inform the contractor that all issues affecting operations should be brought to the attention of the government. Additionally, the burn boxes need repair or replacement. The burner box is a minimal process employing solid waste volume reduction and must be constantly overseen to insure combustion is effectively maintained.

- Compliance Deficiency Reference Number: N60514-E-SO-RG-02-2014
  - REQUIREMENT: Conditions at land disposal sites must be unfavorable for the harboring, feeding, and breeding of disease vectors.
  - REGULATORY CITATIONS: OEBGD 7.3.12.8.
  - EVIDENCE OF COMPLIANCE DEFICIENCY: This is a repeat of Finding #60514-E-SO-MJ-05-2011. At the MSWLF, tires are being stockpiled. The tire pile poses a large fire hazard that

the installation does not have the capability to extinguish should it ignite. This site also provides a place for water to collect, allowing for the propagation of mosquitoes and disease vectors.

- RECOMMENDATIONS: Install an incinerator capable of handling the tires; alternatively, the tires need to be removed and recycled or disposed of properly by shipping off-site.

- Compliance Deficiency Reference Number: N60514-E-SO-RG-04-2014
  - REQUIREMENT: Installations must implement programs to detect and prevent the disposal of certain wastes in their MSWLFs.
  - REGULATORY CITATIONS: OEBGD 7.3.12.3 and 7.3.12.13
  - EVIDENCE OF COMPLIANCE DEFICIENCY: This is a repeat of finding #N60514-E-SO-MJ-03-2011. Cooking oil and wastewater treatment sludge (from aerobic digesters) are dumped into open pits near the MSWLF. The disposal of these liquids is avoidable.
  - RECOMMENDATIONS: Purchase/install a compliant incinerator to dispose of the sludge and the cooking oils.

**Status:** An environmental audit conducted by NAVFAC SE on 6-11 May 2016 found the following with regard to the waste management and burn boxes:

- Finding Reference Number: N60514-E-O4-RC-01-2016
  - REQUIREMENT: Recycling programs must be instituted on DoD installations.
  - EVIDENCE OF NON-COMPLIANCE: OEBGD Chapter 7.3.9 requires recycling programs to be instituted in accordance with the policies in DoDI 4715.4, Pollution Prevention.
  - RECOMMENDATIONS: While NSGB has made strides in recycling efforts over the last several years, recommend that NSGB continue efforts to divert wastes from the air curtain incinerators and landfill using the path forward outlined by DoDI 4715.4, Section 6.2.3.3 and the 2016 Solid Waste Compliance Solution Solid Waste Program deliverables. NSGB should consider designating either a formal Qualified Recycling Program (QRP) manager or other solid waste/recycling manager (if a QRP is not implemented) within the PWD to specifically promote, monitor, and conduct oversight of recycling/solid waste programs. Personnel performing either of these roles should attend the DoD Multi-Service QRP course. BOS contract modifications, recycling infrastructure/equipment procurement, and increased oversight of contractor operations may be required to continue diversion improvements and reduce the stockpiles of recyclable materials. NSGB should consider establishing a recycling committee involving personnel from appropriate departments/agencies across the installation.

- Compliance Deficiency Reference Number: N60514-E-AE-RG-01-2016
  - REQUIREMENT: Each MWC unit must comply with the applicable emission standards in OEBGD Table C2.T3. and with the operating limits in OEBGD Table C2.T4.
  - REGULATORY CITATIONS: OEBGD 2.3.2.2

- EVIDENCE OF COMPLIANCE DEFICIENCY: Table C2.T3 of the OEGBD titled "Emission Standards for Incinerators" limits opacity to 10 % while operating municipal solid waste curtain incinerator (MSWCI) units. USEPA Method 9 Opacity Tests were conducted in November 2012. Results reported that while operating under normal conditions at the landfill the air curtain incinerators exceed the 10% opacity limit. This is a repeat finding from the 2014 EMS/EEA for exceeding emission standards in Table C2.T3.
- RECOMMENDATIONS: Identify and implement an OEBGD compliant manner of MSW handling and disposal for the station. The Solid Waste Management Technical Compliance Solution Project is currently underway to identify a solution. Project P160 is currently being programmed for FY19 MILCON funding to implement the solutions identified by this project.

- Compliance Deficiency Reference Number: N60514-E-SO-RG-01-2016
  - REQUIREMENT: Installations that operate MSWLFs must use certain standard sanitary landfill techniques as part of their operations.
  - REGULATORY CITATIONS: OEBGD 7.3.12.1
  - EVIDENCE OF COMPLIANCE DEFICIENCY: OEBGD Chapter 7.3.12.1 requires installations operating MSW landfills to use standard sanitary landfill techniques of spreading and compacting solid wastes, and placing daily cover over disposed of solid waste at the end of each operating day. The 2016 Solid Waste Compliance review indicated standard proper engineering techniques for landfill operations are not being followed for any landfilled material, including residuals from the air curtain incinerators and construction and demolition (C&D) debris. The existing landfill does not utilize standard compacting equipment/procedures and does not have an engineered waste fill plan for proper operation. It is industry standard for landfills to have specific compaction equipment and follow a written operations and fill plan. Proper waste spreading and compacting are thus not being implemented. Based on the deposition of ash from the incinerators being present on the ground surface during site visits, daily covering of material is not consistently implemented. There is also visible debris present on the side slopes and top surface of the MSW landfill which have not been covered. Some debris is so large that it requires further processing. The existing landfill has side slopes approaching 1:1, exceeding industry accepted landfill techniques. Industry standard practices are 3:1 slope or shallower. The high tidal line of an adjacent tidal flat reaches the toe of the landfill cell face. Controlling erosion of landfill slopes is among the primary concerns for standard landfill operations. Standard practices generally include a combination of temporary controls in active disposal areas, and permanent controls (re-contouring, re-vegetation, etc.) in areas where waste disposal has been completed. There are no such controls being implemented at the existing landfill operated at NSGB. The existing slopes also cause potential safety concerns to personnel due to possible slope failure/collapse.
  - RECOMMENDATIONS: (1) NSGB should develop a landfill operations/fill plan with the support of an engineering firm. This plan should detail the appropriate spreading and compaction procedures, side slopes, and specialized equipment required. These procedures should be incorporated as requirements into a base operation support (BOS) contract

modification. (2) In most jurisdictions, municipal solid waste and C&D landfill operators must attend specific operator training and obtain certifications specified by a State agency. Recommend that the BOS contract be reviewed to determine an appropriate industry standard landfill operator certification requirement for BOS personnel designated as operators of the landfill. NSGB should consider obtaining such training for personnel conducting oversight of the landfill operation. (3) NSGB should review the current BOS contract or other procurement mechanisms to obtain the proper equipment for compaction and side slope maintenance at the landfill. (4) Visible debris on the side slopes of the landfill should be collected and processed for either disposal or recycling. Considerable metal debris could be processed for scrap metal. Erosion control measures should be designed and implemented for the slopes.

- Compliance Deficiency Reference Number: N60514-E-SO-RG-03-2016
  - REQUIREMENT: Installations must store all solid wastes, and materials separated for recycling, in accordance with specific guidelines.
  - REGULATORY CITATIONS: OEBGD 7.3.4
  - EVIDENCE OF COMPLIANCE DEFICIENCY: (1) NSGB has a stockpile of scrap tires estimated to exceed 100,000 tires that was generated prior to the current BOS contract. The stockpile covers over 28,000 square feet. OEBGD Chapter 7.3.4 requires that all solid wastes or materials that have been separated for the purpose of recycling will be stored in such a manner that they do not constitute a fire, health or safety hazard or provide food or harborage for vectors, and will be contained or bundled to avoid spillage. The tire stockpile poses a significant fire hazard and is located relatively near operating air curtain incinerators. The tire stockpile also provides for the propagation of mosquitoes and potentially other vectors. (2) At the Centerra Vehicle Maintenance Facility there were approximately 200 scrap tires accumulated near the wash rack and on the ground surface. These tires were not in a covered area and were collecting water, creating habitat for mosquitoes.
  - RECOMMENDATIONS: (1) The historical stockpile should be monitored to ensure additional tires are not added to the stockpile. The new stockpile at the landfill managed by the current BOS should be monitored to ensure the contractor ships the tires to an authorized U.S. facility on a routine basis. (2) NSGB should program for equipment to process the historical scrap tire stockpile and modify the BOS contract to address the proper disposition of the historical stockpile. (3) The scrap tires at the Centerra Vehicle Maintenance Facility should be monitored by oversight personnel to ensure they are covered to prevent vector propagation. NSGB should discuss with Centerra Vehicle Maintenance Facility options for cleaning and containerization of these tires without transporting them to another open pile near the landfill.

**Status Summary:** The solid waste disposal operations are out of compliance with OEBGD and final governing standards (FGS) for Cuba. This long standing concern was identified in 1994, 1997, 1998, 2000, and 2007 by NAVINSGEN reports and in 2008, 2011, and 2014 NAVFAC External Environmental Audits. NSGB's waiver from USSOUTHCOM to burn solid waste expired in May 2000. CNRSE recently

(Aug 2015) endorsed a NSGB waiver application to USSOUTHCOM that would allow continued use of the non-compliant incinerators until compliant facilities are in place, or 2021, whichever occurs first. USSOUTHCOM approved the waiver on 6 January 2016 for a period of one year with direction to continue to develop a POA&M for correction of non-compliance and provide USSOUTHCOM a monthly progress report. The waiver will be re-evaluated each year with the possibility of extension so long as CNRSE continues to abide by the POA&M.

Accordingly, a DD Form 1391 has been submitted for the Program Objectives Memoranda (POM) Fiscal Year 2019 MILCON Cycle for the solid waste management solution for the NSGB. The project includes construction of a new 15 acre lined MSW landfill with a leachate collection system, a waste sorting/processing facility, new lined sewage ponds, and the associated utilities upgrades to support the new facilities. The project is currently awaiting preliminary design authority to continue on to the detailed design phase. Landfill is expected to take 5 – 7 years for completion.

On 28 October 2016, NSGB (CO NSGB letter 5090 N00 28 Oct 16) requested renewal of the waiver to the FGS to continue to operate the incinerators through 31 January 2021. This was endorsed by CNRSE on 3 November 2016 and by USSOUTHCOM on 10 November 2016. On 29 December 2016, SOUTHCOM granted an extension of the waiver to 6 January 2018.

## Final NMCPHC PHR Report Rollout (Page 33)

**Recommendation:** Finally, if additional environmental data is collected by CNRSE, and a human health risk assessment report is completed by NMCPHC, NMCPHC recommends posting this report to the NS GTMO webpage and conduct town hall meetings to roll out the results to the stakeholders (internal and external).
**Status:** To date, all technical reports and fact sheets developed are posted on the NSGB Public Health Review Website:
https://cnic.navy.mil/regions/cnrse/installations/ns_guantanamo_bay/om/environmental_support/Guantanamo_Bay_PHR.html

The specific rollout process of the final report is now under consideration by Navy, SOUTHCOM and OMC Leadership.

## Asbestos Identification and Counting

This finding and recommendation were not identified in the 21 August 2015 report, rather discovered in conversations with the USNH GTMO industrial hygiene personnel after the report was issued. OPNAVINST 5100.23G CH-1 (Navy Safety and Occupational Health Program Manual - 21 Jul 2011 – Chapter 3 Organization and Staffing) requires that medical activities having an industrial hygienist on staff are to maintain or establish minimum laboratory capabilities for local usage to include the following:

- Asbestos identification and quantification using polarized light microscopy (PLM) and phase contrast microscopy (PCM).

Further, regions and activities with a local asbestos laboratory for analysis of potentially asbestos containing material samples must be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP), the National Institute for Standards and

Technology (NIST), the round robin for bulk samples administered by the American Industrial Hygiene Association (AIHA), or an equivalent nationally-recognized round robin testing program.

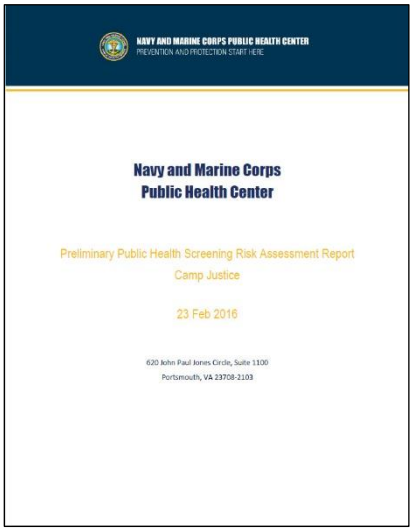
This required capability at USNH GTMO was no longer available after March 2013 as the program was disenrolled from the AIHA Laboratory Quality Assurance Program and the Navy RTI Asbestos Identification Proficiency Testing Program. The reason for this is unclear but may be related to a lack of sample analysis requests from the NSGB AMP that was not fully implemented.

Accordingly, NMCPHC has been working aggressively with NAVMEDEAST and USNH GTMO to re-establish this. This included purchase and calibration of new microscopy equipment and sending two individuals for Microscopy Instruction, Consultation and Analysis (MICA) training

Currently, the USNH GTMO industrial hygiene asbestos counting and identification laboratory is functional, and the staff is trained and participating in the Proficiency Analytical Testing (PAT) program.

# From the 23 February 2016 NMCPHC Preliminary Public Health Screening Risk Assessment Report:

## Recommendations (Page 18)




1. **Recommendation**: OMC and JTF USSOUTHCOM provide more granularity on exposure durations for their personnel who work and/or live on Camp Justice for use in the final report so that the report can capture the full range (maximum to minimum of exposure durations).

   **Status**: Requested information provided in February 2016. Requested information was verified by SOUTHCOM January 2017.

2. **Recommendation:** Mercury samples, representative of employee exposure and suitable for human health risk assessment, should be performed in AV-29 using appropriate sampling methodologies**.**

   **Status:** This mercury sampling occurred during a subsequent site visit in April 2016 with results provided in the 24 May 2016 Resolution Consultants Supplemental Environmental Investigation Report for the Mercury, Analysis for background PAHs in Soil, and PCBs Sampling.

   **Follow-on Mercury Recommendation from the NMCPHC Phase I Public Health Screening Risk Assessment**[5] **-** No further action recommended for mercury in indoor air of this building. However, if construction/remodeling occurs that disturbs flooring, indoor air mercury concentrations should be monitored to ensure that they remain below appropriate health-based levels.

3. **Recommendation:** In the future, recommend replacement or purchase of new modular buildings constructed with no, or low emission formaldehyde containing materials. A heating, ventilation, and air conditioning (HVAC) consultant should evaluate the capacity of the existing air handling equipment in the modular units to provide additional ambient air flow while maintaining acceptable temperature and humidity levels under maximal expected loads.

   **Status**: During the May/April 2016 timeframe, OMC performed HVAC inspections and implemented a range of HVAC system modifications to reduce the levels of formaldehyde in modular buildings. Resampling to verify the effectiveness of those actions occurred during a subsequent site visit in April 2016 with results provided in the 6 May 2016 Resolution Consultants Supplemental Environmental Investigation Report for Formaldehyde Sampling Results.

   **Follow-on Formaldehyde Recommendation from the NMCPHC Phase I Public Health Screening Risk Assessment**[5] **-** OMC should implement an operation and maintenance plan that includes regular inspections to ensure that the HVAC modifications are in place as long as the buildings are in use.

[5] For information see https://www.cnic.navy.mil/content/dam/cnic/cnrse/pdfs/ns_gitmo/Camp_Justice_PHR_OMC_All_Hands_Brief_15July2016_Sanitized_for_Public_Release.pdf.

OMC should consider implementing HVAC modifications at all modular buildings/Cuzcos not identified/labeled as formaldehyde-free at Camp Justice.

**Status:** For the Cuzcos, the following actions were taken:

- All bathroom exhaust fans have been wired to run continuously (24/7).
- All air conditioner units are having the coils cleaned.
- OMC has told occupants to keep the bathroom door shut during and immediately after showering and to leave the air conditioners running at all times, set at no less than 72 degrees Fahrenheit.
  - Further they were told to use the economy setting so that outside air is brought through the air conditioner instead of just recirculating interior air.
  - Signs will be posted in the Cuzcos reminding occupants of these guidelines.
- OMC is ordering silicone caulk in order to re-caulk the air gaps.
- OMC has requested that air conditioner/dehumidifier combination units be placed on the list of units that they can easily purchase. BEEF has indicated that it is near time for a life cycle replacement of the air conditioners and they are evaluating if now is the proper time to do such a replacement.

4. **Recommendation:** Background analysis should be conducted for soil to determine concentrations of arsenic and other metals that are site-related versus those that are not.

   **Status:** Background analysis for arsenic in soil occurred during a subsequent site visit in April 2016 with results provided in the 24 May 2016 Resolution Consultants Supplemental Environmental Investigation Report for the Mercury, Analysis for Background PAHs in Soil, and PCBs Sampling.

5. **Recommendation:** Site reconnaissance should be conducted for soil adjacent to AV-34 to determine the need to further characterize the extent of benzo(a)pyrene in the soil.

   **Status:** Site reconnaissance was conducted during a subsequent site visit in April 2016 with results provided in the 24 May 2016 Resolution Consultants Supplemental Environmental Investigation Report for the Mercury, Analysis for Background PAHs in Soil, and PCBs Sampling.

6. **Recommendation:** PCB wipe and/or soil samples should be collected inside the transformer vault and soil samples should be collected proximate to outside transformers 40-810 and NP 214222.

   **Status:** PCB wipe samples were collected during a subsequent site visit in April 2016 with results provided in the 24 May 2016 Resolution Consultants Supplemental Environmental Investigation Report for the Mercury, Analysis for Background PAHs in Soil, and PCBs Sampling.

7. **Recommendation:** Moving forward, for simplicity, implementation and continuity of services and recordkeeping, recommend NS GTMO, JTF GTMO and OMC discuss having NS GTMO provide those occupational and environmental services as they would for any other tenant command.

   **Status:** A working group comprised of representatives from OMC, JTF, NSGB, NAVFAC PW, and USNH GTMO now meets periodically to discuss the way forward with regard to the data gaps and recommendations identified in the technical reports.

# From 12 January 2016 Resolution Consultants Indoor Air Quality Assessment Report:

## Background

Resolution Consultants observed the following conditions during the assessment:

- The floor tile on the second floor, West Mezzanine of AV-32 was in poor condition with many broken tiles, and tile chips observed. These floor tiles were previously identified as non-friable ACM in the Harmon Engineering Associates report dated 23 September 2004 (Harmon Engineering Associates 2004).[6]
- Paint chips were observed on the floor of AV-32. Paint was observed to be scaling off of the ceiling and accessible wall surfaces. Based on the Harmon Engineering Associates report dated 23 September 2004, this paint is assumed to contain Lead.
- The observed condition of the vinyl floor tile and painted surfaces in the West Mezzanine of AV-32 indicates that the O&M plan recommended in the Harmon Engineering Associates report dated 23 September 2004 is not fully implemented.

## Recommendations

Resolution Consultants recommends the following actions (Page 4-1):

1. **Recommendation:** Perform airborne asbestos sampling in AV-32. Due to the condition of the floor tile on the second floor West Mezzanine, airborne asbestos sampling should be performed to determine if the asbestos is properly contained and managed.

   **Status:** Asbestos was previously identified in building materials in Buildings AV-29 and AV-34, Bunker AV-31, and Hangar AV-32. Therefore, air samples were collected to determine if airborne asbestos particles were present. No samples for asbestos exceeded the Occupational Safety and Health Administration (OSHA) regulatory standard.
2. **Recommendation:** Review the O&M plan for the previously identified asbestos floor tile and lead paint present in AV-32. The observed condition of the vinyl floor tile and painted surfaces indicates that the O&M plan recommended in the 2004 report has not been fully implemented.

   **Status:** This status has been provided earlier on Page 1 in the Asbestos section.
3. **Recommendation:** Discard and replace water-stained ceiling tiles in Room 10 in AV-34. Ceiling tile replacement should be conducted concurrent with the identification and elimination of water intrusion sources (i.e., pipe and roof leaks).
   **Status:** Complete
4. **Recommendation:** Remove and clean the plastic ceiling light covers in AV-34. Evaluate whether the moisture buildup could be due to a vapor barrier being created by the insulation used above the drop ceiling.
   **Status:** Complete

[6] Harmon Engineering Associates. U.S. Naval Station, 93 Buildings (Phase 1) Guantanamo Bay, Cuba. September 23, 2004.

5. **Recommendation:** Clean the VSMG (visible suspect microbial growth) observed in the first floor utility closet in AV-29, on the ceiling and wall in the room adjacent to Courtroom I in AV-34, and in the light fixture in the CLO Director's office in AV-34 with water and a detergent solution, and then vacuum with a high-efficiency particulate arresting filtered equipment after the areas dry.
   **Status:** Complete

6. **Recommendation:** Check the drainage system for the AV-29 first floor air handler to verify that it is functioning correctly. The high average relative humidity measured on the first floor of AV-29 indicates that the first floor air handler may not be draining condensate efficiently.
   **Status:** Complete

7. **Recommendation:** Inspect the central HVAC systems in AV-29 and ensure there is a good balance of supply and return air. Good supply and return air balance will ensure system efficiency and help relieve areas of low air flow.
   **Status:** Complete

8. **Recommendation:** Have a licensed HVAC technician inspect, service, and clean (if needed) AV-29 and AV-34 HVAC units to ensure they are properly sized and configured, and working as originally designed to maintain relative humidity levels within ASHRAE guidelines.
   **Status:** Complete