

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Service, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

1. REPORT DATE (DD-MM-YYYY) 03-08-2018		2. REPORT TYPE Capstone Project		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Analysis of the Implementation of the Asbestos Program Management Manual at the Repair and Construction of the Military Sealift Command Office building TP-314				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Vaughn, Tommy L., II				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Civilian Institutions Office (Code 522) Naval Postgraduate School 1 University Circle, Herrmann Hall Rm HE046 Monterey, CA 93943-5033				10. SPONSOR/MONITOR'S ACRONYM(S) NPS CIVINS	
				11. SPONSORING/MONITORING AGENCY REPORT NUMBER	
12. DISTRIBUTION AVAILABILITY STATEMENT Approved for public release; distribution is unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT <p>The specific purpose of this project is to identify how NAVFAC Mid-Atlantic implemented the Asbestos Management Program during the repair and construction project for building TP-314; a 20,550 square foot office space that supports the mission of the Military Sealift Command (MSC) onboard Naval Station Norfolk. This is a suggestive project approach that was designed to be informative and used as an area of improvement.</p> <p>This project will underscore the implications of not having internet Naval Facilities Assets Data Store (iNFADS) data readily available for a building and how NAVFAC Mid-Atlantic can improve their ability to provide excellent shore services and support. The conclusions that were drawn from the project will focus on the need to continuously update and maintain the iNFADS data.</p>					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 24	19a. NAME OF RESPONSIBLE PERSON
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U			19b. TELEPHONE NUMBER (Include area code)

THIS PAGE INTENTIONALLY LEFT BLANK

Final Project

Analysis of the Implementation of the Asbestos Program Management Manual at the
Repair and Construction of the
Military Sealift Command Office building TP-314

Submission Date: August 3, 2018

ENMA 605: Program Capstone
By: Tommy L. Vaughn II

EXECUTIVE SUMMARY

The specific purpose of this project is to identify how NAVFAC Mid-Atlantic implemented the Asbestos Management Program during the repair and construction project for building TP-314; a 20,550 square foot office space that supports the mission of the Military Sealift Command (MSC) onboard Naval Station Norfolk. This is a suggestive project approach that was designed to be informative and used as an area of improvement. The project data presented was collected from the TP-314 construction documents and the project addresses the presence and handling of the asbestos. Due to a building that was conducted, asbestos was identified in the pipe insulation and in several concealed areas within the building, such as walls chases, shafts, and ceilings. This determination is valuable because asbestos exposure generally comes from airborne particles that have achieved a friable state (easily crumbled) or it has been disturbed accidentally or most commonly, construction activities. When it is disturbed, fibers are released into the air and it places an individual at risk of developing lung cancer, asbestosis, mesothelioma and other cancers of the digestive system, mouth, esophagus, stomach and lower intestines. This project will underscore the implications of not having internet Naval Facilities Assets Data Store (iNFADS) data readily available for a building and how NAVFAC Mid-Atlantic can improve their ability to provide excellent shore services and support. The project implications and issues at and beyond the local level, is largely associated with the tactics, methods and procedures for the safe removal and disposal of asbestos. Specifically, training, record keeping and managing liability, in efforts to keep the asbestos program sustainable regardless of who the Asbestos Program Manager is. The conclusions that were drawn from the project will focus on the need to continuously update and maintain the iNFADS data. The importance of providing these updates will be highlighted during the explanation of process required to conduct a thorough building inspections and how it

provides a wholistic view of all issues associated with the building. Not having records to show the actions that were taken to mitigate asbestos exposure, records that are potentially required by law, adds an additional and preventable risk to the Navy or a large installation like Naval Station Norfolk. The contributions and deliverables expected from the project are a milestone and network diagram will be produced to identify project achievements and a network diagram to show the critical path of the project.

TABLE OF CONTENTS

Acknowledgements/Disclaimers.....	5
Background.....	6
Project Definition.....	9
Project Significance.....	10
Project Approach.....	10
Specific Project Design.....	16
Project Management.....	18
Recommendations and Project Results.....	20
References.....	22
Student Biographical Data.....	23

ACKNOWLEDGMENTS/DISCLAIMERS

I would first like to start by thanking God for the continuous blessings of strength, courage and dedication to complete my graduate studies, without his oversight and guidance I would not have made it. I would especially like to thank my family, specifically my parents for their continuous support in pressing forward to achieve my second master's degree. I would like to thank my fellow NAVFAC, MID-ATLANTIC officers and the civil servants for supporting me with this project. Lastly, I would like to give a special thank you to my Engineering Management professors; with architecture being my background this curriculum challenged me and took me out of my comfort zone. For that, I am very thankful because I am a better man, Navy officer and architect. I thoroughly enjoyed all my classes and I wanted to take the opportunity to express the inspiration it has provided me to reach my full potential and to accomplish my life goals. This project is a suggestive approach that was designed to be used as an area of improvement. Any distribution of information and results in this project beyond the scope of this course is subjective for approval. The conclusions and recommendations provided are that of the author alone and do not represent determinations made by the NAVFAC Mid-Atlantic senior staff.

BACKGROUND

GENERAL FOCUS OF THE PROJECT

I will use the repair and construction project of building TP-314, a 20,550 square foot office space that supports the mission of the Military Sealift Command (MSC) onboard Naval Station Norfolk as an example of how NAVFAC, Mid-Atlantic implements the asbestos management program information and guidance. The manual implementation is paramount in the effort to eliminate the risk of asbestos exposure to facility occupants and maintenance personnel by substitution with asbestos free material or where this is not possible, through the use of engineering and administrative controls. This manual provides a synopsis, including supplementary roles and obligations, for the Naval Facilities Engineering Command's implementation of the requirements specified by Chief of Naval Operations Instruction 5100.23 Navy Safety and Occupational Health Program Manual Asbestos Management Program Ashore. The Asbestos program in adjunct to the Environmental Safety and Occupational Health program requiring a multi-disciplinary methodology; however, the asbestos program is centrally managed and implemented by the Public Works Business Line Facilities Management and Sustainment Product Line to guarantee the program is integrated with facilities maintenance execution procedures, techniques, and processes (P-502, 2017).

THE PLAYERS/ORGANIZATION/COMPANY FOR THE PROJECT

MSC: Provides sealift and ocean transportation for the Navy and the Department of Defense, operating approximately 125 ships daily around the world. MSC ships sustain our warfighting forces and deliver specialized maritime services such as, material staging and storage, handling and processing, receipt and shipping, in support of national security objectives in peace and war.

U.S. Fleet Forces Command (USFFC): Military Sealift command is a component of the Navy,

reporting to USFFC. USFFC is a service component command of the United States Navy that provides naval forces to a wide variety of U.S. forces. Its mission is to organize, man, train, and equip Naval Forces for assignment to Unified Command Combatant commanders; to deter, detect, and defend against homeland maritime threats and to articulate Fleet warfighting and readiness requirements to the Chief of Naval Operations. NAVFAC, Mid-Atlantic: Are facility experts, managing the planning, design, and construction of shore facilities for the U.S. Navy from Main to North Carolina. Headquartered in Norfolk, VA, they fully support the mission of Commander, Navy Region Mid-Atlantic and Commander, Navy Installations Command to enable and enhance Navy combat power by providing the most effective, efficient and cost-wise shore services and support. Naval Station Norfolk: Supports the operational readiness of the U.S. Atlantic Fleet, providing facilities and services to enable mission accomplishment.

IMPORTANCE OF THE ISSUE/PROBLEM RESOLUTION

The Navy incurs significant cost every year as a result of injuries, illnesses and property damage resulting from workplace hazards. These expenses make it essential to develop and maintain programs to eliminate or control all identified hazards in a systematic manner to help reduce cost. Asbestos is a general term that applies to a variety of naturally occurring fibrous mineral silicates such as chrysotile, amosite, crocidolite, tremolite, anthophyllite and actinolite or any products composed of these minerals. In buildings, exposure generally comes from airborne particles that has become friable (easily crumbled) or that has been disturbed accidentally or by construction activities. When asbestos is disturbed, its fibers are released into the air and exposure to its fibers puts an individual at risk of developing lung cancer, asbestosis, mesothelioma and other cancers of the digestive system, mouth, esophagus, stomach and lower intestines. Disease symptoms may take many years to develop following exposure and asbestos-related conditions can be difficult

to identify. Healthcare providers usually identify the possibility of asbestos exposure and related health conditions like lung disease by taking a thorough medical history (EPA.gov, 2018). The dangers of asbestos have been known for decades, yet the risk of exposure to this hazardous material still exist today. It can be found in many types of building materials in older construction, such as pipe and blown-in insulation, asphalt flooring, vinyl sheet and tile flooring, construction mastics, ceiling tiles, textured paints, roofing shingles, cement siding, caulking and vinyl coverings.

Asbestos Containing Materials NOT Banned

Asbestos cement/transite
Asphalt roofing products
Ceiling tile
Resilient flooring/tile and sheeting
Mastics
Millboard
Wallboard and joint compound
Caulking and glazing

Figure 1. Asbestos Containing Materials NOT Banned (P-502, 2017)

Asbestos is regulated under two federal laws and one federal agency restriction: The Clean Air Act of 1970, the Toxic Substances Control Act (TSCA) of 1976, and the U.S. Consumer Product Safety Commission (CPSC). Under authority of the TSCA, in 1989 the EPA issued a ban on certain asbestos products within the United States (Ballast and O’Hara, February 2017). To gain a better understand of the project, it is necessary to briefly explain the history of Naval Station Norfolk and how long the builds have been in existence. Naval Station Norfolk has been around for 100 years and is the world’s largest naval complex. The 474 acres of land on which Naval Station Norfolk is located, was originally the site of the 1907 Jamestown Exposition, it was purchased by the Secretary of the Navy after World War I in April 1917 (2018, July 01). During the late thirties and early

forties is when the majority of the buildings, hangars, runways and piers were constructed. Many of these buildings have achieved historical status and are still in use today.

PROJECT DEFINITION

PROJECT PROBLEM/FOCUS

The overall focus of the project is to provide adequate office space for direct warehouse supervision to assist MSC in supporting increased mission requirement. The specific purpose of this project is to conduct an analysis of the implementation of the Asbestos Program Management manual by NAVFAC, Mid-Atlantic during the construction and repair of the 20,550 square feet of office space, building TP-314. The presence of asbestos has been identified in pipe insulation and mudded pipe fittings, concealed areas within the building such as walls chases, and ceilings. All concealed areas will be disturbed by the construction and repair effort and will need to be carefully opened and inspected for the presence of asbestos materials. Special precautions will have to be taken to prevent the disturbance of any asbestos material during the opening of the concealed areas. The presence of vinyl asbestos tile and asbestos-containing mastic has been located below the existing vinyl composite tiles in the existing office space. The building has historic steel sash windows and all glazing putty at each window panel need to be carefully removed and salvaged for government re-use.

Project Limitations

- Access to iNFADS data
- The objective of this manual is to make recommendations to the APMs in the management of the asbestos program at their installation, not provide direction
- One construction project is being evaluated

Project Assumptions

- Assume 1,050 linear feet of asbestos abatement for pipe insulation and fittings total for the project.
- Assume all Vinyl Asbestos Tile (VAT) and mastic below existing Vinyl Composition Tile (VCT) contains asbestos
- assume 3,786 square feet of asbestos-abatement for VAT and mastic total for the project.
- assume 1,050 Linear feet of asbestos-abatement of glazing putty total for the project
- Assume that all glazing putty contains asbestos.
- Assume vinyl asbestos floor tile and asbestos-containing mastic are encapsulated below existing VCT flooring

PROJECT SIGNIFICANCE

The local level impact of this project will demonstrate the benefits of implementing risk management planning tools and techniques that can be used to achieve safe living/working environment's and zero asbestos accidents, mishaps, or exposure to Asbestos Containing Material (ACM). The application of engineering management knowledge is demonstrated by NAVFAC Mid-Atlantic's ability to provide facilities engineering lifecycle support for every naval installation and establish a rigorous and aggressive approach to continuous process improvement. The implementation of the Asbestos Management Program guidance and information manual demonstrates the understanding of appropriately identifying, analyzing, prioritizing and responding to the risk of exposure to ACM associated with a construction project. The potential extension of project approach or findings beyond the local application without question will provide a solid foundation from which to build upon for better application of the APM manual. The knowledge gained could be used to build a stronger framework for an installation to manage and document all asbestos mitigation and prevention actions. This will ensure that personnel are properly trained and protected from asbestos exposure caused by inadvertent disturbance of ACM.

PROJECT APPROACH

PROJECT DESIGN OVERVIEW

In order to evaluate the information required for an analysis of the implementation of the Asbestos Management Program the construction manager had to grant approval of the project and allow access to the construction documents. Upon receiving approval to access the required information, I was able to push forward and any additional information required was obtained by speaking to the Facilities Management Director and the Environmental Business Line staff. After collecting and organizing the information an analysis was conducted to ascertain the effectiveness of the guidance and tactics suggested by the APM. The output of the analysis would indicate to the organization certain aspects of the APM that should be revised and/or avoided in future construction projects.

Project Evaluation

The Facility Management Specialist (FMS) ensured the surveillance and evaluation of all materials suspected of containing asbestos material during their project site inspection. The FMS's inspected the facility to identify, locate and assess the condition of all possible friable and non-friable ACM. They assessed the condition of the material to identify potential hazards and prioritize the required abatement safety procedures and actions.

Determining Risk Assessment Code (RAC) for Asbestos Projects

The methodology used to determine the risk of asbestos exposure in building TP-314 was derived from assessing the probability of exposure, the hazard severity (condition of the asbestos) and risk assessment code that combines the elements of hazard severity and mishap probability. NAVFAC uses the below methodology to prioritize all abatement projects and determine the safety and ergonomic hazards.

1. Probability

NO. OF PEOPLE	HOURS/WEEK		
	1-8	9-40	>40
1-4	D	C	B
5-9	C	C	B
10-49	C	B	A
50 or more	B	B	A

2. Hazard Severity

	SEVERITY
NAFS=66-102 or Severely Damaged	I
NAFS=33-65 or Damaged	II

3. Risk Assessment Code

HAZARD SEVERITY	PROBABILITY			
	A	B	C	D
I	1	1	2	3
II	1	2	3	NA

Legend

A	Likely to occur immediately
B	Probably will occur in time
C	Possible to occur in time
D	Unlikely to occur
I	Death, permanent total disability or loss of facility or asset
II	Permanent partial disability or major property damage

Figure 2. Instructions for Determining Risk Assessment Code for Asbestos Projects (Probability, Hazard Severity and Risk Assessment Code) (P-502, 2017)

National Emissions Standards for Hazardous Air Pollutants (NESHAP) Notification

NAVFAC Mid-Atlantic is required by NESHAP regulations to ensure that a written notification to the EPA is done when at least 160 square feet or 260 linear feet of Regulated Asbestos Containing Material (RACM) is to be disturbed as a result of either renovation or demolition. The renovation project required that 1,050 Linear feet of asbestos-abatement of glazing putty and pipe insulation be removed or encapsulated. The notification is filed with EPA Region 3 (Mid-Atlantic); they serve Delaware, District of Columbia, Maryland, Pennsylvania, Virginia and West Virginia. The dividing of a project into a series of smaller jobs to avoid the notification requirements is not permitted and NAVFAC Mid-Atlantic must make the notification within 10 working days before the disturbance of RACM; Figure 3, shows the NESHAP decision logic for notifications.

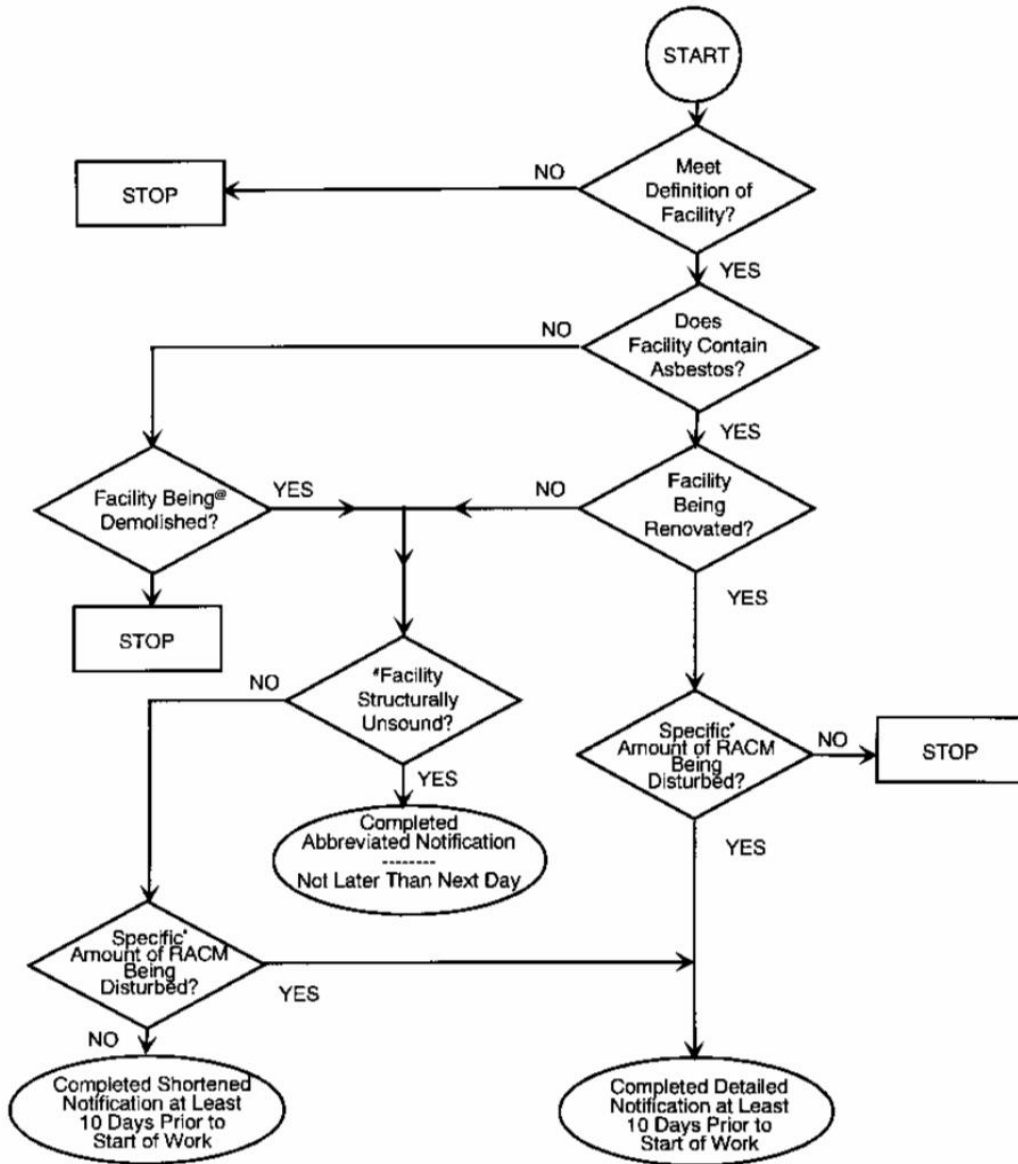


Figure 3. NESHAP Decision Logic to Determine Notification Requirements

(OPNAVINST 5100.23G, 2005)

Abatement Plan

Abatement plans are required for all projects that require regulatory notification. The plan must be written by the contractor and approved by the NAVFAC Mid-Atlantic project designer. Typically, this is the APM. However, if another NAVFAC employee with project designer training (such as someone from Facilities Engineering Acquisition Department) performs the review, no additional assessment is required. An example of an Abatement Plan review and approval form is provided below in Figure 4.

Appendix I – Asbestos Abatement Plan Checklist

Project Title: _____

Building/Room: _____

Contract Number: _____

Date Plan Received: _____

() Fully address each Checklist Item and **resubmit** for approval

() Approved

ASBESTOS ABATEMENT PLAN CHECKLIST	
Item Fully Addressed (Yes/No)	CHECKLIST ITEM DESCRIPTION
	1. Is the plan prepared, signed, and sealed by a Qualified Person (i.e., a Certified Asbestos Consultant (CAC), AHERA Project Designer, etc.)? <ul style="list-style-type: none"> • Provide the certification number and date for the Qualified Person. • Provide up-to-date asbestos training records. • Provide up-to-date Asbestos Worker Medical Clearance report • Provide up-to-date fit test certificates for asbestos worker(s)/supervisor(s).
	2. Does the plan include a drawing showing the location, size, and details of asbestos regulated areas, including the following: 1) location of the clean and dirty areas, 2) buffer zones, 3) showers, 4) storage areas, 5) change rooms, 6) exclusion zones, and 7) local exhaust equipment?
	3. Does the plan include a work area and breathing zone air monitoring plan?
	4. Does the plan include the personal protective equipment to be used as well as donning/doffing procedures?
	5. Does the plan include step-by-step details for the sequencing of asbestos-related work? The asbestos abatement plan must: <ul style="list-style-type: none"> • Specify what Asbestos material(s) are to be removed/disturbed, • State whether such materials are friable/non-friable, • State whether mechanical means will be used to remove such materials, and if not, what means will be used. • State whether a notification to the San Diego APCD is required. If a notification is required, the NBPL Asbestos Program Manager (APM) must approve all notifications (in writing) prior to submittal to the San Diego APCD.
	6. Does the plan include a disposal plan for hazardous and non-hazardous wastes? <ul style="list-style-type: none"> • Clean Harbors has signature authority for hazardous waste manifests (if applicable).
	7. Does the plan specify the type of wetting agent and/or solvent to be used? <ul style="list-style-type: none"> • What products will be used (i.e., solvents, amended water, etc.)? <ul style="list-style-type: none"> ✓ Provide respective MSDS/product specification sheets. • If a solvent is to be used, a usage log must be kept (regardless of the quantity to be used). <ul style="list-style-type: none"> ✓ To be exempt from permitting, the mastic removal solvent used must have a vapor pressure less than or equal to 0.2 mmHg and be used in volumes less than or equal to 11 gal/day.
	8. Does the plan include both Fire and Medical Emergency response plans? <ul style="list-style-type: none"> • Provide phone numbers and addresses for emergency medical services (to be used).
	9. Does the plan include a detailed description of the environmental pollution controls method? <ul style="list-style-type: none"> • How will water runoff be captured (if applicable)?

 Installation Asbestos Program Manager
 Ph: () - or

 Date

Figure 4. Abatement Plan review and approval form (P-502, 2017)

SPECIFIC PROJECT DESIGN

The initial step of developing the project occurred with the student soliciting input from the FMD, the Environmental Business Line staff and the construction manager assigned to the repair and construction of building TP-314. The principal data collection for the project was gathered from the construction documents and the APM manual. After a brief review of the documents it was determined that the information provided would be adequate for gathering the required abatement focus areas for the project.

Data Collection

The project data was collected from the TP-314 construction documents, it provided the requirements for the abatement of hazardous materials and the repairs/upgrades to several historic steel sash windows. The hazardous materials inspection that was performed indicated the presence of asbestos contaminants in the building components and required destructive activities such as breaking into walls, ceilings and floors to uncover and remove the asbestos containing material.

Plan for Data Analysis

The plan for the analysis of the data is to help NAVFAC, Mid-Atlantic's Public Works department implement effective asbestos management strategies and adhere to the following methodologies during implementation:

Compliance: Programs must be compliant with federal/host country regulations, state/local regulations, and Navy policy.

Safety: Practices and policies should be incorporated to protect workers, building tenants, and other users of Navy facilities to minimize airborne exposure to asbestos fibers below the regulatory standard, and preferably keeping exposures as low as reasonably achievable.

Consistency: Management programs should provide equal amounts of protection from PWD to PWD but be flexible enough to meet the needs of individual PWDs and their unique circumstances.

Project Results of Data Collection

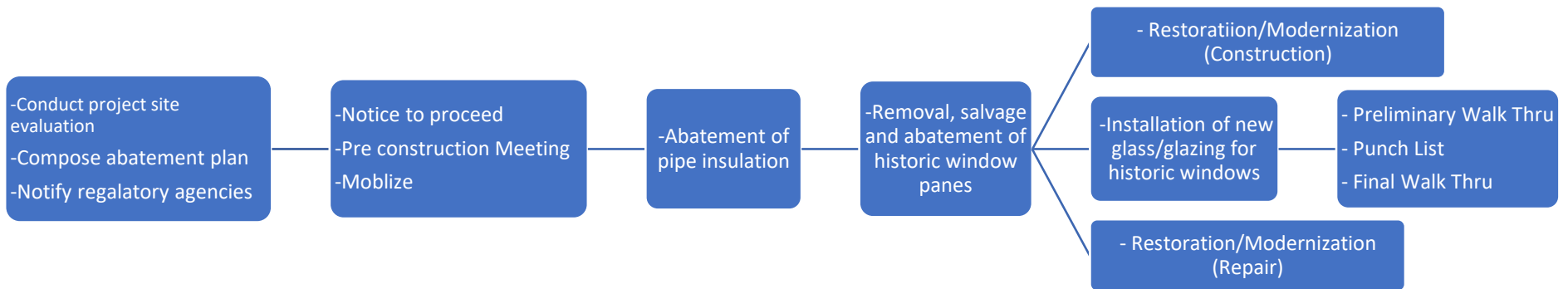
For this project, the Asbestos Management Program Manual was looked at systematically. The specific purpose of the project was to examine its implementation concerning the identified asbestos issues with the Military Sealift Command building TP-314 and conduct a cross examination with the recommendations and guidance provided in the Asbestos Management Program manual.

PROJECT MANAGEMENT

Major Milestones

Milestones	Completion Time Frame
Conduct project site evaluation	09 FEB 2018
Compose asbestos abatement plan. Review and approve all project related test plans and sampling reports with subsequent project-related decisions	09 FEB 2018 – 14 MAR 2018
Notify regulatory agencies for government/in-house abatement activities	15 MAR – 25 MAR 2018
Asbestos Abatement of pipe insulation/fittings, VCT/VAT and floor tile	28 MAR – 17 APR 2018
Removal, Salvage and Abatement of historic window panes (84)	19 JUNE 2018 – 14 JULY 2018
Installation of new glass/glazing for historic window	28 JULY 2018

Network Diagram



PROJECT DESIGN ISSUES

The main issue concerning the project is that the Asbestos Management Program is implemented differently depending on the location of the installation and iNFADS data is not always maintained or recorded. Each NAVFAC command, whether its Southeast, Northwest or Southwest, all face different issues and have different resources available to them when addressing the issue of asbestos in their facilities. However, the implementation of the AMP at NAVFAC, Mid-Atlantic overall and specifically concerning building TP314 has been done without any issues. The lack of access to the repository data for TP-314 prevented the analysis of prior reports and abatement records located in iNFADS. Abatement is defined as: enclosure, encapsulation or removal. All three have specific definitions, in addition to pro, con and cost tradeoffs. Enclosure is rarely used and encapsulation is a chemical process by which asbestos fibers are treated. These two treatments are often misunderstood and mis-represented by individuals who are not trained, such as the contracting officer who has prepared the bid documents for solicitation. Often abatement activities or scopes in the Navy may specifically state removal rather than abatement and be unaware that removal is not the only type of abatement. When it comes to the abatement of historic buildings the preservation of original materials is key, total replacement is less desired and can be challenging and expensive to accomplish. The lack of availability of the buildings existing surveys prevented further evaluation of data that potentially be determined valuable. Important criteria such as laboratory results, photographic logs and previous inspector documentation.

RECCOMENDATIONS AND PROJECT RESULTS

As mentioned before, the Asbestos Management Program is a source of information and guidance, not policy or formal instruction. It is applied differently at other NAVFAC commands such as Southeast, Northwest and Southwest due to the unique challenges they are faced with on

a regular basis. Considering the size and scope of building TP 314, NAVFAC Mid-Atlantic's implementation of the APM was major contributor to the successful completion of this construction and repair project. NAVFAC, MID-ATLANTIC's experience of implementing effective asbestos management strategies ensured the command stayed compliant with regulatory agencies, ensured that safety policies were incorporated to protect all facility users. Overall NAVFAC Mid-Atlantic should continue to focus on asbestos awareness training, to further reinforce the skills required to perform thorough inspections and abatement activities to support maintenance and future projects. Implementing construction managers in the process when producing surveys or asbestos abatement plans and post abatement surveys would help turn that information into a tool/information to improve the APM; this would assist in updating and maintaining the iNFADS data on TP-314 and other buildings. These actions would expedite future building inspections and provide a wholistic view of all prior work and past issues associated with the building and force the continued use of the asbestos abatement plan checklist when required. The local level implications of not having iNFADS data for a building slows down NAVFAC Mid-Atlantic's ability to provide excellent shore services and support. The project implications/issues at and beyond the local level is largely associated with the tactics, methods and procedures for the safe removal and disposal of asbestos. Specifically, record keeping and managing liability, the asbestos program needs to be sustainable regardless of turnover. Not having records to show the actions that were taken to mitigate asbestos exposure, records that are potentially required by law, adds an additional and preventable risk to the Navy or a large installation like Naval Station Norfolk.

REFERENCES

1. Naval Facilities Engineering Command P-502 (September 2017), Asbestos Program Management Manual.
2. OPNAVINST 5100.23G Navy Safety and Occupational Health Program Manual Asbestos Management Program Ashore (December 2005).
3. (2017, November). Health Effects from Exposure to Asbestos. Retrieved from <https://www.epa.gov/asbestos/learn-about-asbestos#effects>
4. EPA.gov (2018, June 14) Health Effects from Exposure to Asbestos. Retrieved from <https://www.epa.gov/asbestos/learn-about-asbestos#effects>
5. Ballast, D. & O'Hara S. (February 2017), ARE 5 Review Manual of the Architect Registration Exam
6. CNIC Naval Station Norfolk (2018, July 01). Retrieved from https://cnic.navy.mil/regions/cnrma/installations/ns_norfolk/about/history.html

STUDENT BIOGRAPHICAL DATA

I am a native of Arlington, TX and the son of Tommy L. Vaughn Sr. and Belinda C. Vaughn; I have two older sisters and a younger brother. December 21, 2007, I earned my commission from the Navy, through Officer Candidate School in Newport, RI. Prior to joining the Navy, I studied architecture at the University of Texas at Arlington where I earned my bachelor and master degree in 2005 and 2007.