



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

SEP 24 2020

Ms. Brenda W. Cook
Deputy Base Civil Engineer
37 Sweeney Boulevard
JBLE-Langley VA 23665-2107

Mr. David Taylor
Virginia Department of Environmental Quality
Tidewater Regional Office
5636 Southern Boulevard
Virginia Beach VA 23462

Dear Mr. Taylor

Attached is the Municipal Separate Storm Sewer System (MS4) annual report for JBLE-Langley's permit VAR040140 for your review.

If you have any questions concerning these documents, please contact Dawn Christian, Installation Management Flight, at (757) 764-1141.

Sincerely

A handwritten signature in cursive script, reading "Brenda W. Cook", is positioned above the typed name.

BRENDA W. COOK, DAFC
Deputy Base Civil Engineer

Attachment
MS4 VAR040140 Annual Report



Municipal Separate Storm Sewer System (MS4) Annual Report

JBLE–Langley, Virginia

Permit Year 2: 1 July 2019 – 30 June 2020



JBLE–Langley
633 CES/CEIE
37 Sweeney Blvd
JBLE–Langley, VA 23665

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List of Acronyms and Abbreviations

633 CES/CEIE	633d Civil Engineer Squadron/Environmental Element
BMP	Best Management Practice
CBAT	Chesapeake Bay Action Team
EMS	Environmental Management System
EPA	Environmental Protection Agency
FOG	Fats, Oils and Grease
GIS	Geographic Information System
IDDE	Illicit Discharge Detection and Elimination
ISO	International Organization for Standardization
JBLE–Langley	Joint Base Langley Eustis–Langley
LFH	Langley Family Housing
MCM	Minimum Control Measure
MFH	Military Family Housing
MS4	Municipal Separate Storm Sewer System
NMP	Nutrient Management Plan
O&M	Operation and Maintenance
P4	Public-Public; Public-Private
POC	Pollutant of Concern
POV	Privately Owned Vehicle
PY	Permit Year
SC	Special Condition
SCM	Stormwater Control Measure
SWCB	State Water Control Board
SWM	Stormwater Management
SWPPP	Stormwater Pollution Prevention Plan
TEACH	The Environmental Awareness Course Hub
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
UEC	Unit Environmental Coordinator
VDEQ	Virginia Department of Environmental Quality
VESCL	Virginia Erosion and Sediment Control Law
VESCP	Virginia Erosion and Sediment Control Program
WLA	Wasteload Allocation

Municipal Separate Storm Sewer System Program Plan Certification

As required by Part III.K.2. of General Permit No. VAR040140, all reports required by state permits and other information requested by the board shall be signed by a principal executive office or ranking elected official as described in Part III.K.1.c. or a duly authorized representative.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Type or Print the following information:

Name: Ms. Brenda W. Cook Area Code and Telephone No.: (757) 764-2025

Official Title: Deputy Base Civil Engineer

Signature:  Date Signed: 24 Sep 20

Permit Number: VAR040140 MS4 Name: JBLE–Langley

Municipal Separate Storm Sewer System Program Plan Certification

As required by Part III.K.2. of General Permit No. VAR040140, all reports required by state permits and other information requested by the board shall be signed by a principal executive office or ranking elected official as described in Part III.K.1.c. or a duly authorized representative.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Type or Print the following information:

Name: Ms. Brenda W. Cook Area Code and Telephone No.: (757) 764-2025

Official Title: Deputy Base Civil Engineer

Signature: _____ Date Signed: _____

Permit Number: VAR040140 MS4 Name: JBLE–Langley

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Section 1: Introduction

Joint Base Langley Eustis–Langley (JBLE–Langley) Virginia, holds a General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4), General Permit No. VAR040140, issued by the Commonwealth of Virginia Department of Environmental Quality (VDEQ) on 01 November 2018. In accordance with provisions outlined in this permit, JBLE–Langley has developed and implemented a comprehensive stormwater management program designed to prevent or reduce the discharge of sediment and other pollutants into the base’s stormwater conveyance system. General Permit No. VAR040140 Part I.D.2.e. requires JBLE–Langley to evaluate the MS4 program on an annual basis to assess program compliance, the appropriateness of the identified Best Management Practices (BMP) and progress towards achieving the identified measurable goals.

This report describes the progress and status of JBLE–Langley’s MS4 Program during Permit Year (PY) 2 from 01 July 2019 to 30 June 2020.

The remainder of this annual report is presented as follows:

- Section 2 – Provides an overview of the MS4 including its physical characteristics
- Section 3 – Presents a listing of the base’s stormwater program guidance
- Section 4 – Discusses the minimum control measures (MCM) JBLE–Langley is implementing under the permit
- Section 5 – Reviews the special conditions (SC) JBLE–Langley is implementing under this permit

These sections are supported by the following attachments:

- Attachment 1– Illicit Discharge Detection and Elimination (IDDE) Maps
- Attachment 2 – Stormwater Management Educational Brochures
- Attachment 3 – Public Involvement/Participation Documentation
- Attachment 4 – NASA Interconnectivity Notification
- Attachment 5 – IDDE Investigation Details
- Attachment 6 – Stormwater Management (SWM) Facility Inventory Tracking Spreadsheet
- Attachment 7 – Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan Implementation Status Memo
- Attachment 8 – Bacteria TMDL Action Plan Implementation Status Memo

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Section 2: Storm Sewer System Information

Permit Holder

Commander, 633d Air Base Wing
125 Mabry Ave
JBLE–Langley VA 23665

Facility Information

JBLE–Langley
Hampton VA
MS4 General Permit No. VAR040140

Mailing Address

Deputy Base Civil Engineer
37 Sweeney Boulevard
JBLE–Langley VA 23665

Population Served

The total population attached to the base is estimated at 28,385, comprised of approximately 10,002 military personnel and 15,530 dependents living on the base, as well as approximately 2,853 civilian non-residents who commute to the base daily.

MS4 Service Area

JBLE–Langley, formerly Langley Air Force Base, is located just north of the City of Hampton, Virginia which is part of the Norfolk, Hampton and Newport News metropolitan area. The base is located on the southern end of the lower Virginia peninsula and bordered by the Back River to the north, south and east. Smaller waterbodies on or bordering the base include Tabbs Creek, Brown's Creek, Tide Mill Creek and Brick Kiln Creek, which are tributaries to the Back River. The base occupies approximately 3,640 acres and houses a variety of military organizations and support activities. Most of the development is located at the southern end of the base. A golf course and flightline are located near the center of the base.

The base does not rely on another government entity to satisfy permit obligations. In addition, no program approvals are required as specified in Part I.C.5 of the permit.

MS4 Conveyance System

JBLE–Langley's stormwater conveyance system consists of sheet flow areas, swales, ditches and pipes. The base has mapped the stormwater system for JBLE–Langley as well as the stormwater control measures (SCM) using Geographic Information System (GIS).

There are two subwatersheds that include portions of JBLE–Langley. These include the Northwest Branch Back River and Southwest Branch Back River. River basins, streams or other bodies of water into which the stormwater from the MS4 discharges are shown in Table 1. The table lists the subwatershed and waterbody that receive stormwater runoff from the MS4 jurisdictional area.

Table 1. Subwatersheds		
Subwatershed (Hydrologic Unit Code)	Waterbody Name	Waterbody ID ¹
Northwest Branch Back River (020801080102)	Northwest Branch Back River – Lower	VAT-C07E_NWB02A06
	Tabbs Creek – Northwest Branch Back River	VAT-C07E_TBC01A04
	Brick Kiln Creek (including Big Bethel Reservoir)	VAT-C07E_BRK01A06
Southwest Branch Back River (020801080103)	Southwest Branch Back River – Incl Tides Mill Creek	VAT-C07E_SWB1A08
	Southwest Branch Back River – DSS OPEN	VAT-C07E_SWB02B10
	Southwest Branch Back River – Mouth	VATC07E_SWB02A08
	Unsegmented Estuaries in Back River – DSS	VAT-C07E_ZZZ01B12

Note:

¹ The Waterbody ID is referenced from the 2016 Integrated Report GIS layers
(<https://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityAssessments/GISData/ir16gisdata.zip>)

Part I.E.3.a (1) of Permit No. VAR040140 requires that JBLE–Langley maintain a stormwater drainage system map that shows the location of all MS4 outfalls as well as the name and location of all waters receiving discharges from the MS4 outfalls and the associated hydrologic unit code. A map is included as Attachment 1. In PY2, VDEQ approved the reclassification of three industrial outfalls (024, 050 and 083) to MS4 outfalls. These outfalls have been added to the MS4 outfall inventory and were inspected in PY2.

Total Maximum Daily Load (TMDL) and Impaired Stream Identification

Total Maximum Daily Loads Other than the Chesapeake Bay TMDL

The U.S. Environmental Protection Agency (EPA) and/or VDEQ have the authority to establish and issue a TMDL allocation on a body of water or receiving stream. The Northwest Branch Back River and Southwest Back River subwatersheds are subject to a TMDL for fecal coliform bacteria. On 28 April 2017, the Virginia State Water Control Board (SWCB) approved the revision to the 2014 TMDL to address fecal coliform bacteria impairment in the Back River. The Northwest Branch Back River and Southwest Branch Back River impaired segments (waterbody

ID# VAT-C07E) are considered Condemned Shellfish Areas that do not conform with the Virginia Department of Health fecal coliform standards for shellfish harvesting. These waterbodies receive runoff from JBLE–Langley and the TMDL for these waterbodies include wasteload allocation (WLA) assignments to JBLE–Langley.

Chesapeake Bay TMDL

In 2010, the EPA established the Chesapeake Bay TMDL to address pollutants of concern (POC) in the Chesapeake Bay. The POCs include excess nitrogen, phosphorus and total suspended solids (TSS). The Chesapeake Bay watershed encompasses over 64,000 square miles across the District of Columbia and large sections of Delaware, Maryland, New York, Pennsylvania, West Virginia and Virginia. JBLE–Langley sits within the Chesapeake Bay Watershed.

In the Phase I and Phase II Chesapeake Bay Watershed Implementation Plan for the Chesapeake Bay TMDL, the Commonwealth of Virginia committed to a phased approach to reducing the POCs discharging from MS4s. Part II.A.11(a)-(f) of the MS4 Permit No. VAR040140 requires JBLE–Langley to prepare a Chesapeake Bay TMDL Action Plan that demonstrates future plans to meet the POC reductions.

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Section 3: Water Quality Programs and Guidance

This section discusses the local and state water quality programs that are implemented by JBLE–Langley or the state, respectively, within the base boundaries.

Local Programs and Guidance

JBLE–Langley has developed and implements local programs and guidance in order to comply with the MS4 permit. These programs and guidance documents are listed below.

- JBLE–Langley Environmental Policy Statement (24 August 2017)
- JBLE–Langley *Structural Stormwater Control Measures (SCM) Inventory, Annual Inspection and Management Plan* (September 2020)
- JBLE–Langley IDDE Procedure Manual (July 2017, currently scheduled for update in October 2020)
- JBLE–Langley MS4 Program Plan (January 2019)
- Good Housekeeping Procedures (July 2017)
 - Road, Street and Parking Lot Maintenance
 - Application, Storage, Transport, and Disposal of Pesticides and Fertilizers
 - Equipment Maintenance
- Nutrient Management Plans (March 2019)
 - Eaglewood Golf Course (June 2017)
 - Langley Family Housing/Hunt Companies (March 2019)
 - Force Support Squadron – Athletic Fields (March 2019)

State Programs

In addition to the local programs that the base is implementing, there are state programs established by VDEQ, which are also being implemented. These programs are listed below.

- **Erosion and Sedimentation Program** – The Virginia Erosion and Sediment Control Law (VESCL) delegates the authority to administer a Virginia Erosion and Sediment Control Program (VESCP) to local municipalities. Local municipal VESCPs must be approved by the SWCB; however, this is an optional requirement for JBLE–Langley per the VESCL. JBLE–Langley has not developed a specific erosion and sediment control program for the base. The base utilizes their MS4 Program Plan to outline roles and responsibilities, as well as procedures related to erosion and sediment control.
- **Stormwater Permitting Program** – The VDEQ Water Division implements the stormwater permitting program to develop, plan and implement statewide stormwater control policies, strategies and rules designed to protect the state surface waters from the impacts of stormwater pollutants and runoff.

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Section 4: Minimum Control Measures

This section discusses the MCMs that JBLE–Langley is implementing under Permit No. VAR040140. MCMs include:

- MCM 1: Public Education and Outreach
- MCM 2: Public Involvement/Participation
- MCM 3: IDDE
- MCM 4: Construction Site Stormwater Runoff Control
- MCM 5: Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands
- MCM 6: Pollution Prevention/Good Housekeeping for Municipal Operations

Details regarding program requirements, achievements and planned initiatives are discussed on the following pages.

MCM 1: Public Education and Outreach

JBLE–Langley is required to develop and implement a public education and outreach program with the objective to comply with commonwealth and local requirements to educate the base community regarding the impacts of stormwater discharges on the receiving waters as well as measures that the community can take to reduce the introduction of pollutants to the stormwater drainage system.

JBLE–Langley plans to utilize a combination of relevant messages and outreach materials to educate target audiences for each of the three high priority water quality issues, as well as other stormwater topics of interest to the public (using a minimum of two of the strategies listed on Part I.E.1.d Table 1). The table below outlines program achievements during PY2 as well as planned education and outreach activities under MCM 1, Public Education and Outreach on Stormwater Impacts, for PY3 in accordance with Part I.E.1.g.(2) of the permit. Additional details are included in the JBLE–Langley MS4 Program Plan. Examples of the stormwater management informational brochures that are intended for distribution are included in Attachment 2. Distribution of these materials will continue in PY3.

MCM 1: Public Education and Outreach		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
Use a minimum of 2 strategies from Part I.E.1.d, Table 1 – Media materials, training materials, speaking engagements and traditional written materials	Material used for training, electronic and physical information handouts <ol style="list-style-type: none"> Traditional written materials: “Be the Solution to Stormwater Pollution”, “Preventing Pollution from Pet Waste” and “Car Maintenance and Pollution Prevention” brochures. Alternative materials: re-useable metal straws and pet waste bag clips. Signage: Straw Free Campaign Educational Posters. Media Materials: Litter cleanup competition using social media and email. 	<ul style="list-style-type: none"> Continue to use material for training and information. Develop new/revised materials if other water quality issues are identified.

MCM 1: Public Education and Outreach		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
Identify three high priority water quality issues	Continued to monitor previously identified and refined high priority water quality issues, which include: <ol style="list-style-type: none"> 1. Proper wash procedures 2. Controlling pet wastes at the JBLE–Langley Horse Stables and Residences 3. Spill and illicit discharge reduction 	<ul style="list-style-type: none"> • High priority water quality issues remain unchanged for PY3.
Proper wash procedures Target Audience: <i>JBLE–Langley residents and employees</i> Goal: Provide information regarding proper washing procedures	<ul style="list-style-type: none"> • 633 CES/CEIE keeps a brochure titled “Outdoor Vehicle Washing” on the JBLE–Langley Environmental website. (https://www.jble.af.mil/About-Us/Units/Air-Force/Langley-Environmental/) and provided copies to the Langley Family Housing (LFH) privatization company for their residents. • A planned World Water Day (20 March 2020) event free car washes at the automatic car wash facility (Building 243) to promote proper wash procedures and other ways to reduce water use was postponed due to COVID-19. JBLE–Langley is planning to reschedule the event as permitted by COVID-19 guidance for the base. 	<ul style="list-style-type: none"> • Continue to encourage the LFH privatization company to provide the brochure as part of the “welcome” packet for new residents. • Advertise use of the automatic car washing facilities via social media (e.g., Facebook, Twitter, Nextdoor), the newspaper and/or marquees.

MCM 1: Public Education and Outreach		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
<p>Controlling pet waste</p> <p>Target Audience: LFH residents and personnel with pets</p> <p>Goal: Educate pet owners regarding proper disposal of pet waste</p>	<ul style="list-style-type: none"> JBLE–Langley hosts horse stables that are managed by the Langley Saddle Club. Authorized personnel board their horses at this facility. Stable bedding and manure are collected and stored under cover; however, horses use pastureland as well. Manure is left on pasture-land, which is considered an agricultural land use. Newcomer's Orientation – New employees and spouses of JBLE–Langley attend a Newcomer's Orientation. Between 10 and 20 people per orientation took a brochure or discussed stormwater/pet waste pollution prevention each date. "Be the Solution to Stormwater Pollution" and "Preventing Pollution from Pet Waste" brochures were handed out. <ul style="list-style-type: none"> Conducted the third Tuesday of each month. March through June orientations were cancelled due to COVID-19. Estimated 640 total attendees for July 2019 through February 2020. 633 CES/CEIE keeps a brochure titled "Preventing Pollution from Pet Waste" on the JBLE–Langley Environmental website (https://www.jble.af.mil/About-Us/Units/Air-Force/Langley-Environmental/) and provided copies to the LFH privatization company for their residents. 	<ul style="list-style-type: none"> Post educational information (e.g., pet waste brochure or poster) at the horse stables. Continue to disseminate information regarding controlling pet wastes via social media (e.g., Facebook, Twitter, Nextdoor), the newspaper and/or marquees Provide the brochure to the LFH privatization contractor for inclusion in the "welcome" packet for new residents. Participate in a LFH resident meeting and Saddle Club user meeting to discuss controlling pet wastes.

MCM 1: Public Education and Outreach		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
<p>Spill and illicit discharge reduction.</p> <p>Target Audience: JBLE–Langley residents and employees</p> <p>Goal: Provide information regarding proper disposal of household hazardous waste</p>	<ul style="list-style-type: none"> Stormwater pollution prevention training was provided to base personnel (active duty, civilian and contractors). Training activities include online training courses available via The Environmental Awareness Course Hub (TEACH). (Part I E.1.d Table 1 - Training materials) 633 CES/CEIE keeps the Stormwater Pollution Prevention brochure on the JBLE–Langley Environmental website (https://www.jble.af.mil/About-Us/Units/Air-Force/Langley-Environmental/) (Part I E.1.d Table 1 – Media Materials). JBLE–Langley advertised the Household Chemical Collection days (13 and 20 July 2019; 14 and 21 September 2019; 09 and 16 November 2019; 14 and 21 March 2020; 09 and 16 May 2020) via an all hands email to base personnel as well as provided to the LFH privatization contractor to inform residents. Hazardous waste and other training offerings (e.g., Unit Environmental Coordinator [UEC] training) also cover spill related training. UEC training occurred on the following dates: <ul style="list-style-type: none"> 30 January 2020 – 4 attendees 2 March 2020 – 5 attendees 	<ul style="list-style-type: none"> Publish articles in the newspaper related to spill reduction/prevention (e.g., privately owned vehicle [POV] car washing in undesignated areas, littering and disposal of household chemicals) on a semi-annual basis during the PY. Develop and post information to the JBLE–Langley and LFH Facebook and Nextdoor pages at least semi-annually during the PY. Send a mass email to MFH residents regarding illegal dumping at least semi-annually during the PY. Continue to conduct TEACH training Require food trucks requesting to operate on base have employees take fats, oil and grease (FOG) management training (e.g., HRFOG).

MCM 2: Public Involvement/Participation

The base is required to cultivate a public involvement and participation program with the objective to comply with Commonwealth and local public notice requirements, implementing four activities per year from a minimum of two of the categories listed in Part I.E.2 c. Table 2. JBLE–Langley has taken steps to implement the program BMPs as specified in Part I.E.2 of the permit.

MCM 2: Public Involvement/Participation		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
JBLE–Langley Environmental Website	633 CES/CEIE maintains a website that provides information to the public, including the MS4 Program Plan and the MS4 Annual Reports. The website is located here: https://www.jble.af.mil/About-Us/Units/Air-Force/Langley-Environmental/	Continue to maintain the JBLE–Langley Environmental website and post educational and reference information for the base population.
Public Involvement/ Participation	<ul style="list-style-type: none"> Public involvement and participation activities include: <ul style="list-style-type: none"> Earth Week (20 - 24 April 2020) – Earth Week events were originally scheduled for the week of 20 – 24 April 2020. The global COVID-19 Pandemic caused all public events to be canceled, including the scheduled Earth Week activities. Events such as Litter Free Langley have been utilized to maintain public participation while maintaining social distancing. <ul style="list-style-type: none"> Litter Free Langley – Base-wide litter collection contest – 20 April 2020 – 26 June 2020. Airmen and civilians encouraged to take a photo showing how they are keeping a Litter Free Langley. Entries are submitted each Friday to 633 CES/CEIE at 633CES.CEI.Flight@us.af.mil. Two winners are selected each week and awarded a prize. 	<ul style="list-style-type: none"> Resume hosting events during Earth Week to engage base personnel and residents (19-23 April 2021).

MCM 2: Public Involvement/Participation		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
Public Involvement/ Participation (<i>Continued</i>)	<ul style="list-style-type: none"> Public involvement and participation activities include (Continued): <ul style="list-style-type: none"> Environmental Partnership – JBLE–Langley participates in the Secretary of the Air Force Program to partner with their local public and private neighbors. The Public-Public; Public-Private (P4) Partnership Program seeks to identify and develop opportunities to share resources, increase efficiency and improve effectiveness of operational, educational and recreational programs. The JBLE P4 program is currently focused on the Virginia Peninsula. As the program matures, there may be opportunities for broader partnerships. <ul style="list-style-type: none"> Events such as the Booker Elementary poster competition and oyster planting were cancelled due to COVID-19. 	<ul style="list-style-type: none"> Continue participating in other Earth Week events hosted by LFH and Force Support Squadron. Look at partnering opportunities with the NASA Langley Research Center and JBLE–Eustis. Continue to look for P4 partnerships to share resources and increase program effectiveness.

MCM 2: Public Involvement/Participation		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
Public Involvement/ Participation (<i>Continued</i>)	<ul style="list-style-type: none"> Communication with base personnel and residents takes place on a regular basis through internal and external websites, the base community cable channel, the Peninsula Warrior newspaper, as well as regular interactions with various community groups (e.g., the Department of Game and Inland Fisheries, the York County Extension Office and the City of Hampton). An example of this type of communication and other Public Participation documentation is provided in Attachment 3. <ul style="list-style-type: none"> America Recycles Day (15 November 2019) – Aluminum can recycle competition from 14 October 2019 through 14 November 2019. The squadron that collected the most cans by weight won the competition. Cans were turned into and weighed at 633 CES/CEIE (Part I.E.2 c. Table 2 – Pollution prevention). Hosted Litter Free Day on 09 August 2019 – Volunteers collect litter from JBLE–Langley grounds and shoreline that would otherwise adversely affect humans and wildlife. A planned World Water Day (20 March 2020) event to host a free car wash at the automatic car wash facility (Building 243) to promote proper washing procedures and other ways to reduce water use was cancelled due to COVID-19. JBLE–Langley is planning to reschedule the event as permitted by COVID-19 guidance for the base. 	<ul style="list-style-type: none"> Develop focused educational messages to be disseminated via internal and external websites (e.g., Facebook, Twitter, Nextdoor), the Peninsula Warrior, community group emails and websites. Continue to participate in America Recycles Day (15 November 2020). Continue to participate in World Water Day (22 March 2021).

MCM 3: Illicit Discharge Detection and Elimination

The base is required to develop, implement and enforce a program to detect and eliminate illicit discharges into the MS4. JBLE–Langley has taken steps to implement the IDDE program BMPs as specified in Part I.E.3 of the permit.

MCM 3: IDDE		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
Develop and maintain an accurate MS4 map and information table	<p>Updated the current MS4 map with all changes occurring prior to 01 October 2020 as required by Part I.E.3.a.(4).</p> <p>In PY2, Outfalls 024, 050 and 083 and the associated drainage basins were reclassified from industrial outfalls to MS4 outfalls as part of the renewal of VPDES Permit No. VAR052285.</p>	Update the MS4 map and information table as needed by 01 October following the end of the permit reporting period.
List any written notifications of physical interconnection given by the operator to other MS4s	The NASA Langley Research Center MS4 is connected to the JBLE–Langley MS4. The email notification of interconnectivity from NASA is provided in Attachment 4.	633 CES/CEIE will continue to monitor the MS4 area to ensure there are no additional interconnections with an adjacent MS4.
Outfall screenings	<ul style="list-style-type: none"> Fifty-two (52) of the 98 non-industrial outfalls were inspected during PY2. Details regarding the inspection findings are included on the outfall inspection forms and in the Dry Weather Outfall Monitoring Report. Copies of the outfall inspection forms are maintained by 633 CES/CEIE and will be made available upon request. 	<ul style="list-style-type: none"> Inspect non-industrial outfalls specified in the base IDDE Procedure Manual and document the inspection utilizing the outfall inspection forms Update the IDDE Procedure Manual to reflect updates to the MS4 outfalls. Finalize the Streambank Stabilization Plan and program recommended projects to address erosion at the MS4 outfalls.

MCM 3: IDDE		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
Investigations of suspected illicit discharges	<ul style="list-style-type: none"> • JBLE–Langley personnel utilized the IDDE procedures to investigate potential illicit discharges. • Detailed descriptions of each of the illicit discharge investigations are included in Attachment 5. Investigations into potential illicit discharges include: <ul style="list-style-type: none"> ○ Directional Boring failure – Bentonite (15 October 2019) ○ Illicit discharge by hydraulic line break (24 February 2020). 	<ul style="list-style-type: none"> • JBLE–Langley personnel will continue to utilize the IDDE procedures to investigate potential illicit discharges. • Continue to report all spills or unauthorized releases, whether it enters the MS4 or not, in accordance with AFI 32-7047, <i>Environmental Compliance Release and Reporting Inspection Reporting</i> and log the incident in the spill database maintained by the 633 CES/CEIE Spill Program Manager. • Develop and host in-person training to review the IDDE Procedure Manual.

MCM 4: Construction Site Stormwater Runoff Control

The base is required to comply with the Virginia Stormwater Management Program in order to maintain compliance with the Construction Site Runoff Controls. These controls are designed to assist with the development, implementation and enforcement of an Erosion and Sediment Control Program to reduce the pollutants (e.g., total suspended solids, total phosphorus and total nitrogen) related to “land-disturbing activities including clearing, grading or excavation that results in a land disturbance equal to or greater than 10,000 square feet and less than one acre in all areas of jurisdictions designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations ([9VAC25-830](#)) adopted pursuant to the Chesapeake Bay Preservation Act.” The base has taken steps to implement the program BMPs as specified in Part I.E.4 of the permit.

MCM 4: Construction Site Stormwater Control		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
Track regulated land-disturbing activities	<ul style="list-style-type: none"> Conducted land disturbing projects, that occurred during the reporting period, in accordance with the current department approved standards and specifications for erosion and sediment control. Continued to track all regulated land disturbing activities <ul style="list-style-type: none"> Total number of inspections performed – Daily engineering inspections and bi-monthly inspections by Stormwater Program Manager Total number of land disturbing activities – 3 <ul style="list-style-type: none"> Hospital Cap (VAR10M314) Clear Zone (VAR10L932) Fuel Pier/Government Vehicle Fueling Facility (GVFF) (VAR10I004) Permits closed out during PY2 – 2 <ul style="list-style-type: none"> Repair Runway Lights (VAR10K492) Demo Buildings 720, 1329 and 1332 (VAR10I758) Fuel Pier (VAR10I004) Total number of acres disturbed – 100.89 acres <ul style="list-style-type: none"> Hospital Cap – 8.70 acres Clear Zone – 90 acres Fuel Pier/GVFF – 2.19 acres 	<ul style="list-style-type: none"> Continue to track regulated land-disturbing activities, including: <ul style="list-style-type: none"> Number of on-going land disturbing activities Number of acres disturbed Number of inspections conducted

MCM 4: Construction Site Stormwater Control		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
Land-disturbing activity enforcement actions	<ul style="list-style-type: none"> Performed construction site inspections as follows: <ul style="list-style-type: none"> 07 October 2019 – Hospital 07 October 2019 – Clear Zone 07 October 2019 – Fuel Pier/GVFF 21 January 2020 – Fuel Pier/GVFF 21 January 2020 – Hospital Final Inspections / Notice of Termination inspections as follows: <ul style="list-style-type: none"> 12 August 2019 - Demo Buildings 720, 1329 and 1332 (VAR101758) 07 October 2019 – Repair Runway Lights (VAR10K492) 25 November 2019 – Fuel Pier (VAR10I004) Deficiencies noted by the VDEQ inspector during inspection and brought to attention of contractor at Fuel Pier/GVFF on 07 October 2019. Deficiency was corrected by contractor and follow up inspection by VDEQ was conducted on 17 October 2019. 	Construction site inspections will continue in the next permit year and enforcement actions will occur as needed.

MCM 5: Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands

The base is required to develop, implement and enforce a program to address stormwater runoff related to new development and redevelopment projects throughout the service area, including a combination of structural and non-structural BMPs. In addition, JBLE–Langley is required to ensure that the structural BMPs are functional through long term operation and maintenance (O&M) practices. The base has taken steps to implement the program BMPs as specified in Part I.E.5 of the permit. SWM facilities are also known as BMPs or SCMs.

MCM 5: Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
Maintain an updated electronic database of all known operator-owned and privately-owned SWM facilities that discharge into the MS4	JBLE–Langley utilized an excel spreadsheet to track SWM facilities. The spreadsheet is included electronically as Attachment 6.	Continue to maintain a SWM facilities inventory via an Excel spreadsheet.
Identify new SWM facilities brought online during the PY	<ul style="list-style-type: none"> No SWM facilities were brought online during PY2. Swale 054 is no longer in place due to the ongoing Hospital project. This has been noted in the tracking spreadsheet in Attachment 6. 	<ul style="list-style-type: none"> Track construction projects and planned SWM facilities and include in the inventory as they are brought online. Work closely with 633 CES planning and engineering departments to review plans and specifications associated with upcoming construction projects.
SWM facility O&M management	<ul style="list-style-type: none"> Inventoried and inspected all SWM facilities on base. Updated the <i>SWM Facility Inspection and Management Action Plan</i>. Completed an annual inspection of the SWM facilities. 	<ul style="list-style-type: none"> Complete the annual site inventory and inspection of all operational SWM facilities. Review and update the <i>SWM Facility Inspection and Management Action Plan</i>.

MCM 5: Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
Maintain contact with the VDEQ BMP Warehouse	The electronically reported BMPs were submitted to the VDEQ for inclusion in the BMP Warehouse in accordance with Part I.E.5.g in October 2019. Confirmation of inclusion by VDEQ was provided on 04 November 2019.	Send electronically reported BMPs to VDEQ BMP Warehouse as needed.

MCM 6: Pollution Prevention / Good Housekeeping for Municipal Operations

The base is required to develop and implement a program to address pollution prevention and good housekeeping procedures, including a training program for base personnel and the community. JBLE–Langley has taken steps to implement the program BMPs as specified in Part I.E.6 of the permit.

MCM 6: Pollution Prevention/Good Housekeeping for Municipal Operations		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
Develop and implement daily operational procedures	<ul style="list-style-type: none"> JBLE–Langley utilizes an environmental management system (EMS) that conforms to International Organization for Standardization (ISO) 14001:2004, to manage environmental program requirements. JBLE–Langley has issued an <i>Environmental Policy Statement</i> and has published it on their website (https://www.jble.af.mil/About-Us/Units/Air-Force/Langley-Environmental/) JBLE–Langley began implementing good housekeeping procedures and training materials relevant to stormwater for the following areas: <ul style="list-style-type: none"> Road, Street and Parking Lot Maintenance Equipment Maintenance Application, Storage, Transport and Disposal of Pesticides and Fertilizers IDDE Procedure Manual Copies of the above training material are available upon request. 	<ul style="list-style-type: none"> Continue to implement an EMS that conforms to ISO 14001:2004. Develop additional P2 and good housekeeping plans as needed for newly identified municipal operation areas. Post procedures on the JBLE–Langley Environmental website and advertise them on the JBLE–Langley Facebook pages. Provide hands-on training for the procedures to JBLE–Langley personnel and upload training materials to TEACH.

MCM 6: Pollution Prevention/Good Housekeeping for Municipal Operations		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
Develop and implement required Stormwater Pollution Prevention Plans (SWPPP)	<ul style="list-style-type: none"> • JBLE–Langley implements its comprehensive SWPPP, designed to satisfy MS4 permit requirements. • JBLE–Langley has a list of high priority non-industrial facilities and has implemented the SWPPPs for high priority MS4 facilities (Auto Hobby Shop and POV Wash Rack, AAFES Mini Mall and Car Wash, Base Exchange, Commissary, Langley Marina, Eaglewood Golf Course and LFH Maintenance Facility). The GVFF was added to the High Priority MS4 SWPPP July 2019. • High Priority MS4 Facility SWPPP training was developed in April 2020. 	<ul style="list-style-type: none"> • Conduct the annual site compliance evaluation of the high-priority non-industrial areas. • Continue to review and update the list of municipal/non-industrial high priority facilities and determine if they require a SWPPP. • Create additional SWPPPs based on the developed schedule. • Implement the High Priority MS4 Facility SWPPP training for applicable personnel via TEACH. Potentially conduct live training if not impacted by COVID.
Develop and implement turf and landscape nutrient management plans (NMP)	<ul style="list-style-type: none"> • There are three locations that have managed turf grass areas: Eaglewood Golf Course, three athletic fields and LFH. • Total acreage where NMPs are required – 152.3 acres <ul style="list-style-type: none"> ○ Eaglewood Golf Course – 119.2 acres ○ Athletic Fields – 11.9 acres ○ LFH – 21.2 acres • Continued NMP implementation at each site during PY2. 	<ul style="list-style-type: none"> • Continue to implement the NMPs for LFH, the Athletic Fields and the Eaglewood Golf Course. • Continue conducting NMP training for new employees at NMP sites.

MCM 6: Pollution Prevention/Good Housekeeping for Municipal Operations		
Management Practices & Techniques	Program Achievements (1 July 2019 – 30 June 2020)	Initiatives Planned for Coming Year (1 July 2020 – 30 June 2021)
Required training	<ul style="list-style-type: none"> Stormwater pollution prevention training was provided to base personnel (active duty, civilian and contractors). Training activities include live training and online courses. <ul style="list-style-type: none"> Stormwater awareness courses were provided in an online format through the TEACH website. The UEC training was conducted in a classroom setting eight times during the permit year. Training is normally conducted monthly; however, stay at home orders and social distancing guidance related to the COVID-19 pandemic prevented training from being conducted from March through June 2020. Facility Managers training was conducted in October 2019. Training scheduled for February was postponed due to COVID-19. Good housekeeping procedure training for each of the three procedures was conducted in a classroom setting in September 2019. Additional relevant environmental courses were available to personnel on TEACH. These courses cover the following environmental topics: water; wastewater; spill response; and petroleum, oils and lubricant management. 	<ul style="list-style-type: none"> Conduct stormwater pollution prevention training and track base personnel that have received training. Upload good housekeeping procedure training course materials to TEACH.

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Section 5: TMDL Action Plans

SC1: TMDL Special Conditions Compliance for the Chesapeake Bay TMDL

JBLE–Langley’s Draft Phase II Chesapeake Bay TMDL Action Plan was developed and submitted with the MS4 Permit Registration Statement. The Action Plan presented a discussion of the compliance requirements for JBLE–Langley.

The Action Plan presents the JBLE–Langley estimated load contribution, required load reductions and pollutant reduction credits. The plan also reported progress made toward meeting the 40% cumulative pollutant reduction requirement for the first and second permit cycles.

The Chesapeake Bay TMDL Action Plan Implementation Status Memo summarizes the actions taken during PY2 and is included as Attachment 7. Implementation will continue in PY3.

SC2: TMDL Special Conditions Compliance other than the Chesapeake Bay TMDL

Part II.B. of the JBLE–Langley MS4 permit, Permit No. VAR040140 requires the base to maintain an updated MS4 Program Plan that includes a specific TMDL Action Plan for pollutants allocated to the MS4 in an approved TMDL.

As part of maintaining its MS4 Program Plan, JBLE–Langley has developed the Bacteria TMDL Action Plan to address bacteria impairment in those waterbodies. The MS4 Program Plan currently has incorporated the TMDL Action Plans that identify the BMPs and other interim milestone activities. The 2017 TMDLs, which became final on 09 February 2018, include updated information on the listing status of assessment units according to the 2014 305(b)/303(d) Water Quality Assessment Integration Report and assign a WLA for bacteria to JBLE–Langley. The WLA is a portion of the TMDL and represents the allowable load a permittee may discharge to the waterbody and still meet water quality standards.

JBLE–Langley is required to implement an approved TMDL Action Plan for bacteria impairment. Implementation continued in PY2 and will continue in PY3. The Bacteria TMDL Action Plan Implementation Status Memo summarizes the actions taken during PY2 and is included as Attachment 8.

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Attachment 1: IDDE Maps

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JBLE-Langley

Figure 1. Stormwater Outfall and
Drainage Basin Map, Main Base
JBLE-Langley VA

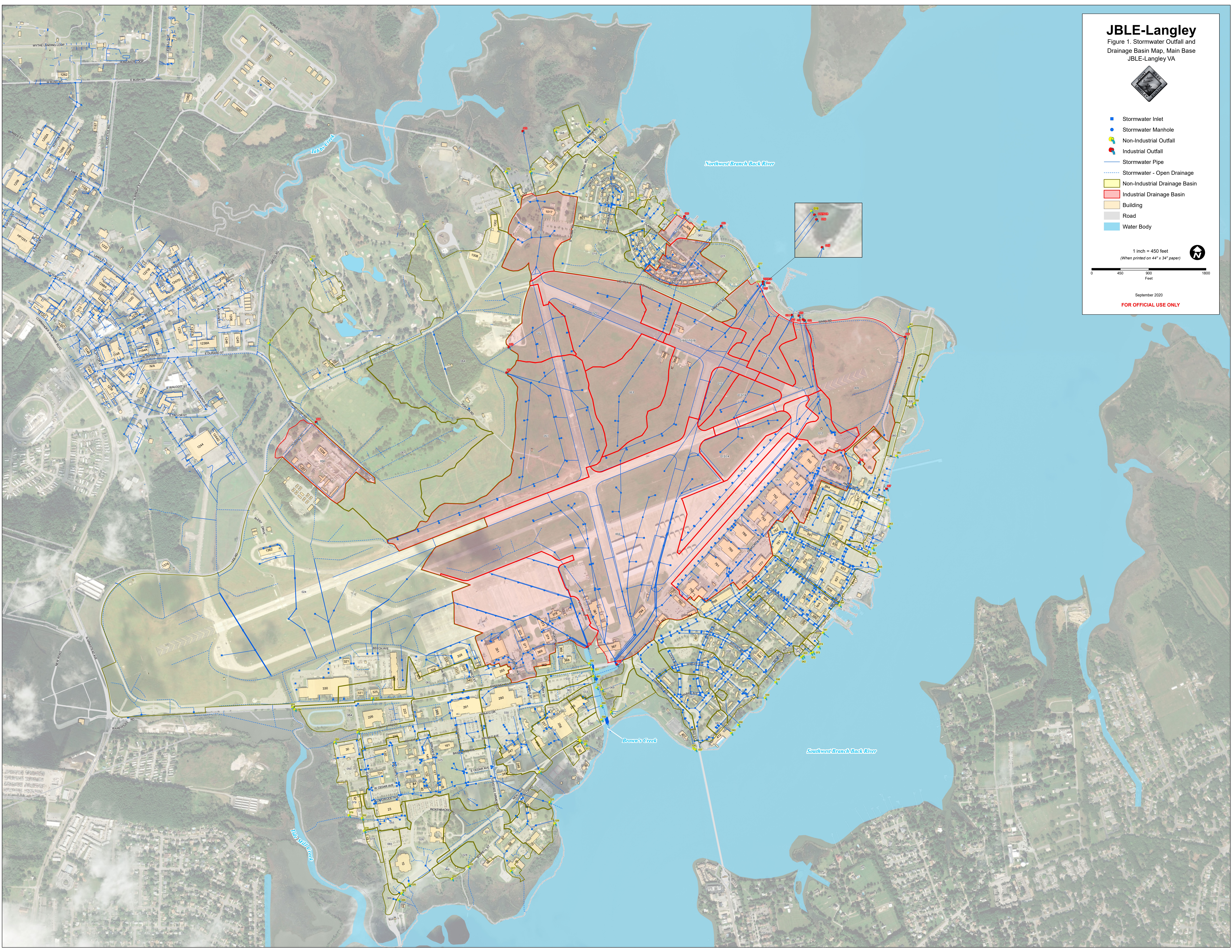


- Stormwater Inlet
- Stormwater Manhole
- Non-Industrial Outfall
- Industrial Outfall
- Stormwater Pipe
- Stormwater - Open Drainage
- Non-Industrial Drainage Basin
- Industrial Drainage Basin
- Building
- Road
- Water Body

1 inch = 450 feet
(When printed on 44" x 34" paper)



September 2020
FOR OFFICIAL USE ONLY



JBLE-Langley

Figure 2. Stormwater
Outfall and Drainage Basin
Map, Langley Family
Housing & Family Camping

JBLE Langley VA

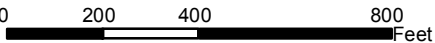


- Non-Industrial Outfall
- Stormwater Pipe
- Stormwater - Open Drainage
- Drainage Basin
- Building
- Road
- Water Body
- Site Boundary

1 inch = 400 feet



(When printed on 22" x 17" paper)



September 2020

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**Attachment 2: Stormwater Management
Educational Brochures**

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Material Storage

Outdoor storage of materials can also pollute stormwater runoff.

Here are some material storage Best Management Practices:

1. Store materials indoors or under cover where feasible



2. Keep outdoor materials stored away from storm drains and high traffic areas
3. Store materials on pallets to keep dry
4. Use silt fences to filter sediment



5. Install berm for secondary containment of sand and gravel or cover with a tarp.

Why Is Stormwater Pollution Prevention So Important?



**Our unique location:
The Chesapeake Bay Watershed**

Federal and State Laws

- ♦ Clean Water Act
- ♦ Virginia Pollutant Discharge Elimination System (VPDES) regulations
- ♦ Municipal Separate Storm Sewer System (MS4) regulations

**For more information, call the
Stormwater Program Manager
(757) 764-1141**

***Joint Base
Langley Eustis -
Langley***

633d CES/CEIE



Stormwater Pollution Prevention

***Small amounts of contaminants
from all over the base add up and
cause pollution in our water.***

***Yes, even the little things matter.
YOU will make a difference,
no matter how small.***

The Many Sources of Pollution

- Paint
- Fertilizer
- Pet Waste
- Pesticides
- Grass Clippings
- Tires
- Metal Corrosion
- Litter
- Leaves
- Auto Exhaust
- Motor Oil
- Lubricants
- Gas
- Eroded Soil
- Plastics

These materials enter storm drains every day, making stormwater a major contributor to water pollution in our area.

If the pollutants entering each drain can be reduced, so will the pollution in surrounding waterways.

Common Sources of Pollution Due to Base Operations

- De-icing Operations
- Construction Debris
- Sedimentation
- Air Pollution
- Erosion
- Spills
- Hazardous Waste

These sources of pollution reduce oxygen levels in the water, killing aquatic animals and covering aquatic plant life.

Best Management Practices (BMPs)

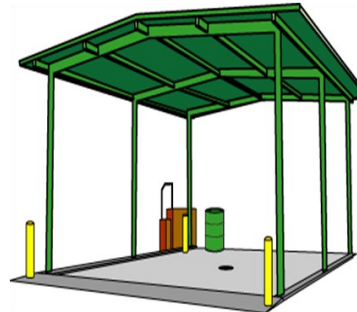
Vehicle/Equipment

Overfills, leaks and spills are usually picked up by rain and snow, then carried to a storm sewer system. Here are some BMPs:

1. Do not top off fuel tanks
2. Immediately clean spills with absorbents
3. Check for leaks on all equipment
4. Use drip pans when fluid transfer occurs at any location



5. Use drip pans beneath parked vehicles
6. Use designated wash racks to clean vehicles and equipment
7. Do NOT wash where soapy water will flow into a storm drain



Pavements

Pollution sources from streets are also picked up by rain and snow. Pavement runoff is carried more quickly to a storm sewer system. Here are some pavement BMPs:

1. Sweep up debris and sediment
2. Reduce deicing materials by using the manufacturer's recommended rates
3. Use products that pollute less
4. Store materials indoors
5. Allow nature to melt snow and ice
6. Maintain your vehicle to prevent fluid leaks



Street sweeping reduces pollution by 80%

Tips

Picking up pet waste is no one's favorite job.

Hopefully the tips below will make the job a little less icky.

- You can turn pet waste collection baggies inside out over your hand to use the bag as a glove when picking up the waste.
- Many pet owners prefer to double bag the collected pet waste.
- After collection, you can tie the baggies onto the leash so that you do not have to hold or put the full baggie in your pocket.
- Long handled pet waste scoopers are available at pet stores to assist with waste collection.
- Although you can purchase baggies specifically for pet waste at pet stores, you can also re-use other bags including newspaper bags, bread bags, or sandwich baggies.
- Pet waste digesters are available for purchase at pet stores.



Additional Information

For more information, contact a Joint Base Langley Eustis Water Program Manager at 757-878-5218 (Fort Eustis) or 757-764-1141 (Langley AFB).

Additional information is available at:

EPA Pet Waste Management:

<https://cfpub.epa.gov/npstbx/files/Pet%20Care%20Fact%20Sheet.pdf>

City of Hampton

<http://www.hampton.gov/DocumentCenter/View/9075>

Hampton Roads

www.hrpdcva.gov/departments/water-resources/stormwater-management

<http://askhrgreen.org/scoop-the-poop/>

Water Environment Federation

www.wef.org/AWK/pages_cs.aspx?id=6392

Pet waste is a health risk to people, other pets, and the environment. Bacteria in pet waste can make people sick. When not disposed of properly, pet waste is washed into storm drains and ends up in local waterways.

Always bag pet waste and dispose of it properly.



Preventing Pollution from Pet Waste



April 2016

The Problem

Pet waste is not only smelly and unsightly, but also is a health risk to pets, people, and our local water bodies.

You may think that pet waste left on a lawn or sidewalk fertilizes the soil. However, in most cases the waste is washed into storm drains that lead directly into nearby waterways without being treated first.

The problem is that pet waste contains harmful bacteria such as *E. coli* and fecal coliform, making the water unfit for irrigation, recreation (such as swimming, fishing, or tubing), and other uses.

Pet waste contains parasites and bacteria that can spread gastrointestinal illnesses in humans such as *Giardia* and *Salmonella*.

These pollutants are harmful to the thousands of species of plants and animals (including fish, crabs and shellfish, birds, grasses, mammals, reptiles, and amphibians). People who eat food from contaminated water can get very sick.

Furthermore, pet waste also contains nutrients that can cause excessive algae growth in water, leading to fish kills and disrupting the water's natural ecology.

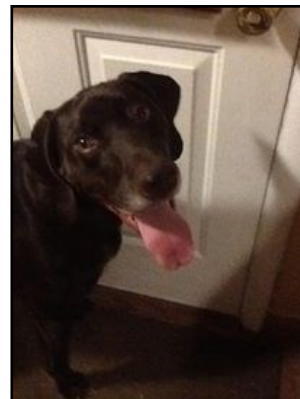
The Facts

Pet waste contains contaminants that are harmful to people, pets, wildlife, and the environment.

Some of the harmful effects of pet waste include:

- When pet waste decays, it uses up dissolved oxygen and releases compounds that are harmful to fish and other aquatic life.
- On average nationally, there are 0.58 dogs per household.
- Each dog produces approximately 0.42 pounds of fecal waste per day, or about 150 pounds per year. Just think how much waste is produced by the pets in your neighborhood!
- A single gram of pet waste contains an average of 23 million fecal coliform bacteria that can cause disease in humans.
- A single day's waste from one large dog can contain 7.8 billion fecal coliform bacteria—enough to close 15 acres of shellfish beds.
- EPA estimates that 2 to 3 days of pet waste from a population of 100 dogs would contribute enough bacteria and nutrients to temporarily close an entire bay for swimming and shellfishing..

Source: EPA 1993



The Solution

Be responsible and clean up after your pets. It is as easy as 1-2-3:

1. Bring a bag.



2. Use a bag to pick up pet the waste.



3. Dispose of the bag properly in the trash...



The Impact of Car Washing on Our Rivers and Bay...

When we wash the grime off our cars, it flows down the street and into the storm drain. This runoff carries soap, sediment, oil, and grease. Once the runoff gets into the storm drainage piping system, it directly discharges without treatment into the nearest lake, river, harbor, or bay.



...and Why It Matters

Polluted stormwater can harm fish, wildlife, and plants, and it can even contaminate drinking water. The U. S. EPA estimates that at least 50% of our nation's water pollution is caused by polluted stormwater runoff. If every vehicle (some 2.3 million) in the U.S. was washed once a month with 25 gallons of water (5 buckets), over 70.5 billion gallons of polluted water could enter the stormwater system every year. You can help. Use the tips provided in this brochure to help ensure that our waterways remain clean.

The Law

Joint Base Langley Eustis is required to obtain a stormwater permit under the Virginia Pollutant Discharge Elimination System, or VPDES. The goal of this permit is to reduce pollutants found in storm water runoff from urbanized areas to the "maximum extent practicable."

Joint Base Langley Eustis has prepared this educational brochure to meet a requirement of their VPDES permit administered by the Virginia Department of Environmental Quality.

Contact Information

For more information, contact a Joint Base Langley Eustis Water Media Manager at 757-878-5218 (Fort Eustis) or 757-764-1141 (Langley AFB).

For additional information, see the Commonwealth of Virginia's VPDES Permits, Fees and Regulations website at:

<http://www.deq.virginia.gov/Portals/0/DEQ/Water/PollutionDischargeElimination/VAG75FactSheet2012.pdf>

Environmental Protection Agency's information on vehicle washing:

https://cfpub.epa.gov/npstbx/files/KSMO_CarWashing.pdf

Florida DEP's Best Practices for Mobile Vehicle Washing:

<http://www.dep.state.fl.us/water/wastewater/iw/docs/bmps4mobile-vehicle-washing.pdf>



Outdoor Vehicle Washing



Mobile Car Washes: Legal Requirements

Discharges from mobile car washes to the storm sewer system are not allowed at Joint Base Langley Eustis. Owners of mobile vehicle washes may apply for coverage under a permit issued by the Virginia Department of Environmental Quality; however the usual mode of operation for these operations is to prevent the discharge of wash waters to surface waters or the storm sewers. Permit coverage as a mobile operator would require each discharge location to be identified on the registration statement as a separate outfall.

JBLE and DEQ urge mobile car wash owners to avoid a discharge to state waters or storm drains by applying technologies to collect wash water and dispose of it properly, recycle it, or use best management practices (evaporation, blocking storm drain entrances, use of permeable surfaces, etc.). Many ideas to avoid a discharge are covered in this brochure and available online.



Car Washing at Home and for Charity

Washing personal vehicles at home or at a volunteer/ charity event is not regulated. Thus, runoff from these activities does not need to be captured by recycling or catchment devices. Even so, there are several easy ways to help reduce stormwater pollution while you work:

- If possible, use a commercial car wash.
- Commercial car washes have recycling systems or discharge to the sanitary sewer system, which goes to a treatment plant.
- Wash your car on gravel, grass, or other permeable surfaces. These surfaces serve as a filter or a sponge, trapping pollutants from the wash water.
- Block off the storm drain inlets during charity car wash events or use an inlet insert to catch wash water.
- Divert soapy water from car washes into a sanitary sewer drain. If this is not feasible, divert car wash water onto grass or landscaping to provide filtration.
- Use hoses with nozzles that automatically turn off when left unattended.
- Use only biodegradable soaps.

Using these simple rules at home and for charity events helps keep a clean and healthy living environment. This is not only good for us and future generations, it makes for a healthy ecosystem.



The Best Option

Outdoor car washing has the potential to result in high loads of nutrients, metals and hydrocarbons during dry weather conditions in many watersheds, as the detergent-rich water used to wash the grime off our cars flows down the street and into the storm drain.

Car washing is a common routine for residents and a popular way for organizations such as scout troops, schools, and sports teams to raise funds. This activity is not limited by geographic region, but its impact on water quality will be greatest in more urban areas with higher concentrations of automobiles.

Always consider using a commercial car wash as your first alternative. A properly designed car wash is connected to a sanitary sewer that carries the dirty water to a wastewater treatment plant. Trading a few dollars for a healthy stormwater system is one deal that everyone can live with.



Why is Pollution Prevention so Important?

Leaks and Drips

A small leak from your vehicle may not seem like a big deal, but when each car in a large parking lot drips just one drop of fluid, the cumulative negative effects on water quality can be enormous.

Fluid spills and improper disposal of materials result in pollutants, heavy metals and toxic materials that are picked up by stormwater and carried to the nearest storm drain. Anything that enters the storm drain system flows untreated into our streams and creeks and ends up in our lakes and rivers. By following the guidelines in this brochure, you can help prevent stormwater pollution.



Our unique location impacts
the Chesapeake Bay
Watershed



Federal and State Laws

- * Clean Water Act
- * Virginia Pollutant Discharge Elimination System (VPDES) regulations
- * Municipal Separate Storm Sewer System (MS4) regulations

For more information, contact the
Stormwater Program Manager at
(757) 764-1141
or the
Pollution Prevention Program
Manager at (757) 764-1130

Joint Base Langley Eustis - Langley 633 CES



Car Maintenance and Pollution Prevention

Small amounts of contaminants
add up and cause pollution in
our water.

Yes, even the little things
matter.

YOU will make a difference, no
matter how small.

Care and Maintenance

Care and maintenance of vehicles is important in keeping them in good working order.



How You Can Help

Your part might seem small, but every little bit adds up to make a big difference:

- * Repair leaks on your vehicles
- * Use funnels when pouring liquids
- * Use pans to catch drips/spills
- * Use the facilities available on base for maintenance needs
- * Recycle used oil & oil filters
- * Recycle used/unused antifreeze
- * Recycle automobile batteries



You have a choice!

Take your car to Precision Tune or, if you prefer to do it yourself, the Auto Skills Shop has you covered.

Antifreeze & Batteries

Recycle old batteries and antifreeze at Precision Tune Auto Care.

Used Oil & Filters

Take filled containers and used oil filters to Precision Tune Auto Care or the Auto Skills Shop or for recycling.



If you have a spill or see one, please report it.

**Report spills to the Fire Department at
(757) 764-4222**

Locations

Auto Skills Shop
35 Ash Ave, Bldg. 224 Hours:
Mon-Fri, 0800-1700;
Sat-Sun, 1000-1500
(757) 764-4607



Precision Tune Auto Care
61 Tuskegee Airman Blvd., Bldg. 245
Hours: Mon-Fri, 0630-1800;
Sat 0800-1600
(757) 709-7822





thing you can



OIL and ANTIFREEZE:

1. Engine Oil - can be re-refined, processed into fuel oils and reused as raw materials
 - A. No fee to recycle at JBLE-Langley facilities
 - B. Precision Tune Auto Care (757) 709-7822
 - C. Auto Skills Shop (757) 764-4607

***If you perform engine maintenance at home, stay clear of storm drains and take precautions to avoid any spills.**



2. Antifreeze - recycled by filtering any metals or oil and adding additional chemicals
 - A. No fee to recycling at JBLE-Langley facilities
 - B. Precision Tune Auto Care (757) 709-7822

*For more information, contact Ms. Sherry M. Johnson at 764-1130 or by email at sherry.johnson.4@us.af.mil

Furniture

Furniture issued by the government and in serviceable condition must be turned into DLA in Norfolk, VA.

Damaged furniture can be recycled but metal, wood, and plastic must be separated from any other materials before it is turned into the scrap yard.

DO NOT place in dumpster!

Batteries

Lead acid-batteries should not be placed in dumpsters or containers. They can be recycled at facilities or stores that sell them (i.e. auto parts store; Battery Plus at 3412 W. Mercury in Hampton). Alkaline batteries can be disposed of as regular trash. Lithium, nickel-cadmium, and mercury batteries are to be treated as *universal waste*. Separate them into different containers and place a Universal Waste label on the container (obtained through the 633 CES). These can also be recycled at Battery Plus.

Fire Extinguishers

Take expired fire extinguishers to the Virginia Industries for the Blind Store (Bldg 330). Recertified extinguishers can be purchased here.



Material	Where does it go?
Paper Products	
Office White Paper	Specified "White Paper" bin
Colored Paper, Mag's, Newspaper, etc.	Specified "commingles" bin
Cardboard	Specified cardboard only container
Wood	
Pallets	Scrap Yard
Furniture	
Serviceable/Old Furniture	DLA in Norfolk, VA POC: 445-2412/2398
Damaged Furniture	Specified roll-off bins; POC: Contract Services 764-1419
Liquids	
Oil and Antifreeze	Hobby Shop/auto shop
Batteries	
Lead-Acid	Battery Plus/auto parts store
Lithium, Nickel cadmium, mercury	Collect as Universal Waste in separate containers; Label info: 764-1133/1130 Schedule Pick Up: 225-5808
E-Waste	
Electronics (TVs, computers, cords, etc)	1) 633 CS: 764-7936 2) DLA: 445-2412/2398
Other	
#1 and #2 Plastics	Specified "commingles" bin
Bulbs	Collect as Universal Waste; Label info: 764-1133/1130 Schedule Pick Up: 225-5808
Glass (green, brown, or clear	Specified "commingles" bin
Plastic shopping Bags	Inside Commissary
Fire Extinguishers	VA Industries for the Blind

JBLE- Langley

633 CES



Recycling Program

QRP Manager: Sherry M. Johnson

Comm: 764-1130

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"JBLE-Langley supports a strong pollution prevention program which emphasizes the importance of source reduction, reuse, and recycling. "

Recycling Program

Overview

In order to promote pollution prevention, JBLE-Langley utilizes a program that incorporates reuse, reduction, recycling, energy recovery (incineration), and land filling. Recycling is a program encouraged base wide with a specific area at each facility meant as a collection area for most recyclables. Other facilities such as the scrap yard and Defense Logistics Agency- Disposition Services (DLA) are available to aid in the recycling of materials that cannot be put into the collection bins. If you need to dispose of an item not mentioned in this brochure, please contact the QRP Manager for assistance.



Commingled Materials

Materials such as **newspapers, colored paper, magazines, #1 and #2 plastics, cans and glass (clear, brown, and green)** should be placed into the same container. A bin for these mixed items is located in the facility's recycling area.

White Office Paper

Specific containers for white office paper only are placed in each facility's recycling areas. Shredded office paper must be put in a clear plastic bag and tied. Loose sheets of paper are also allowed in the bin.

Cardboard

Cardboard has its own separate beige bins. Breakdown the boxes before placing them in the bin and **do not place cardboard contaminated with food** (i.e. pizza boxes) in the container.

Ink Cartridges

1-3 toner cartridges are to be placed in a **clear plastic bag**, tied off, and placed next to (not inside) the white office paper bin. ***Quantities larger than 3*** should be taken to the scrap yard.

Plastic Shopping Bags

Recycling bins are located inside the Commissary at the entrance and exit. ***DO NOT place in commingled bin.***

Oil & Antifreeze

Motor oil and antifreeze must be taken to the Hobby Shop or an auto shop in order to be disposed of and recycled.

Metal

All types of metal are accepted for recycling at the scrap yard located behind Bldg 331 (M, W, F 1300-1500). Any liquids such as oils or refrigerants and other material such as plastic must be removed prior to turning in.

Pallets/Wood

Serviceable or broken pallets should be taken to the scrap yard to be recycled. ***DO NOT place by solid waste dumpster. Abandoned pallets will not be collected.***

E-Waste

Contact 633 CS Asset Management to verify items are clear for disposal. Then, contact DLA to dispose of all governmental electronics. ***DO NOT place any electronics in solid waste dumpsters or recycling bins.*** If the screens to these devices are broken, contact your Facility Manager for proper procedures to dispose of hazardous waste. Non-governmental appliances in good working condition may be donated to organizations such as Goodwill or the Salvation Army.

C & D Debris

These are materials resulting from construction and demolition including: wood, drywall, plastics, roofing, rubble, brick and glass. The contractors are responsible for the management and removal of these materials. Non-recyclable materials will be disposed of at the Bethel Sanitary Landfill.

Air Force Shop-Level Hazardous
Material Management Process Guide



HAZMAT₂
made
Eazy
(as possible)

The complete simple-to-follow guide when ordering,
using, storing, and disposing of hazardous materials.

December 2016

3rd Edition

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1. Introduction

1.1 Background



The tracking of hazardous materials (hazmats) is not a new concept. Cavemen are reported to have instituted the first tracking system using crude and often barbaric methods to enforce compliance. While many believe that little has changed over the years, these first rudimentary attempts at tracking hazmats have evolved to today's more sophisticated methods of managing hazmats. The challenge to tracking hazmats throughout the ages really always boiled down to one thing—everybody buys and uses them. From the war paint used by ancient armies to the chrome paint used on nuclear missiles, great nations have struggled with managing the common hazmat and consequently many disappeared into the fog of history as a result of their failures. The AF also struggled with managing hazmats the first 40 years of its existence before a significant breakthrough was made with the realization that a systematic approach was needed to bring together installation-wide organizations who buy, use and dispose of hazmats. Under a new innovative approach, base-wide organizations were brought together under the Hazardous Materials Management Process (HMMP) and a new team was created to work hazmat issues. This revolutionary new hazmat managing system became policy in Air Force Instruction (AFI) 32-7086, *Hazardous Materials Management*, effectively taking hazmat management out of the dark ages and into the 21st century.

The purpose of this guide is not to make everyone a hazmat genius, but rather give you, our customer, a simple and easy to follow reference when it comes time to order, use, and ultimately dispose of any hazmats. We all need to do this right, as some scientists now believe that the extinction of the dinosaur is linked to the caveman's ultimate inability to manage their hazmats... and maybe that crazy asteroid theory too.

1.2 The HMMP Team

If playing on a team harkens back unpleasant childhood memories of being the last one picked when forming neighborhood football teams, don't worry—anybody willing to contribute is welcome! Nobody is turned away and everyone adds value—the most successful HMMP teams are also the most cross-functional, including dedicated Civil Engineering Environmental Experts, Bioenvironmental Engineers, Safety Representatives, Fire Emergency Service Inspectors, Supply functionals, Unit Environmental Coordinators (UECs), and organizations using hazmats. HMMP teams can be found at the air staff and at base level across the Air Force, wherever a hazmat is used. The teams are tasked with implementing AFI 32-7086.



1.3 The Enterprise Environmental, Safety, and Occupational Health Management Information System (EESOH-MIS)

All great management system endeavors require the right supporting tools that usually involves a comprehensive IT solution. For the HMMP teams, that tool is the web-based EESOH-MIS on the AF Portal and it is the only approved Air Force hazmat and waste tracking system. The tool can track and help manage all the hazmat and subsequent waste bought, stored, used, and disposed of at an AF base. Because it is "enterprise" and the data

is all stored in one place, data from across the AF can be rolled up without having to ask each installation through a datacall. Truly an enterprise system, it can be accessed by all levels—shop users, HMMP Team members, supply points, even the highest reaches in the AF. Everybody plays a role to properly manage their hazmats, and the system replaces inefficient old paper and pencil methods. One of the basic building blocks in EESOH-MIS is the shop—it all starts with the need for a hazmat in a shop process.

Do I need access to EESOH-MIS?

If a hazmat is used in a work center, the shop supervisor will at a minimum need EESOH-MIS access to certify shop authorization requests, order material online, track use, print hazmat inventories or Safety Data Sheets (SDSs). Other shop personnel can also have access as needed.

How do I get access?

You must have a Common Access Card (CAC) and access to the Air Force Portal. You will need to complete a DD Form 2875, *System Authorization Access Request (SAAR)*, and submit it to your installation EESOH-MIS SAAR POC.

Where is Help?

1. Information about EESOH-MIS is located at www.eesoh-mis.com.
2. The EESOH-MIS Help Desk can be reached at 1 (866) 488-4069 or helpdesk.eesoh-mis@caci.com. Anyone can call the Help Desk with an EESOH-MIS question. Note: contact your SAAR POC to reactivate a user account.
3. There are Quick Reference Guides posted on the EESOH-MIS eDASH page to walk you through the things you use frequently at:
<https://cs1.eis.af.mil/sites/edash/Web%20Part%20Pages%20%20Program%20Pages/Environmental/Hazardous%20Materials.aspx> and then select the appropriate topic on the right side list.



1.4 Hazmat Tracking Activities (HTAs)

All kinds of hazmats enter a base from different sources destined for numerous users—the trick is tracking all that without affecting the mission or ops tempo. To get that done, hazmat gate keepers were created—HTAs. The HTA (previously known as a Hazmart) acts as the “door” for each source of supply through which a hazmat is allowed onto an installation. There are many different sources of supply and include any method that can be used to acquire or procure hazmat, such as:

- Enterprise Solution Supply (ESS/SBSS)
- Civil Engineering Material Acquisition System (CEMAS)
- Defense Medical Logistics Standard Support (DMLSS)
- Government Purchase Card (GPC) or State Purchase Card (SPC)
- Form 9 or other contracting mediums
- Other procurement sources

Each organization (EESOH-MIS Shop) requiring hazmat is assigned an HTA to track all usage regardless of how they are purchased or obtained, even if free or shared. By tracking hazmat, the entire environmental, safety and occupational health (ESOH) team on the HMMP can help ensure shops are properly prepared and equipped to deal with its usage.

When properly maintained and updated, EESOH-MIS provides the Air Force reliable data for federal, state, local government, and foreign country regulators on hazmat usage and storage on base. The reports allow neighboring communities to know what is kept in their "backyard", and this information is used by emergency responders in the event of fire or natural disaster.



EESOH-MIS can also quantify hazmat usage in a particular process or on a particular weapon system. This information is useful to systems and depot engineers when eliminating the more hazardous materials in favor of less or even non-hazardous materials. These opportunities to reduce, replace, consolidate or share hazmat stocks also avoid expired shelf-life and hazardous waste costs. All these activities work only if the data in EESOH-MIS is reliable. The shops play a vital role with this and this guide shows shop personnel the importance of their actions in this, and other, tasks.

1.5 Resources and Policy

Establishing a complex tracking and management system involves a concerted effort by all levels of an organization. Thanks to the wonders of automation, we gathered all the important stuff and information into a "one stop shop". That spot is eDASH, a Sharepoint site maintained by the Air Force Civil Engineer Center's (AFCEC) Environmental Management Directorate. You can access the Hazmat Page of eDASH at:

<https://cs1.eis.af.mil/sites/edash/Web%20Part%20Pages%20%20Program%20Pages/Environmental/Hazardous%20Materials.aspx>

On eDASH you can access documents mentioned in this guide, view a calendar of training opportunities, and use the discussion board to ask questions. If you have trouble accessing eDASH, talk to your HMMP Team for help.

**Special section just
for Shop-Level
Hazmat Management!**

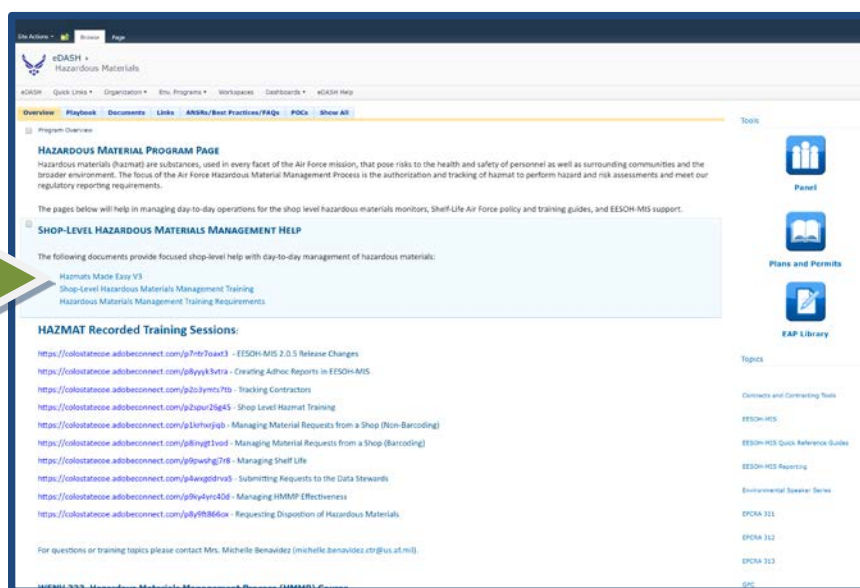


Figure 1 - eDash HM Page Showing Shop-Level Hazmat Section Access

There is a long list of policy documents that apply to managing hazmat and we have read them all for you and wrote this guide. But if you just have to check them out for yourself, we posted them on the eDASH hazmat page. This guide is all about you, so we made it super easy and listed the most important ones below in Table 1, Hazmat Related Policy Reference.



Level	Citation	Regulatory Title	Publication Date	Why the Shop Cares
AF	AFI 32-7086	Hazardous Material Management	4 Feb 2015	Primary policy for Hazardous Material Management
AF	AFJMAN 23-209	Storage and Handling of Hazardous Materials	13-Jan-1999	Primary policy for storage of Hazardous Materials
AF	AFJMAN 23-227	Storage and Handling of Liquefied and Gaseous Compressed Gasses and Their Full and Empty Cylinders	16 Jun 2000	Guidance on storing compressed gas cylinders
AF	AFI 90-821	Hazard Communication (HAZCOM) Program	20 Jan 2014	AF Hazard Communication Standard policy.
AF	AFI 32-7047	Environmental Compliance, Release, and Inspection Reporting	22 Jan 2015	Defines the roles of applicable organizations within the AF as they pertain to environmental compliance, release, and inspection reporting.
AF	AFI 32-7001	Environmental Management	16 Apr 2015	Establishes an Environmental Management System (EMS) as the framework for continual program and process improvement through clearly defined environmental roles and responsibilities, planning requirements, budgeting, effective implementation and operation, and management review
Federal	FED-STD 313E	Federal Standard, Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities	1 Jul 2014	This policy provides hazardous material guidance for contractors doing business with the government.
Federal	E.O. 13693	Planning for Federal Sustainability in the Next Decade	19 Mar 15	Requires all federal agencies to conserve and reduce use of material resources and be good neighbors to the citizens they serve and in the communities where they are located and operate.

Table 1- Hazmat Related Policy Reference

2. How Can I tell a Hazardous Material?

If today is the first time you are ordering or purchasing a particular item, this question should invariably cross your mind. This is perhaps the most fundamental question in the whole HMMP, and the answer determines whether you will need HMMP approval before you procure the item. It does not matter whether you are procuring the item through the supply system, GPC, or other contracting vehicle—if the item is a hazmat, it must first be approved by the HMMP. Do not buy anything you suspect may be a hazmat until you are sure. And once you decide you have a hazmat then this guide applies.

***EXEMPT HAZMATS
must be unanimously
approved by the ESOH
team and posted to
EESOH-MIS***

2.1 Hazmat Definition

Several agencies define hazmat for their particular purposes such as for storing, transportation, environmental, and occupational health.

For the purposes of typical hazmat management in the shop, we use AFI 32-7086 which defines hazmat as all items that are:

- Covered under EPCRA¹ or other applicable host nation, federal, state, or local tracking or reporting requirements;
- Covered under the OSHA HAZCOM Standard² (29 CFR 1910.1200) or the OSHA Occupational Exposure to Hazardous Chemicals in Laboratories Standard (29 CFR 1910.1450);
- and all Class I or Class II ODS
- any additional requirements identified in your country specific FGS
- does **not** include Munitions; pharmaceuticals managed by an installation pharmacy or formulary; radioactive materials; and Hazardous Waste.

***And once you
decide you have a
hazmat then this
guide applies***

Before we go into what you should consider when determining whether something is a hazmat or not, it makes more sense to see if it can be exempted from HMMP approval in the first place.

2.2 Are There Exemptions?

Absolutely! EESOH-MIS maintains a list of exempted items. Exempted materials require NO authorization and NO tracking and since they are not tracked, EESOH-MIS does not enforce limited quantities—check with your HMMP team for more details on exemptions at your base! So if you can use an exempt material, you just eliminated all the hazmat red tape. But first a few words of caution. There are some items and products that we all use day-to-day which may contain a hazmat but require no tracking due to



¹ EPCRA is the Emergency Planning Community Right-to-Know Act

² The OSHA Hazard Communication Standard (29 CFR, 1910.1200 (c)) ² defines a hazmat as: “hazardous chemical means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified”.

the nature of the chemicals and their intended use. It is also very important to know that how you use a hazmat also determines whether we must follow the HMMP process or not.

The most common reason for exempting a hazmat is under the OSHA allowed exemption for Consumer Commodities³ and when the expected use across the installation meets the exemption definition:

- 1) You must be able to buy the product as a typical consumer would (i.e., retail store or consumer container sizes)
- 2) The product must be used as the manufacturer intended a consumer to use it (i.e., following the use directions on the product), and
- 3) The duration and frequency of the use is the same as a typical consumer.



In other words, ordering bulk quantities of an exempt household cleaner to degrease parts and circumvent the process is not acceptable. If your degreasing process requires a household cleaner, then this use falls not only under the federally-mandated hazard communication program, but also requires HMMP approval prior to use. Not all consumer commodities will make it to the exempt list—the ESOH team will make a final decision based on all regulatory ESOH concerns. Keep in mind that all exemptions are local only—just because it is exempt at one base, does not mean it is exempt everywhere. Sorry, not our rules but OSHA's (you know, the men in black who protect your health and safety and purportedly Earth from aliens, and they don't take kindly to breaking the rules!)

However, when using a normal household cleaner to clean around the shop, i.e., counter tops, desks, windows, lavatories, etc, as you would in your home, the exemption may apply. Note that housekeeping staff or janitorial services are not typically covered by this exemption, as they are exposed to the product for much longer periods of time. It is the user's responsibility to make sure these exempted hazmats are not misused. If abuse of an exempted hazmat is prevalent, we'll have no choice but to require HMMP approval for each use. Let's all work together and keep this simple!

Your ESOH team reviews each item before putting it on the Exempt List and the decision to exempt an item must be unanimous. Always check the list before bypassing the hazmat process. If it is not on the list and you think it should be, ask the HMMP to review it for placement on the Exempt List. You are encouraged to use items off this list first. If you find a product listed on the Exempt List, no further action is required, and you are free to procure and use the product responsibly without HTA tracking. This does not relieve the user from applicable requirements like ensuring proper storage, labeling, and disposing of the product.

Typical items on an exempt list include things like shoe polish, car wax, hand soaps, Windex®, markers, toners, etc.

³ 29 CFR 1910.1200(b)(6)(ix) Any consumer product or hazardous substance, as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 *et seq.*) and Federal Hazardous Substances Act (15 U.S.C. 1261 *et seq.*) respectively, where the employer can show that it is used in the workplace for the purpose intended by the chemical manufacturer or importer of the product, and the use results in a duration and frequency of exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the purpose intended;

2.3 So it's not exempt... Nuts!

If it's not exempt, then we need to figure out if it's a hazmat that needs HMMP approval prior to use. Sometimes there is no sure-fire, easy way to figure out what's a hazmat and what's not, and there are many requirements that seem to conflict or confuse the issue of what we need to track. To simplify the hazmat determination and build in some common sense, use the following questions to help you find the answer to whether you are buying a hazmat or not:

- ☠ *Does the item have a Safety Data Sheet (SDS)⁴?*
- ☠ *Are there health warnings printed on the item or in use directions?*
- ☠ *Does the item generate hazardous waste when disposed or consumed?*
- ☠ *Does the item contain any radioactive material?*
- ☠ *Is the item packaged in an aerosol can?*
- ☠ *If it is a bulk item, do similar items packaged individually carry the above concerns?*
- ☠ *Do you have even the slightest doubt about the hazardous nature of the product?*

If you answer yes to any of the questions above, and you really need that material, then be sure to contact an HMMP team representative or begin with the authorization process (Chapter 4).

3. Ozone Depleting Substances (ODS)⁵

These items are important, and they must be managed as a hazmat. ODSs are used in many of our weapon system fire suppression systems and you cannot buy those kind of ODSs anymore. When it became clear that the worst ODSs were not going to be manufactured anymore, the AF decided to stock-pile those ODSs to meet the expected life of affected weapons systems and stored them in one really really big Defense Logistics Agency (DLA) warehouse. So, we won't bore you on all the details here but if your job involves the use of ODSs you need to read section 3.6.1.1 in AFI 32-7086. Know too that buying and using these ODSs requires a special approval process and there are also recovery and turn-in requirements for most unwanted ODSs.

4. The Authorization Process

You've made it this far in the guide, so you must need an item that may be hazardous to perform a shop process. The next step is securing an authorization from the HMMP team to order or purchase the product. There's good news and bad news here. The bad news is that you have to complete an authorization request via EESOH-MIS. The good news is that once you do this, you usually never have to do it again for that hazmat in a specific process. The initial request establishes your requirement for a hazmat to meet mission objectives. Your authorization will route in EESOH-MIS to reviewers for approval. Once approved,

⁴ "Safety Data Sheet" replaces the term "Material Safety Data Sheet" in the Hazard Communication Standard (HAZCOM), 29 CFR 1910.1200 and is defined as "...written or printed material concerning a hazardous chemical that is prepared in accordance with paragraph (g)" of the standard.

⁵ <http://www.epa.gov/ozone/strathome.html> Link to EPA's site on Ozone Layer Protection.

recurring orders of the same material for the same process will only require placing an order through your HTA or in EESOH-MIS.

Sound too good to be true? You're right - it is - there is a catch! Your authorization is only good until you change something important with your authorization. If your process changes, you will be required to ***Propose a Change*** to the current authorization in EESOH-MIS, which will reroute the authorization for review. If you need to use the same material in a different process, you'll need to submit a new process authorization. This is important in the Logistics arena where multiple processes may use the same hazmat. Each process requires a separate authorization.

You might have picked up on the two different authorizations involved in the final approval—hazmats are authorized by process, so both the process and the hazmat must be reviewed and authorized. The process is the driver for using a hazmat, and as such, is the heart of the hazmat approval process. Simply put, you can not have a hazmat without a valid process to use it in first.

Bottom Line: If you are using a non-exempt Hazardous Material in your shop, you MUST have an approved Authorization in EESOH-MIS - FIRST

Here is the typical flow of an authorization request:

Requestor	the requestor can be anyone in your shop with access to EESOH-MIS
Certifying Official	this person MUST be the shop supervisor. This cannot be delegated to anyone else other than an acting supervisor. The supervisor can also be the requestor.
The approvers/reviewers can be in any order set by your installation EESOH-MIS configuration	
Environmental	usually your HMMP Team lead
Occupational Health	otherwise known as the Bioenvironmental Engineers (BEEs)
Safety	typically ground safety

Table 2 – Typical Process Authorization Routing

4.1 Material Stock Numbers

Authorizations for hazmat are against a "Material Stock Number" (MSN). This is a term unique to EESOH-MIS and means the material either has a bonafide National Stock Number (NSN) or a Stewarded Local Purchase Number (SLPN). These numbers are found in EESOH-MIS and you must know the MSN for the hazmat in order to complete your process authorization. If you do not know the number, then call your servicing HTA and they can help you find a good number.

Unlike NSNs, where multiple similar products are associated to the same number, SLPNs are unique to a single product in a particular unit of issue. They are denoted by having "PHM" after the Federal Stock Class (the first four numbers). For example, 7930PHM00012968 is the number for a 5 gallon can of 1056 aircraft cleaner II from the Acuity Specialty Products Group DBA ZEP Mfg Co. Note that this same number is used at all AF bases that local purchase this material in a 5 gallon can by Acuity Specialty Products Group DBA ZEP Mfg Co.

4.2 Process Authorizations

A "Process Authorization" establishes your need to perform a task that uses hazmat(s). An approved process authorization is the focal point for obtaining "Material Authorizations" and serves as your "permission slip" to request hazmats needed to perform that process. The first step to securing a process authorization is to define the process or what you will be doing. Once defined, you can add all the materials associated to that process. Start by identifying all the process components and isolate the parts that use a hazmat. Since PPE, controls, waste, air emissions, and environmental aspects⁶ are attributes tied to the process and not to the material, it is important to ensure the process is isolated at a low enough level. If items such as PPE, hazards (abrading, heating, pressurizing), handling methods (applying paint with rollers versus HVLP⁷ guns), vary within a process, then the process **MUST** be further broken down into multiple processes. This step needs to be repeated until the process attributes target the specific materials you need.

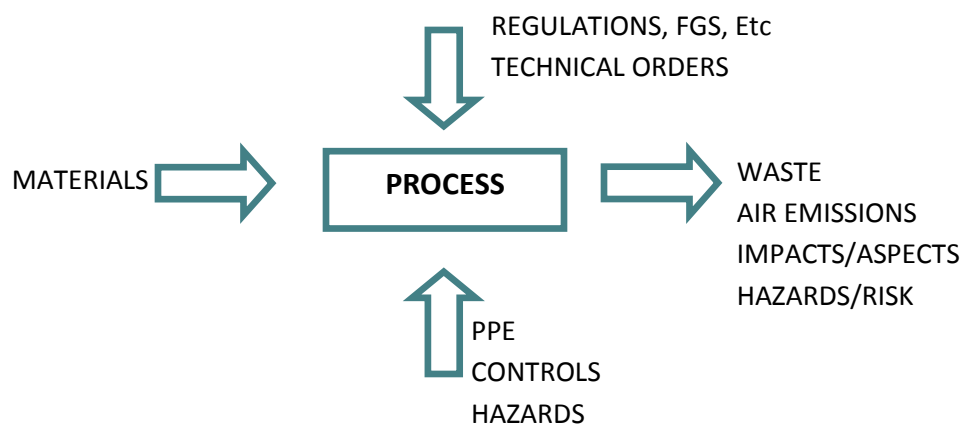


Figure 2 - Process Centric Flow Chart

Let's consider a process called "Paint the Plane." As the name implies, this process covers a lot of ground and can be broken down into many smaller processes. [Table 3](#) on the next page is just an example of how the "Paint the Plane" process can be further split into better processes. Establishing just one "Paint the Plane" type process is too high a level due to the different hazards, potential PPE needs, medical surveillance requirements, waste, air emissions, etc.



⁶ An environmental aspect is defined as an element of a facilities activities, products, or services that can or does interact with the environment. These interactions and their effects may be continuous in nature, periodic, or associated only with events, such as emergencies.

⁷ HVLP stands for High Volume Low Pressure

Process	How	Materials	PPE	Waste Generated
Plastic Bead Blasting Paint from Aircraft	Bead Blasting equipment	Plastic bead blasting material	Full-faced airline respirator, Tyvek coveralls, PVC gloves	Waste bead media Air emissions
Stripping Paint from Acft	By hand	Paint stripper	PVC gloves, Tyvek coveralls, goggles, faceshield	Waste paint stripper Air emissions
Hand cleaning acft surface for paint preparation	By hand	MEK, Alcohol	PVC gloves, Tyvek coveralls, goggles, face shield	Solvent contaminated rags
Corrosion protection coating acft surfaces	By hand Pump sprayer	Alodine	PVC gloves, Tyvek coveralls, goggles, face shield	Alodine waste (possibly to waste treatment plant)
Sanding acft surfaces for paint preparation	By hand Electric sanders		Full-faced airline respirator, Tyvek coveralls, PVC gloves	Air emissions Waste sand with heavy metal (Chromium)
Masking acft surfaces prior to Painting Ops	By hand		None	Waste tape and paper
Mixing paints for acft painting	Pouring Mixing machines	Polyurethane paint Paint thinners	PVC gloves, Tyvek coveralls, goggles, face shield	
Priming acft with HVLP gun	HVLP guns		Full-faced airline respirator, Tyvek coveralls, PVC gloves	Waste filters
Painting acft with HVLP gun	HVLP guns	Polyurethane paint	Full-faced airline respirator, Tyvek coveralls, PVC gloves	Waste filters
Cleaning paint guns	By hand Gun cleaning machines	MEK	PVC gloves, Tyvek coveralls, goggles, face shield	

Table 3 – “Paint the Plane” Sample Processes

Processes need to be scoped correctly. Take “riveting” for example, which is far too generic for a process name. “Removing and replacing B-52 rivets” is a better choice and better defines the scope of the process. On the other hand, establishing five separate processes in the Aerospace Ground Equipment (AGE) shop to describe the application of oils, greases, and lubricants would be excessive since the PPE, waste, and other items linked to the process would be very similar.

Adequately describing the process ensures that material is issued to the correct process, thus ensuring environmental impacts and worker health and safety protections are adequately covered while providing better data.

4.3 Local Process Name

The first field completed in EESOH-MIS to request a Process Authorization is the **Local Process Name**. This is the “title” of the process and should be clearly understandable to the shop workers. As a rule of thumb, local process names should include the following:

- What are you doing (the activity being performed)?
- What are you doing it to (the end item)?
- How are you doing it (how is process being performed)?
- Where are you doing it (if the shop spans more than one building)?

The most important thing with the Local Process Name is that it makes sense to the shop personnel so they will readily know which materials go to a defined process. This will also help you scope your process appropriately and ensure it is created at the right level.

Avoid using broad process names such as "Shop Maintenance" and "Equipment Maintenance". These broad processes can usually be broken down into multiple processes with different attributes. Good Process Name examples:

- Painting T-38 aircraft with HVLP Gun in Hangar 48
- Degreasing aircraft parts in cold solvent tank
- Surface paint removal with plastic bead blast media
- Cleaning aircraft surface with power washer in large wash rack
- Add/Replace fluids to AGE
- Aircraft engine truss coating and preservation using a standard gun

4.4 Mother May I?

An Authorization Request begins with the shop that will use the material. Anyone with EESOH-MIS shop access can initiate an Authorization Request, however, the **Supervisor or Acting Supervisor must certify the request before it flows to the HMMP team**. The single biggest reason for delays on processing authorization requests is that they are not filled out completely. To speed your request, provide as much information as you can on the request, particularly those blocks that require a description. Step by Step instructions on how to fill out an Authorization Request with associated hazmats in EESOH-MIS are in Attachment 2.

Once the supervisor certifies an authorization request, EESOH-MIS will route the request to the E, S, and OH reviewers (these are mandatory reviewers). Some bases may also configure EESOH-MIS to add other reviewers or send notifications to other offices.

4.5 The Review Grind



So you finished your Process Authorization in EESOH-MIS and clicked on the submit button, sending it off into the electronic abyss. Now you must wait. The system takes over and the request is routed to the approvers. Because multiple offices must coordinate the requests, the entire approval process can take several days to weeks. For this reason, it's important to identify all your hazmat requirements early to allow time to properly process the request. The ESOH team will evaluate your request to address potential environmental, safety and occupational health liabilities—is new PPE required, is a waste profile completed, are permit conditions still followed, can it be stored safely, and a host of many others to ensure you can safely use the material. When your request is ultimately approved, you must follow any **conditions of use** such as recommended PPE unless you coordinate with the HMMP team first. (Yes, the ESOH team really wants to approve your request, but they have a lot of considerations to make and it takes time.)



EESOH-MIS will promptly send a notification to the supervisor's EESOH-MIS workbasket when the request is approved or denied. Approval is your green light to buy and use the material as stated in your request and any additional information provided by the approvers. At this point you're home free to procure the hazmat—this would be an appropriate time for your happy dance! To find out more on how to procure, check out chapter 4.

4.6 Paper or Plastic?

Because EESOH-MIS is accessible by anybody in the shop with a login, there is no need to print out your authorization forms. Be aware of any Conditions of Use that were stated on your approved authorizations and just to remind you, those conditions will also print out on any Issue Receipts you get from your HTA. We recommend you occasionally print your "**Material Authorizations with Product Data**" report from EESOH-MIS. This will also satisfy your Hazard Communication requirement (section 11) to have a chemical list on hand. If you print it every few months, and especially when you get something new, you should be good to go.



4.7 Contractors



A commonly asked question is whether all this also applies to contractors. Contractor-operated shops performing a DoD mission on Air Force bases are required to have an approved EESOH-MIS process authorization to use hazmats, just like a government-operated shop. The only difference with contractors is that the occupational health and safety review of their authorizations is just that - a cursory "review" and not an "approval". The government is not allowed to perform OSHA functions for a contractor; however, their authorization requests are reviewed for any impact on government personnel or property. The environmental reviewer, however, does approve both contractor and government requests to ensure that hazmat use will not violate any base permit conditions, waste streams are established, and other similar considerations.

All contracted activities begin first as a government requirement—somebody has a need and develops a statement of work. Both embedded and transient contractor hazmat require authorization, but how they are handled is different. Notify your HMMP team if you are involved in writing a statement of work to make sure the appropriate hazmat authorization and tracking language is included. That language will ensure the right deliverables to the HMMP team and will help the contracting officer select the appropriate Federal Acquisition Regulation (FAR) clauses to address hazmat usage.

4.8 Exceptions-to-da-Rules

You have all heard the old adage that "people don't plan to fail, they just fail to plan." We're all guilty of that sooner or later—and then sometimes "stuff" just happens that no amount of planning could have prevented from happening. Let's face it, stuff just happens!

There will invariably come a time when there will be an emergency need for a hazmat without an approved authorization and a virtual walk-through will be necessary. Because

authorization requests are routed electronically, you will need to call the HMMP team and tell them of your urgency so they can look out for your request in EESOH-MIS and process it as soon as possible.

If your emergency is so dire that you needed it "yesterday", your HMMP should have locally developed emergency procedures. Those procedures may be as simple as a verbal telephone approval followed up with an email. Once you have your emergency verbal/email approval, procure your hazmat, but understand that you still have a requirement to complete an authorization request in EESOH-MIS, and once approved, the emergency hazmat quantity usage logged.

Don't make every request an emergency—these should be rare and too many will negatively impact the trust between you and the HMMP team. The ESOH team understands the mission always come first and stands ready to support your requirements. The important thing is communication of some type. When it comes to hazardous materials, NEVER "ask forgiveness, rather than permission".

5. Ordering, Purchasing and Receiving HAZMATs

At this point you've successfully navigated the authorization process and with authorization in hand, you are now free to proceed with whatever method of procurement best suits your needs through your HTA. Every shop in EESOH-MIS is assigned at least one servicing HTA. The HTA performs the hazmat receipt and issue tracking in EESOH-MIS, so it is important to know the folks at your Servicing HTA. Keep in mind that **ALL** hazmat procurements (whether bought, free issued, or even shared) must happen through an HTA. All environmental reporting requires usage data, so while the authorization process allows you to safely use the material, it's actually the transactional data collected by the HTA and the shop usage data that satisfies the base's regulatory reporting needs for that material.

Each shop must have an assigned Servicing Hazmat Tracking Activity to track hazmat.

5.1 Ordering

EESOH-MIS supports a couple of business practices when ordering through your HTA. These practices are already in place at your installation and those are the procedures you must follow. The options are discussed below.

1 - EESOH-MIS Material Requests. Shops can place their material requests directly in EESOH-MIS. The system will display your authorizations and allow you to place an order for those items. The order request is then routed to your servicing HTA to fulfill. You can also track the status of your order in EESOH-MIS, along with your order history, HTA inventory, allowable quantities, etc.

2 - EESOH-MIS Process Verbal Requests. EESOH presents other options such as requesting material by visiting, calling, or faxing, your servicing HTA. They will put the request in EESOH-MIS for you. Check with your local HMMP Team for local business practices.

If the material request is routed through EESOH-MIS, the system will show the HTA all available inventory across the base. That will include their own inventory as well as other HTAs, along with any "free issue" in stock at the installation and Global Free Issue (free

issue material across the Air Force). They will complete your order request from available stock, otherwise the material will be placed on backorder.

5.2 Understanding How Much is Too Much or “Max on Hand”

A common problem in the old days was shop hoarder mentality to stock pile hazmats only to have them expire and get thrown away and the cycle repeat itself. There had to be a better way, so EESOH-MIS introduced a new term and a new way to limit how much of a material each shop can have in their possession at any one time - “MAX-ON-HAND”. It’s not overly important how much you order or how often you order it—your mission requirements will usually dictate that, but it is CRITICAL that your physical inventory never exceeds your max-on-hand. Your max-on-hand quantity for each hazmat is really an art based on many factors.

One of the AF Hazmat Program's goals is to minimize material stock in a shop and keep most of it in the HTAs ready for when you or somebody else needs it; something like a grocery store. This business case has many advantages—less waste from expired materials, less cost rebuying that wasted material, reduced storage liabilities in the shop, and the list goes on. So we (those who get to write this manual) do not want to see a lot of material sitting in shop stock. Shops should only have on the shelves what they will use in a reasonable period of time and can safely store. We can spend a lot of time debating what “reasonable” actually means, but the most sensible amount is about a 7-10 day supply. There are always exceptions-to-da-rules, and there are some understandable reasons to store more than that—thus the challenge with a one-size-fits all rule of thumb and the “art” of the deal.

So what do we consider “reasonable”? Consider a shop that is authorized a one pint can of grease to apply on gaskets and it takes the shop several months to use up that can. In this case, it’s “reasonable” for the shop to have a new can in their cabinet for when the open can runs out or gets contaminated. The exception would be if the shelf-life of the new can would cause it to expire before the can in use was consumed - see the challenge? A sensible person might ask, what if the HTA had the extra can waiting? After all, that can might also be used by other shops and inventory management works better with multiple users, right? But the reality in the end is the good feeling you get when the materials you need (or might need) are right there in your shop. For this example a max-on-hand might be 2 or even 3 cans.

In NO WAY should the max-on-hand impede a mission. Remote sites with long supply chain pipelines may need larger quantities to remain mission-ready. The ESOH team gets that, and is there to support the mission and provide guidance on how to minimize risk and safely use authorized materials.

So why do we need a max-on-hand?

The first reason is regulatory reporting. Hazmats have quantity thresholds that when exceeded trigger regulatory compliance reporting. With EESOH-MIS, the HMMP team can project whether or not a threshold would be exceeded if every shop stored the max-on-hand for a given material. It also gives the first responders, safety, and occupational health functions a sense of how much material they can expect to be in a shop.



5.3 Receiving and Issuing

The hardest part is over at this point and you're almost home free. The hazmat is ordered and if it wasn't in stock already, will show up any day now (really, no kidding). The receiving and issuing actions usually happen in a single step through EESOH-MIS, but in the end you want to make sure the issue happened correctly. There are many issuing practices out there that work fine - some bases deliver material to you and some make you pick it up. However you get the material, it is important to make sure that what you receive is what you were authorized and what you ordered. While the HTA should check and ensure the right material is delivered, it never hurts to just double check. When your supporting HTA receives and issues the material through EESOH-MIS, an Issue Receipt (Figure 3) for the material will be printed. It should accurately reflect the material you ordered and received, to include manufacture, partnumber/tradename, lot/batch and expiration date if there is a *shelf-life*. Make sure you get this issue document when you receive hazmats because only then can you absolutely know it was tracked in EESOH-MIS and have documentation to prove it. These built in checks and balances work only if you take the time to make sure all is right. What you absolutely want to avoid is a hazmat inspection that finds materials in your shop without an authorization or issue record in EESOH-MIS.

Issue Receipt Report

Shop Code: BAH0002 Shop Name: CE STRUCTURES
Requestor's Information: Document #:
INVENTORY
MSN: 7930000567874 CUP-SUI: 8 FL OZ CN - 1/CN Location: Space 18A001A001
Amount Issued: 5 Total Cost: \$ 0.00 Associated Processes: ROOF REPAIR & MAINTENANCE

MSDS Id	MSDS Prep. Date	Manufacturer	Trade Name	Batch Lot #	Expiration Date	Free Issue	Unit Cost
999000009381	2002/06/27	RECKITT BENCKISER INC	BRASSO METAL POLISH	NO BATCH		No	\$ 0.00

Issuing Hazmat Container Numbers: 7714238, 7714239, 7714240, 7714241, 7714242
No Containers: 5

1. Conditions of use:
Environmental:
Safety:
Occupational Health:

2. THE MISUSE, LENDING, USED IN A PROCESS NOT AUTHORIZED, OR IMPROPER DISPOSAL OF THIS MATERIAL MAY RESULT IN DISCIPLINARY ACTION.

3. If you want a copy of this products Material Safety Data Sheet (MSDS) or wish to discuss its hazards, please contact the Hazardous Material Management office or your Bioenvironmental Engineering representative.

Figure 3 - EESOH-MIS Issue Receipt

5.4 GPC - Carte Blanche?



It's typically American, but when we get a credit card, a mysterious and yet still unexplained need to buy everything in sight invades our better sense. Having a GPC card does not translate to having authorization to buy hazmats. GPC is just another way to procure hazmats, and the process works exactly like any other order through your HTA—except the GPC program is fully decentralized and places proper HMMP tracking and accounting with the cardholder and billing official. To make your life easier, check the exempt list first and maybe you'll find something that will suit your needs—if that's the

case, no need to track any further unless you're using the exempted hazmat in a manner not consistent with typical consumer use.

There are several types of credit cards used by DoD functions to include the GPC and SPCs, but for the purposes of this document we will refer to all credit cards as GPCs. GPC policy is found in AFI 64-117, *Air Force Government-Wide Purchase Card (GPC) Program*.

The trouble with GPC is that there are no "built-in" checks and balances when procuring hazmats with your card, and the proper tracking of the hazmat rests solely with the cardholder. When a hazmat is bought downtown using a GPC, the clerk at the cash register does not check for an authorization first or cares about your max-on-hand. In these cases, you as the buyer become responsible to make sure you have an authorization, and that the proper order, receipt and issue transactions to your process are completed in EESOH-MIS through your servicing HTA.

So where do you start with a GPC purchase? After checking the exempt list, make your request in EESOH-MIS just like any other HTA order. Select GPC as the method of purchase in EESOH-MIS before sending onto your servicing HTA. The HTA will approve (or disapprove if they have stock to fulfill your needs) your GPC material request. A message will return to the requestor via their EESOH-MIS workbasket with a link for a GPC Authorization Report (see Figure 4). This is your "hall-pass" to buy a hazmat with your GPC, so it's a good idea to print this!

Authorization To Purchase Hazardous Material with a Government Purchase Card			
MSN: 8010PHM00023932	Noun: ENAMEL, SUN YELLOW,	CUP-QIP/SUI: 12 OZ CN - 1/CN	
Request #: 999003461600	Requestor: Zachery Kilgore	Date Requested: 2013/02/20	
Requesting Shop/Hazmart: BAH0001 - AGE			
Authorizing HazMart Name: BAH HAZMART		Authorizing HazMart Code: HAZ10	
GPC Approval No: GPCBAH00013051001		Authorizing User Id: zachery.b.kilgore	
Date Authorized: 2013/02/20		Authorized Quantity: 2	
Authorized Until: 2013/03/02			
You are only authorized to purchase items from the list below. If your item to purchase is not on this list, you must submit the MSDS to your HMMP/ESOH Team prior to purchase.			
Part #	Trade Name	Manufacturer	
51806	51806, KRYLON INDOOR/OUTDOOR PAINT, SUN YELLOW	SHERWIN-WILLIAMS CO THE	

Figure 4 - Authorization to Purchase Hazardous Material with a Government Purchase Card Report

This report will tell you exactly what you are authorized to buy and it will have a tracking number on it. Take it to the store with you so there's no accident buying the wrong stuff.

It is important to purchase the exact same item, in the exact size, from the exact vendor (this means manufacturer, not reseller) for which you have an authorization as stated on the GPC Authorization Report, i.e., if authorized to buy Windex, you can not buy Formula 409 Cleaner instead, even if it's cheaper. While you're at the store, ask for their most current SDS for the product. According to OSHA, only retail distributors that have commercial accounts are required to provide you an SDS if you ask. Retail distributors that do not have commercial accounts are not required to provide you an SDS and you will

It is important to purchase ONLY the exact product and size you are authorized

need to get it from another source such as the manufacturer (29 CFR 1910.1200 para (g)(7)(iii)).

To make sure what you buy is received and tracked through EESOH-MIS, installations can set a time period for you to check in the GPC purchases with your HTA—typically 2-3 days. What happens after the grace period is up and the hazmat not tracked in EESOH-MIS is quite the mystery, although sightings of the Kraken are reported around the same time the GPC holder inexplicably disappears. Given that, make every effort to get your GPC-purchased hazmat tracked in EESOH-MIS, and if you can't make the deadline be sure to call your HTA for an extension.

5.5 GPC and Services

If you use your GPC to procure a service such as cleaning the wash rack or painting the flag pole, you are responsible for making sure that any hazmats used in the performance of those services are authorized and tracked. These hazmats also count against the base hazmat quantity thresholds for regulatory reporting, and you do want to make sure the flag pole doesn't end up with a fresh coat of old lead-based paint that a small business had sitting in a forgotten corner. Call your HMMP team before you buy any service that requires the use of a hazmat so that tracking can be arranged.

5.6 GPCs and Private Vehicles

According to the Defense Transportation Regulations⁸ (DTR) Part II, B. 3., the use of Privately Owned Vehicles (POVs) for transporting hazmat is prohibited. Additional training and placarding requirements may apply to the transport of hazmat. Consult your local Logistics Readiness Squadron transportation technical specialist to determine applicability based upon the type and quantity of materials to be transported.

So, make sure you pick up your locally procured hazmat in a government vehicle. At this point, you've gone downtown, bought exactly what you were authorized, and you are now driving back through the front gate. What do you do next?

5.7 Closing the deal - Go Directly to Your HTA!

You got it all covered so far—you made sure the hazmat was authorized, placed an order in EESOH-MIS, bought exactly what you were supposed to buy, and then got it safely back to base. Great job, but you're not quite done yet—there's one final action. Checking your material in through your servicing HTA and having it issued to your shop for use. The easiest way to get your issue receipt is to make your servicing HTA your first stop back on base so the hazmat can be properly processed through EESOH-MIS. This includes getting bar-codes or other markings if your base has chosen to bar-code or mark. The HTA will check to make sure that the SDS on file matches the SDS from the vendor if you got one, and verify the hazmat matches exactly what was authorized. If everything checks out, EESOH-MIS will print out a issue receipt and the procurement phase is complete. If for some reason you bought Formula 409



⁸ Defense Transportation Regulation Part II (copy and paste link into browser: http://www.ustranscom.mil/dtr/part-ii/dtr_part_ii_204.pdf) "Ensure only commercial or MOV/government vehicles are used for transporting regulated HAZMAT and Hazardous Waste (HW) as defined by 40 CFR 261, Identification and Listing of Hazardous Waste, and 40 CFR 261.3, Definition of Hazardous Waste. Use of POVs for transporting HAZMAT and HW is prohibited. See Para F.3.d for the policy on the use of rental vehicles."

instead of the Windex you were authorized, you will be condemned to a painful and humiliating public flogging before we again release the Kraken, and you will either have to return the product for the correct one, or process an authorization request for the product you did buy. This only bogs down the tracking process and negatively impacts your mission effectiveness, so get only what you're authorized!

The general rule is material must be checked in through an HTA before it can be used in the shop. But there are even exceptions here when material can not be taken to the HTA first, perhaps due to size, bulk, hazard, or the HTA is out visiting shops, fishing, or feeding the Kraken. In these cases, you must still make arrangements to check in the hazmat and get it properly issued. Also, if you are delayed and will not be able to make your purchase within the allotted time, call the HTA to cancel or reschedule your order.

Best Business Practice#1: Attach the EESOH-MIS Issue Receipt to the material's store receipt. This shows the GPC auditor (close relative of the Kracken) that your hazmat was properly tracked.

Best Business Practice#2: Write the GPC approval number onto the receipt.

Here's a synopsis of GPC hazmat/services purchasing:

- ✂ *Get an authorization for the hazmat (initial purchase/use only), see chapter 4)*
- ✂ *Request the material in EESOH-MIS or through your HTA*
- ✂ *Print out your GPC Authorization Report*
- ✂ *Go to the store and buy your material. Pick up a current SDS*
- ✂ *Return to the HTA to check in your material*
- ✂ *Take the material to shop and use*
- ✂ *Return any excess to the HTA (before it expires, please, so that it can be placed in free issue) (See chapter 10)*

5.8 Other "Sneaky" Contracting



In case it's not quite obvious yet, regardless of how you procure your hazmat—any supply system, GPC, mail order, free issue, finding, borrowing, sharing, stealing, claiming, or even making your own, all use of hazmat must be tracked in EESOH-MIS. The use of AF Form 9, *Request for Purchase*, and other contracting vehicles and methods also require the same level of tracking. Ordering and purchasing a hazmat commodity with an AF Form 9 works much the same way as with a GPC card, only the contracting office will require proof of a hazmat authorization before

soliciting any bids or entering into a contract with a vendor for the material. Require in any bid or contract that the vendor provide an SDS with each material. If the contracting action is for a service, get with your HMMP team to make sure all HMMP requirements are included in the Statement of Work.

Once the hazmat arrives on base, you still need to properly process it into EESOH-MIS. The hazmat should have arrived with an SDS, if not, contact the vendor for one. The HTA will check to make sure that the SDS on file matches the SDS from the vendor, and that the hazmat matches exactly what was authorized. If everything checks out, EESOH-MIS will print out a issue receipt, at which time the procurement phase is done and the material

can be used in the shop. It's often the case that mega-amounts of a hazmat are purchased on the Form 9. If this is the case, the HTA will need to make arrangements to ensure that large amounts are accurately tracked. This will require some coordination between the HTA and you, but don't worry, it's often just a simple procedure!

5.9 Authorization Summary

With the exception of Exempt items noted in EESOH-MIS, there should never be unauthorized hazmat in your shop. We bring it up here because there are many different avenues for procuring hazmats and there is not a 100% foolproof system to prevent some purchases from slipping by the authorization process. The tracking system does not work without your involvement, and you are responsible for what is used in your shop. Never bring hazmats from home for use in a workcenter. Always have an issue receipt for every non-exempt hazmat in your shop (an authorization is not enough). Various organizations and inspection/audit functions will make random spot inspections of workcenters around the base to determine that EESOH-MIS is indeed capturing all reportable hazmat usage. When an unauthorized hazmat is found, its method of procurement will be investigated to prevent future occurrences. This becomes particularly important with decentralized procurement methods like credit card purchases. If a hazmat is procured with a credit card without an approved authorization, depending on the circumstances, AFI 64-117 provides for various ugly things to happen, (i.e. letters to your commanders, revoking your priveleges, even legal actions). Not to mention again a possible release of the Kraken.

It is Air Force policy to track all hazmats on base, and everyone plays an important role with accomplishing this seemingly simple but somewhat complex task. We did the heavy upfront work to get the hazmat tracking process all set up and operational, all we ask is your help to take the extra moment and ensure all hazmats in your work center are tracked through EESOH-MIS.

6. Shop use of HAZMATs

You now own a container that has pictures of skulls and cross bones, bold warnings, and built in safety features that includes a cap the jaws of life can't get off. Those are all there because the contents are dangerous when improperly handled, and that can understandably make even the most fearless warrior a little uneasy.



As with most things, there is a common sense approach to using hazmat in the shop. An obvious one is following the directions on the container and heeding the warnings. Another is to read and follow any Conditions of Use identified by the ESOH approvers, such as a specific PPE requirement or special disposal instructions. Note that the conditions of use are not just a regurgitation of the warning label or the SDS—if they differ, always follow the conditions defined by the ESOH approvers. Contact your ESOH functional for clarification.

7. Proper Storage of HAZMATs

By storage, we don't just mean how or where it sits on a shelf, but how that inventory is proactively managed by the shop. This is probably where most folks have problems. In the old days, shops had 2-3 lockers just packed with half-empty bottles of hazmats that might be needed again some day, usually expiring before that time ever came. Then once in a while or just before an Environmental, Safety, and Occupational Health Compliance Assessment Management Program (ESOH CAMP) assessment, the shop would go through and throw away all those old bottles, just to turn around and repeat the whole process with a fresh new bunch of hazmats. It was no coincidence that hazardous waste quantities always spiked right before an assessment. Hazmats are handled in a very different way today, with a goal to minimize what is stored in the shop to not only make the workcenter safer, but to also save money by minimizing expired shelf-life and avoiding disposal costs.

So the first thing to avoid is storing large quantities. Store only what you would use in 7-10 working days whenever possible. This means ordering less quantity but more frequently. If you find yourself disposing of expired hazmat regularly or can never seem to finish a can before the contents become unserviceable, your max-on-hand is not correctly set or the size container authorized to your process is too big. These are easily fixed problems—save yourself and the AF a lot of time and money by getting those issues resolved with HMMP team help.

Hazmats are a lot like groceries. You don't leave the milk out on the counter or in the pantry, right? If you did, you just shortened the shelf-life, and would likely end up dumping it out. Hazmats are the same way. The environment you store a hazmat in can dramatically affect how long it stays serviceable. If it requires refrigeration, make sure you do so. If you store the container in direct sunlight and let it bake, expect a shortened shelf-life. Common sense definitely applies here, and these are discussed more in the Manage Shelf Life chapter.



Where common sense ends, rules begin. There are many rules to proper storage, like what can be stored together, what kind of locker you will need, how many lockers you can have, and the list goes on. Safe storage of hazmat is a concern as incompatible chemicals stored together can cause toxic fumes, spark fires, or let off explosive vapors. By minimizing hazmats in your work area, not only do you reduce the risk of a tragic event, but you also make it safer for emergency first responders in the case of a problem.

You should become familiar with AFJMAN 23-209, *Storage and Handling of Hazardous Materials*, and AFI 91-203, *Air Force Consolidated Occupational Safety Instruction*. Here are some important highlights that when followed will keep you out of most problems:

7.1 Hazard Classes

There are a lot of different chemicals out in the world, and it helps to safely manage them by grouping them together by the physical hazard they present. Many of these physical hazard classes don't play well with each other, so it's important to have some understanding of what they are so you don't accidentally store incompatible materials together. You can

usually find these hazard classes of the material on the label or SDS. Examples of physical hazard classes are:

- Flammable Solids, Liquids, Aerosols & Gases
- Explosives
- Self-Reactive Substances and Mixtures
- Oxidizing Solids, Liquids, & Gases
- Organic Peroxides
- Corrosives to Metals
- Pyrophoric Solids & Liquids
- Self-Heating Substances
- Substances which, in contact with water emit flammable gases

7.2 Incompatibles

Some hazard classes can not be stored together because they are incompatible. By incompatible, we mean that when the two hazard classes are mixed an undesirable chemical reaction can occur, sometimes resulting in deadly gases, fire, or very rapid changes that can result in explosions. The smart thing is to never store the above hazard classes in the same locker or limited enclosed space. Common incompatible storage findings typically involve acids and alkalines or corrosives and oxidizers. Check your storage area to make sure these are stored in their own dedicated lockers or storage units.

The SDS, Section 10, Stability and Reactivity, can help you determine incompatible hazard classes. If you cannot determine the hazard class of a material, call your HMMP team—like the base Bioenvironmental Engineering Flight, Safety, or Fire Services. It's always better if you call for help before a real problem happens or an inspector finds the violation. All we ask is that you don't wait until just before an inspection to call us!

7.3 Hazmat Storage Lockers

There was a time when even the smallest shops had hazmat storage lockers that could easily handle a pro football team. Those were the days of yore. Today, each shop (as defined in EESOH-MIS) may have only one locker per hazard class of material. That means one locker for flammables and one locker for corrosives, etc. Use only the number of lockers and types of lockers you are approved to have in the workcenter. If you need more than one locker for a hazard class be sure and get an "all clear" from the Fire Department. Contact your local Fire Department for their specific procedures.

The best guidelines for those big yellow flammable storage lockers, (you know the ones flashing to an inspector "Come over here and look inside me") can be found in AFI 91-203, Chapter 22.

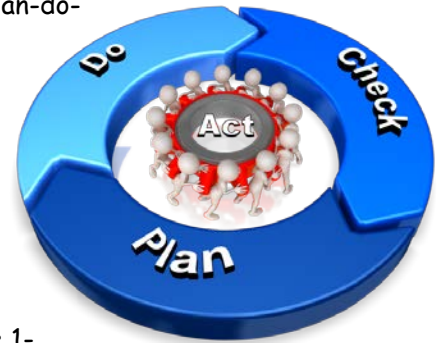
It is not policy, but it really helps if you label your lockers with your EESOH-MIS Shop Code. If you don't know your Shop Code (shame on you) then ask the HMMP team. Write it down, tattoo it on your arm, whatever it takes to remember it, as it will invariably come in handy some day.



8. The BIG Picture (Environmental Management System)

You likely impact the environment in some way when using a hazmat in your shop or process. The area of the environment you impact is called the environmental aspect—air emissions, generating waste (solid and hazardous), dumping wash water down the drain, etc. If you're now scratching your head over what we're talking about with aspects and impacts, those are really the environmental areas or programs we have been managing for years through our environmental management flights. The activities or processes you accomplish that impact the environment in some way or another draw you into your base Environmental Management System (EMS). Using a hazmat without an environmental impact is rare—you probably generate waste or an air emission with your hazmat, or you store enough where there are special precautions required—these are all examples of aspects and impacts.

So what does that mean for you? The base EMS promotes a plan-do-check-act cycle for environmental concerns. You probably had no idea, but you already did some of the planning, doing, and acting parts of this when you submitted the request for the process and any hazmat through the HMMP for approval. The HMMP Team does their part of the plan, do, acting by providing any legal or other environmental requirements and guidance needed to accomplish that process or task. That leaves the check piece hanging out there. For most folks the checking piece is covered by completing the ESOHCAMP Stage 1-



All Shops checklist quarterly in the Management Internal Control Toolset (MICT). If you use a hazmat and are not using the "All shops" checklist, contact your HMMP team or base EMS coordinator as soon as possible. The checklist has simple questions on using approved hazmats, managing hazardous waste, maintaining shop tanks and others designed to help the shop supervisor keep his work center compliant with typical environmental shop issues. In addition, depending on the process or hazmat used, the environmental function may identify additional checks you must accomplish to do your job, whether it is keeping a paint log or just keeping your shop clean and free of any leaks or spills. If you find something wrong, you need to know what to do (spill response, paint booth not working, or other), and who to contact—first responders, UEC and/or environmental management personnel.

9. Managing Shelf Life

There's a little pack-rat in all of us—we just never know when we might need that old can of WD-40, so we just hang onto it in the hopes that someday our hunch proves right. Then there was the time we ordered hazmat for something that ended up never happening, but kept the material until it expired on us. Or the time we overestimated how much hazmat was needed and ended with a bunch of extra hazmat that we decided to hang onto for the next time. Only next time never came. The common thread through these scenarios is inventory management. Unlike the by-products from your process, wastes generated by poor inventory management are easily preventable by simple advance planning. Expired shelf-life material is the number one reason unused material is disposed, costing the government millions of dollars each year. Inadequate inventory management makes no business sense; you buy a hazmat only to end up paying for disposal later when it expires, at which point you turn around and buy the hazmat again. The process then repeats itself, unless we learn from our mistakes. In short, every effort should be made to avoid this

situation, and while EESOH-MIS tracks usage and imposes a max-on-hand to help manage excess, nothing beats your careful management of hazmat usage and inventory.

So how do you avoid having expired shelf-life material?

When your HTA receives material into EESOH-MIS that is managed as a shelf-life item, the system inventories the batch or lot number and the date of expiration for each container. Then, when you request material, EESOH-MIS displays to the HTA the remaining shelf-life for each container so that the oldest get issued first (they follow good inventory management practices, too!). You will also know the remaining shelf-life as it is printed on your issue receipt. Check this date—since the HTA is trying to avoid expired material disposal just like you, sometimes the remaining time can get short. Keep the hazmat if you can use it up before the expiration date, but be wary about those containers that take months to empty and you have 3 weeks left on the expiration date. You should not accept more material than you can use before the shelf-life expires whenever possible—balance that with your mission requirements and urgency of need as that may be all they have in stock.

Think about going to the grocery store. You're probably one of those folks that reaches in the back and pulls out the gallon of milk with the longest shelf-life left on it (even though there's only a two day difference from the gallon in front!). Perhaps you need every one of those days to get through that gallon a glass at a time, or maybe you don't as you're making a gallon of ice cream—these are important considerations. Think about your hazmats in a similar way. You want to be able to consume the product before its shelf-life expires—that

way you don't waste money by throwing it away. Here's where the milk analogy gets seriously different. When you have left-over milk, you throw it down the drain and you're out a few cents. When you have left-over hazmats, you can't just pour them down the drain and the disposal cost is usually more than the original purchase price, not to mention you need to buy more material to do your job.

Shelf-Life Trivia

***The Shelf-Life for an MRE
(Meals Ready to Eat) is 130
months if stored at 60°F and
only 30 days if stored at 120°F***

Another way to avoid being in possession of expired shelf life material is to take smaller quantities or get smaller

units of issues. It happens—you take a large can of "stuff" that you invariably end up throwing out because you cannot use it up before it expires or goes bad. Go back to your HTA and ask them to help you find the material in a smaller unit of issue. Maybe you don't drink that much milk and buying a gallon results in waste—for that reason, the milk industry offers the same milk in a more convenient quart size or all the way down to a pint!

While max-on-hand is designed to avoid stockpiling large amounts of hazmat in a shop and keep shop quantities low, it can also habitually get used as a "ceiling" of sorts that folks feel they must have at all times—it becomes their right to have all that hazmat. If you always seem to be throwing out hazmats because you had too much and they just got old, then maybe your max-on-hand is set too high. The HMMP is always happy to help lower that number to better manage inventory, and will work with you to find the happy middle ground that meets your mission needs with minimal waste.

Another thing to be aware of with shelf-life is how it is stored. If you buy a gallon of cold milk with 2 weeks left on the shelf-life and leave it on the kitchen counter for a couple of days, that stated shelf-life will not be valid and the product performance will be dramatically altered—go ahead and taste a chunk of it if you don't believe us! The same is true with many of our sealants and adhesives, although tasting is not recommended to determine servicability. If they are not stored at a proper temperature, they age prematurely. The bad news is that unlike the milk, it is not always evident how much the product performance of an improperly stored material was affected and the consequences of applying a bad sealant or adhesive to an airplane can be catastrophic. If there is any doubt about the quality of the material being applied to critical end items, don't do it! Too much is at stake.

Monitor your material with shelf-life and be sure to take shelf-life extension actions BEFORE it is expired.



9.1 Shelf-Life Policy Stuff

There are a few things about shelf-life policy you need to know.

The DoD Shelf-Life program is administered by the Defense Logistics Agency and they have a nice web site located at <https://www.shelflife.dla.mil> (see figure 5).



Figure 5 - DoD Shelf-Life Program Web Site

The policy and references are easily accessible and each MAJCOM has a shelf-life POC to help with your every-day questions. We added their name and phone number on the Shelf-Life page in eDASH. Goto the Hazardous Materials page: <https://cs1.eis.af.mil/sites/edash/Web%20Part%20Pages%20%20Program%20Pages/Environmental/Hazardous%20Materials.aspx> and then select the Shelf Life topic on the right hand side list. You will also find all the shelf-life related policies at this site.

DoD assigns shelf-life material a code and type. The code is how long the material is serviceable and the type is whether or not the material shelf-life can be extended. Type I material CANNOT be extended when it expires and must be turned-in, but Type II material can be tested and updated for a period of time according to policy. If material expires while in the shop, then someone needs to understand the process for updating the material or disposing of it. As a hazmat user, look at the expiration date on the container and if it is expired, then look to see if there is a shelf-life extension label such as a DD Form 2477, *Shelf-Life Extension Notice*. In the absence of a good expiration date or label, the material must be considered expired. As users, you need to know to look at the expiration date or an extension label. If the material is expired, then it should not be used until action is taken.

Under no circumstances can you use expired shelf-life material on a weapon system or where the failure of the material will impact the end item.

9.2 Updating Shelf-Life Material

The DoD shelf-life program also sponsors the Shelf-Life Extension System (SLES) database. SLES is accessible from any .mil computer without having to register for a separate login at <https://www.shelflife.dla.mil>, just select the SLES tab along the top.

SLES maintains all the lab results from tests performed on Type II material. It is easy to go in and check to see if your material has already been updated. If it has, all you have to do is put a DD Form 2477 on the material and you can use it until the new expiration date. Your HTA personnel can help if you need additional information.

SHELF- LIFE EXTENSION NOTICE	
<small>PER DOD 4140.27- M, CONTAINERS REQUIRE RE- MARKING WITH EXTENDED SHELF- LIFE DATA.</small>	
<small>UNITS OF ISSUE REQUIRE RE- MARKING UPON OPENING CONTAINER.</small>	
NSN:	_____
CONTRACT NUMBER:	_____
LOT/ BATCH NUMBER:	_____
DATE TESTED:	_____
NEXT INSP/ TEST DATE:	_____
AUTHORITY:	_____
	<small>(QSL, MQCSS, OTHER)</small>
INSPECTED BY:	_____
	<small>(ACTIVITY AND INSPECTOR'S NAME OR NUMBER)</small>

DD FORM 2477-1 (Large), -2 (Medium), or -3 (Small) APR 1999
PREVIOUS EDITION MAY BE USED.

Figure 6 - DD Form 2477, Shelf-Life Extension Notice Label

10. Left-Overs

So, despite all your efforts to get just what you need to avoid disposal, you end up with hazmat you no longer need. Don't throw it away! The HTA can help determine if there are other uses for the material if it's not inherently waste like. Sometimes, folks just let old hazmat sit in a storage cabinet until the can rusts or leaks—you might want to avoid their fridges too or you might find something that looks like a science experiment in there, just saying! Habits usually prevail in these cases. Just think, all those refrigerator science experiments could have fed a



small family of four had someone taken the initiative to do something, but instead ended up only fit for the garbage. This is exactly the same with hazmats. If you wait until it's no good, it will surely become a hazardous waste. If you're more proactive and turn unwanted serviceable hazmat back in to the HTA as soon as you know you don't need it anymore, they can help determine if there are other uses for the material. Some expired but still serviceable (still works for its intended purpose or other similar purpose) hazmats can be used for other non-technical processes, or redistributed to other users via the free-issue program. For example, lubricants that can no longer be used on aircraft could work perfectly well on fifth-wheels or golf carts. Hey if it's good enough for an F-16, imagine

W A R N I N G	
SHELF LIFE EXPIRED MATERIAL	
Per DoD 4140.27-M, 6.4 Use of Shelf-Life Expired Material Only Authorized for Non Tactical/Non Critical Applications.	
DO NOT USE WHERE FAILURE MAY HARM PERSONNEL OR PREVENT MISSION COMPLETION	
ALTERNATE USE:	<input type="text"/>
DATE EXPIRED:	<input type="text"/>
ESOH AUTHORIZATION: (name/rank/signature)	<input type="text"/>

DD FORM 2966, AUG 2013 PDF

what it can do for the carts! Keep in mind that even in these cases, the lubricant must still be authorized for that process, even on the golf cart—just in case there was some heavy metal or something in the grease specially made for the F-16. Expired shelf-life items that are still serviceable may be used for a non critical/non tactical purpose. Be sure it has a DD Form 2966, *Shelf Life Expired Material*, affixed to the container or at least clearly marked.

It's a win-win: a waste stream is avoided and a new user doesn't have to buy it again—we all save twice! So make sure to turn in any unwanted unopened containers to the HTA and check with them before you dispose of an opened, uncontaminated hazmat to find out if it can be reused anywhere.

When you return material to your HTA, EESOH-MIS won't give you your money back, but you do get a different kind of credit. EESOH-MIS tracks hazmats to your shop for environmental and occupational health reasons. When you return material, EESOH-MIS doesn't count that material used in a process for environmental regulatory reporting, and doesn't count the occupational health exposure to your shop. Not to mention that you did the right thing (and who knows, we just might send a thank-you letter to your commander).



10.1 Getting Rid of Left-overs

If you have leftovers for any reason, you have two options for getting rid of them. We explain them generally here, so check with your HMMP team for details at your base.

1 - Turn in the material to your HTA

2 - Complete a Request for Disposition through EESOH-MIS

OPTION 1 - Turn it back in

If the HTA takes your material then you are home free and the material is gone.

So why would they take the material?

1 - It is still serviceable and there are other users on the installation. There is a reasonable probability they can "free-issue" the material to another customer.

2 - It can be returned to the Source of Supply (wherever it was bought).

So why would they NOT take the material?

It's been opened and can't guarantee to the next user that it still meets specs, it might be unserviceable, or they know they simply cannot reissue the material to another user.

They aren't stupid and don't want to get left holding the bag. So, if the HTA will not take the material off your hands, you're left with Option 2.

OPTION 2 - Make a Request for Disposition

EESOH-MIS provides you the ability to submit a Request for Disposition that is basically a "Help Me - I don't know what to do with this stuff" request.

The process is simple. Fill out the easy Request for Disposition in EESOH-MIS and submit.

It then routes from the shop to the HTA, who will consider what their options are for reuse or redistribution. If the HTA has a plan to reuse or redistribute the material, they will return the Request for Disposition to you with instructions on what to do. If the HTA cannot reuse or redistribute the material, EESOH-MIS will pass the request to either an Installation Material Disposition Request Approver (MDRA) or to the installation hazardous waste manager (depending on how your base set up the workflow).

Either the MDRA or hazardous waste manager will return instructions on what to do with the material in your EESOH-MIS workbasket.

Follow them.

Told you it was simple.

10.2 Free-Issue

The only thing better than a hazmat that works well is a FREE hazmat that works well! Before you start loading up your shopping cart with all that free hazmat, you need to realize that the free issue program is not an open door, come-get-what-you-want-free-for-all. First, all free issue hazmats still require an approval by the HMMP Team in an approved process—the basics still apply including max-on-hand. Then when you order a hazmat



through your HTA, EESOH-MIS checks available inventory and always checks free-issue stock first. If free issue stock is available, the HTA will issue it to your shop free of charge. The free issue program is not a loophole through which someone can obtain a hazmat without proper authorization. (But you already knew that!)

10.3 Open Containers

The decision to take and re-issue containers that have been opened is difficult, but is a common practice at many installations and can help minimize waste disposal costs. There are many considerations to keep in mind when deciding to use someone else's open container of hazmat. Once opened, a container's expiration date can become dramatically shorter—we see this in certain paints and glues. There's no way to know if the material is contaminated or had been mixed with anything. You have no idea if the container was properly stored; particularly important for temperature-sensitive hazmats. These are all pitfalls to be careful of with open containers, and is why you NEVER use a free-issue open container on a technical order need, critical end-item, or weapon system. So what would be a good use of a partially used open hazmat? Using that lubricant on a hangar door hinge, the leftover wall paint to touch up a spot that has been bugging you, or that leftover floor wax to polish another room. These are excellent non-critical ways to make good use of open leftovers. We recommend you just keep painting until the can is empty (they say that fourth coat really seals the color!) but your self-help store or CE HTA may have a program to take back partially used facility paints - it's not like we get to pick the colors we want. Share with others if you have other creative waste avoidance efforts out there.

10.4 Waste Streams

A good rule of thumb is that a material with an SDS or a warning or caution statement on a container will likely require special disposal in accordance with the law.

Process waste streams include hazardous and non-hazardous discarded, abandoned, or very simply waste-like or spent material. Your hazardous waste manager will determine which is hazardous and which is not. In some cases even an unused material can become a waste stream when shelf-life has expired, been damaged or is unserviceable due to quality concerns. These must either be reused, redistributed, or disposed.

Processes can generate many waste streams. As an example, spray painting usually generates different waste streams including waste paint, waste thinner, waste barrier paper, waste respirator cartridges, waste booth filters and the list goes on and on. While some of these wastes may be non-hazardous solid waste, others are in fact hazardous wastes that will require proper disposal. As if buying the material wasn't enough, we now have to pay to get rid of it when it becomes a waste.

The EESOH-MIS waste module links the waste stream to the materials that went into the process, which makes waste determination and reporting much cheaper, easier and more reliable. Especially when several base customers are using the same hazmats for the same process and generating the same wastes.

I have a waste now... who do I call?



Always consider a process waste as hazardous until your hazardous waste manager tells you otherwise. This simple rule will keep you out of deep trouble, especially if it started out as a hazmat, became hazardous as a result of the process, or was at some point mixed with a hazmat. If you are not sure what your next step is now that you have a waste, call the HAZWASTE office. They can tell you how to prepare your waste for pickup, and what paper work is necessary.

10.5 Oops - Spill Management

Accidents happen. We get that. But what usually gets folks in trouble with spills is how they handle the resulting mess. The second a liquid hazmat hits the ground it becomes a waste—no five second rule here. How big your spill is plays a big difference in what actions are expected of you, and unfortunately these actions will differ from base to base. Consult your base spill plan (Spill Prevention, Control, and Countermeasure Plan, commonly known as the SPCC) or ask your HMMP team for help with finding the right procedures. If you store large quantities of liquid hazmat in your shop, like oil, fuel, and antifreeze, make sure you find out your responsibilities in case of a spill and post them for all shop workers to read BEFORE it happens! Waiting until after a spill is too late.



10.6 Bar-coding



Right off the bat, let us state that bar-coding is way cool with red lasers and all, but it is **not** a mandatory requirement to properly track hazmat. Any decision to bar-code should be carefully considered and supported by the installation HMMP team and the Environmental, Safety, and Occupational Health Council (ESOH) because bar-coding is much more resource intensive than not bar-coding. Which of the various bar-code options selected in EESOH-MIS can significantly impact how a shop manages their material. But this is one time you have to ask yourself if the technological advantage is worth the effort. The answer will be different at each base depending on their ops tempo, volume of hazmat used, and regulatory requirements. There are really just two reasons to bar-code, although there are more efficient alternatives that work just as well for most bases:

First reason: Bar-coding for Accountability

An inventory record is created in EESOH-MIS whenever a hazmat is received and logged in the system by the HTA. The system assigns a unique number to each container in the background, and is unseen to users unless a bar-code is applied. That unique container number exists whether you bar-code or not to ensure the system accounts for every single last container of hazmat. The bar-code simply allows you to see the "secret number" EESOH-MIS assigned to the container. So if you thought that bar-coding was all that was standing between you and an apocalyptic inventory chaos, worry no longer as the system has you covered. So while bar-coding may not offer much inventory tracking value, it does offer easy, visible, official-looking PROOF that the material was tracked in EESOH-MIS. This proof makes it really easy for an inspector to know that the shop material was processed in EESOH-MIS. In this case, the bar-code is really just a flag that the material was properly

authorized, HTA issued and fully tracked in EESOH-MIS. If this is the job your bar-code ended up satisfying, there are more cost effective ways to do that.



The "Albertson" Method. If your base decided to use bar-codes just because they need to put the visible proof on the container that it was tracked, then anything will do! MSgt John Albertson at the Reno Air National Guard purchased grocery guns that dispense tamper-proof dated labels. Once you get the hang of using the labler, you can tag a whole lot of hazmat in short order without expensive printers, paper, ink, not to mention all that time sticking bar-codes on material. John's idea went viral and is now used at many AF installations, and has even been seen in grocery stores! So

whether you use an EESOH-MIS generated bar-code, grocery gun label, or a hot pink smily face label, any standard visual indicator will work to indicate a properly approved and tracked hazmat. The low-tech answer may be a better solution depending on your reasons to bar-code.

Second reason: Bar-coding for Inventory

The second reason to bar-code is to facilitate tracking inventory down to the shop level. Material hazard, quantity across the installation, or a regulatory requirement such as air emission tracking may drive a heavier tracking requirement that must take into account inventories outside the HTAs.

EESOH-MIS tracks all hazmat inventory in the HTAs, but depending on the installation setting, will adjust or clear that material inventory when issued to a shop or process. However, if you are bar-coding, EESOH-MIS "moves" the inventory from the HTA to the shop when issued. Since an inventory record now exists at the shop, they have a responsibility to "clear the bar-code" or "empty the container" from EESOH-MIS. Bases do have different business practices to best accomplish this, for example some bases make the shops return the empty containers and the HTA clears the bar-codes. However it is done, the whole bar-coding process is a waste of time if the bar-code is not cleared when the containers are empty. Bases that end up "mass clearing" bar-codes from the system are basically using them for accountability purposes only. Mass clearing barcodes will also result in large spikes of hazardous material usage over short periods, which can affect regulatory reporting.

Hand-held scanners can also facilitate inventory and auditing when bar-coding. Many bases have such small inventory of material that all this technology and effort is overkill.

What if we don't bar-code?

When material is properly received and issued through EESOH-MIS, all the tracking we need to accomplish the regulatory reporting requirements is achieved. The decision to add the bar-coding burden to the warfighter community should be carefully weighed and properly administered. Bar-code for the right reasons.

11. The Hazard Communication Standard⁹

OSHA's Hazard Communication Standard (29CFR 1910.1200) otherwise known as "HAZCOM" is the law that ensures employers and employees know about work hazards and how to protect themselves. This includes knowing about the chemicals they are exposed to in the workplace. This Standard became law in 1983 and the Air Force Hazcom Program is documented in AFI 90-821. In May 2012, OSHA's HAZCOM aligned with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). This update was designed to make information more consistent and better communicate the hazards.



We won't repeat what is already written in the AFI, but we will take a moment to emphasize a few things that directly apply to you. The shop supervisor is responsible for implementing AFI 90-821, but all workers need to understand the program for it to work. The components of HAZCOM are:

- Written Hazard Communication Program
- Labels
- Safety Data Sheets
- Information and training. Employers must provide employees with effective information and training on hazardous chemicals in their work area and whenever a new hazard is introduced into the work area.

The HMMP process and material authorization is the perfect tool to make sure hazards are reviewed and addressed for new materials, and EESOH-MIS tracking ensures an accurate SDS is always available to the employees.

12. Shop Pollution Prevention (P2)

There is no one more qualified to identify potential reductions in hazmat than those that work with them - you. Your ESOH team and many others are always looking for safer, less hazardous materials. While we are always concerned for your health and safety, there are also requirements mandated by law to reduce our hazmat footprint and hazardous waste generation. That drives all types of metrics that end up in pretty charts showing whether we (the Air Force) are accomplishing our reduction goals. The benefits to you are more obvious - fewer hazmats means a safer workplace. Less hazmat and waste results in less PPE, monitoring, waste disposal cost, and so on.

So you have a great P2 idea? No matter how small or large the idea, just tell your HMMP team and they will get it started and work it from there. If your idea saves a lot of money, use the AF suggestion program to cash in on the savings! Yes, you can P2!



⁹ <http://www.osha.gov/dsg/hazcom/index2.html>. This link will take you directly to OSHA's page on Hazard Communication

13. Training

The single most asked question concerning hazmat is in regards to training. There is training that is required by law such as mandated by the Hazard Communication Standard (see chapter 11) and OSHA Expanded Standards. Hazcom training is required for everyone that uses hazmat and is typically delivered by the shop supervisor. The OSHA Expanded Standard training will kick in if you have one of a particular nasty chemical in use in your shop. Don't worry you if you have one because them BEEs will be buzzing around your shop taking measurements and making sure you are safe. Job Safety Training is required for all shops and is usually provided by the shop supervisor. There may be some installation developed training. We've even developed a Shop Level Hazmat Familiarization PowerPoint presentation which can also be delivered by a shop supervisor or just read on your own - basically some of the highlights presented in this guide. But, unless you transport hazardous materials, work in a hazardous waste function, or are part of spill response team there is not a lot of required training. As a hazmat user, your primary concerns are AF policies as referenced throughout this document and the safe use, handling, and disposal of the hazmat. In addition to any base-specific training, we listed the training requirements below. OCONUS bases may have other training requirements—check with your HMMP Team.

Functional Area	Training Required	Driver	Applicability
Occupational Health	Hazard Communication	AFI 90-821, Hazard Communication	All employees that use hazmat
Safety	Job Safety Training	AFI 91-202, The US Air Force Mishap Prevention Program	Job Safety Training is required on safety, fire protection/prevention and health requirements specific to the shop
Transportation	Various courses	DoD 4500.9-R, Defense Transportation Regulations	Employees engaged in transporting hazmat
HMMP	Shop-Level Hazmat Familiarization (PowerPoint presentation)	AFI 32-7086	All employees that use hazmat

Table 4 - Shop Level Hazmat Training

14. Reports

What good is it to put data into a system if you can't get it back out in a meaningful way? EESOH-MIS produces numerous reports that will help you manage your hazmats. Attachment 1 list some reports produced in EESOH-MIS for your use. There are plenty more, but these either have a direct interest to the shop or can provide additional information.



15. To Infinity... and Beyond!

This process has come a long way from those early "caveman days", but we are on a mission (some would even call it an impossible mission) to improve the process and ensure all hazardous materials used at a base are vetted first through the HMMP. By all accounts this has been a very difficult mission, but if you decide to accept it (not that there is really a choice), there are a couple of things you can do to help us! First, by following the process, and second by helping us improve the process.

Your team starts at the installation, and is supported by your AFCEC Installation Support Team, the EESOH-MIS Help Desk, and those of us representing the HAF HMMP team. We all promise to listen. Sometimes change appears in slow motion (just like page refreshes on EESOH-MIS), but some changes can be quick. There are "great ideas" discussed today that were talked about back in the 90's, but some ideas just need the right people, place and time to make them a reality. We will make sensible changes whenever we can, and the most sensible ideas come from folks like you working the program every day. We have our government-issued secret decoder rings so all we need is your message. No formal letter needed, no permissions, no approvals - just send us an email or pick up the phone. You tell us what you're thinking and we'll do what we can. Our names and contact information are on the Hazmat eDASH page and occasionally on the back of milk cartons.

Having a sense of humor in this serious line of work does help us keep our sanity, and to that end we wrote this shop-level guidance with some levity and tongue in cheek where possible without losing the message. We all thank you for your efforts with hazardous materials management, and glad you've agreed to accept this mission!

....this message will self-destruct in five seconds...



Footnote: A special thanks to Mr. Patrick Woods, AFCEC/CZTQ, for his special brand of wit and the many folks that contributed to this document.

ATTACHMENT 1 - EESOH-MIS REPORTS

Report Title	Brief Description
User List by Installation and Role	Provides information on EESOH-MIS users and roles to track and maintain users. Report shows all the users on an installation, what roles they have and shops assigned. Report does not show users with more than 5 assigned installations such as Installation Support Teams, MAJCOM and HAF users, and EESOH-MIS Program Office personnel.
Master Shop List	Report shows all the basic information for shops identified on the installation to include locations and servicing HTAs. Reviewing this report can show that all organizations on the installation have been identified.
Hazmarts to Shop	Report shows the servicing hazmart(s) for each shop.
PHM/LPN Cross-Reference	Provides a cross-reference list between the Stewarded Local Purchase Numbers in EESOH-MIS and the installation Locally Assigned Numbers. The Material Stock Number (MSN) is the NSN or stewarded local purchase number (SLPN) used in EESOH. All authorizations are associated to a MSN. Some supply systems maintain a separate number and this report provides the cross reference.
Personnel Management	Reports personnel assigned to a shop. Dependent on base tracking personnel.
Material Authorization by Chemical	Provides authorizations by CAS/Chemical and includes authorized shops, MSNs, process, and product information. Reports only the information for SDSs associated to the installation.
**Material Authorizations with Product Data	Provides MSNs and product information authorized in a shop. Reports only the information for SDSs associated to the installation. Note: If the material has never been received through EESOH-MIS on the installation, it will not display the partnumber/tradename or manufacturer. This is a report to satisfy the HAZCOM inventory requirements.
Material Authorizations in Shop Sequence	Reports shop material authorizations in MSN sequence and associated processes. This is a quick reference for the shops of the materials to processes they are authorized by MSN.
Potential Hazard by Authorization	Reports potential hazards of authorized materials in a particular location. Allows personnel to assess the hazards of material actually in inventory in a shop, building or installation-wide. Can be used to show material is stored compatibly and also to show hazards authorized to a shop for training purposes. Report is based on authorizations and only products linked to the installation.
Process Authorization	Reports the process authorization details for a shop. Equivalent information to an AF Form 3952. Note: there is NO requirement to print an authorization. The AFI allows for these to be maintained electronically.
Material Authorizations/Usage by Justification	Identifies justifications, end items/weapon systems and documents, e.g. Technical Orders, justifying the need for hazardous materials. This report can assist when looking for chemical reduction opportunities.
Process to Material Authorizations	Provides process authorizations for a shop and associated materials (MSNs). This is a quick reference for the shops to see processes and their authorized MSNs. This is a good report to reference prior to requesting a new process or material to determine the type of action to take.
**Material Authorizations in MSN Sequence	Report shows hazmat authorizations in MSN sequence with shop, process and quantity information.

EMS Aspects	Reports EMS Aspects and scores. Can be grouped by Aspect Category and Aspect (with maximum score) or listed by individual shop process. Look at overall aspect risk and impact across installation--provides Macro view of installation aspects. Use when determining aspect significance and impact.
Process Scoring	Reports shop processes with scored EMS Aspects. Can be grouped by Process Type (with maximum score) or listed by individual shop process. Report provides a view of aspects at the process level as well as rolling up aspects risks for all similar processes. Demonstrate aspect inventory, as well as using when determining aspect significance. Use when creating targets that associated to objectives to target known processes.
Shop Aspects	Reports all processes and the associated EMS Aspects, Impacts, and scores. Can include all processes whether or not there are associated EMS data. Provides shop level view of impacts to environment and the aspects associated to their activities. Also provide views of conditions associated to their activities which may include responsibilities (Legal, operational controls, and/or targets to reduce risk associated with their activities).
Installation Activity	Reports activity at the Hazmart and Shop level per installation. This is a data mining report to show effectiveness of HMMP coverage.
Installation SDSs	Reports SDSs associated to your base.
SDS by Chemical	Reports associated MSNs and SDS by CAS/Chemical. When a particular CAS or Chemical is targeted this report will show all the products where the material is found. Reports only those products associated to the installation.
Exempt List	Reports MSNs that are exempt from management under the HMMP by installation. Shows the exempt items on a base so that shop personnel can seek exempt items first.
Kit Definition	Reports all kits and components associated to your base.
Container Inventory	Reports container inventory by employee or shop. Allows the shops to see what containers are currently in the shop. Applicable to bar-coding installations only.
Container Status/History	Reports the status/location of a container.
Inventory/Shelf Life Report	Reports inventory in a Shop or Hazmart with shelf life data, associated locations, and cost. Can show shelf-life materials that are either expired or will expire in the future.
Hazard by Inventory	Reports hazards and locations of material in inventory. Allows personnel to assess the hazards of material actually in inventory in a shop, building or installation-wide. Based on actual inventory at time of the report. Note: if your EESOH-MIS shop settings are for Consume at Receipt there will be no shop inventory.
Defense Reserve ODS MSN Report For Receipts	Reports all Defense Reserve MSN ODSs received on your base.
Defense Reserve ODS MSN Report For Usage	Reports all Defense Reserve ODSs consumed on your base by process.
Ozone Depleting Substances Status - Receipts	Reports all ODSs by chemical received on base regardless of source.
Ozone Depleting Substances Status - Usage	Reports all ODSs by chemical consumed on base by process.
Dangerous Goods Advisor	Reports all chemicals flagged as an EU dangerous goods reportable.

Tier Two Emergency and Hazardous Chemical Inventory	Reports EPCRA calculations by reporting year. This report is compiled ahead of need and provided to the base when ready.
Material Usage for Air Quality	Reports all chemicals used that are flagged with a Clean Air Act attribute.
Issues By Chemical/Regulatory Group	Reports all chemicals used that are included in a specific regulatory chemical group, e.g., EHS, REACH, chromium compounds, etc.
Container Usage	Reports material use by containers issued, used, and returned. Reports by employee or shop. Report is only good if the installation has chosen to enter employee information which is optional.
GPC Tracking	Reports GPC requests, approvals and receipts.
Material Disposition Request Status	Reports MSNs that where a disposition request was initiated and returns the current status.
Material Issues by MSN	Reports MSNs issued to a shop.
Material Request History	Reports all material requests by Hazmart.
Shop Detailed HAZMAT Usage	Reports the chemical usage by MSN against a process in a shop.
Shop Material Use by Process	Reports total containers issued to a shop by process with constituent data for a given date range.
Shop Material Requests/Hazmart Due-Ins Report	Reports all requests initiated but not yet filled by a Hazmart.
Transactions	Reports all receipt and issue transactions by Hazmart.

ATTACHMENT 2 - PROCESS AUTHORIZATION FIELD INSTRUCTIONS

The Process Authorization in EESOH-MIS is laid out in Tabs. Below is a detailed explanation of each field by Tab.

Screen Name	Definition	Shop Data Entry
PROCESS TAB		
Local Process Name	The name that describes the process being performed. Process names typically include the activity being performed, what the end item is, and how it is being performed. For example: Painting F-16 aircraft with HVLP Gun.	<p>Make your Local Process Name as descriptive of the process as possible. A good Local Process Name includes the following:</p> <ul style="list-style-type: none"> - the activity being performed - what the end item is - how the process is being performed - the location when the shop spans more than one location <p>The most important thing with the Local Process Name is that it makes sense to you so that you will readily know which materials go to the process.</p> <p>Avoid using broad process names such as "Shop Maintenance" and "Equipment Maintenance".</p> <p>Good Process Name examples:</p> <ul style="list-style-type: none"> - Painting T-38 aircraft with HVLP (High Volume Low Pressure) Gun in Hangar 48 - Degreasing aircraft parts in cold solvent tank - Surface paint removal with plastic bead blast media - Cleaning aircraft surface with power washer in large wash rack - Add/Replace fluids to AGE equipment, multiple operations - Aircraft engine truss coating and preservation using a standard gun
Process Category Process Type Process Name	The Process Category, Type, and Name refer to the 3-tier DoD Process Codes.	<p>The Process Category/Type/Name are selected from a list of values (LOV's) which filter after each selection. The complete list of Process Codes is at Attachment 2. First select the Process Category, then select the Process Type and then the Process Name. Select the most descriptive Process code. Avoid using Not Otherwise Categorized (NOC) or miscellaneous codes when a more descriptive code is available.</p> <p>When defining your cleaning process performed in the shop you can easily find an Industrial Category, then Cleaning operations for the process type – but you must carefully define the process name to accurately describe the process you are performing – try to avoid “all usages” or “NOC” as much as possible. Different methods of cleaning will lead to different PPE requirements, and exposure considerations.</p>
Process Description	Write a description of the Process	Provide a detailed explanation of the process. Try to think about how you would explain the process to someone who may have limited knowledge of what you do on a daily basis. This information can speed the ESOH review and approval process and eliminate the need for the reviewers

Screen Name	Definition	Shop Data Entry
		to ask you additional questions. For example a bad description would be "Cleaning parts" A good description would be "Vapor degreasing aircraft parts prior to NDI (Non Destructive Inspection)". If your local process name is sufficient to fully describe the process, you can repeat it here; however, this is your opportunity to provide additional information about the process. Refrain from describing how each material is used, rather, adequately describe how the process is performed.
Process ID:	Auto-generated code representing the Process Category/Type/Name and a system-generated serial number.	Display Only
Shop:	The name of the shop performing the process	Ensure the shop name is the correct shop. If the person logged in is assigned to more than one shop, select the correct EESOH-MIS shop code at the time the process is created, from the LOV that will be performing the process.
Conditions of Use	Any special conditions of use imposed by the E, S, or OH reviewers for the process being performed in the specified shop. The process authorization is valid only when these conditions of use are complied with by the shop. The conditions of use are input into the system during the ESOH approval process and will appear here as READ ONLY once the authorization is approved.	Display Only after authorization approval. It is important to follow any conditions of use placed here by the reviewing functions.
Environmental	Conditions of use specified by the Environmental Reviewer	Display Only after authorization approval.
Safety	Conditions of use specified by the Safety Reviewer	Display Only after authorization approval.
Occupational Health	Conditions of use specified by the Occupational Health Reviewer.	Display Only after authorization approval.
Air Manager Use Only		
Air Source ID	The unique identifier for an air process. This ID is created in CCS (APIMS) and passed to EESOH-MIS via the I2 interface.	Display Only. This data comes from the Air Program Information Management System (APIMS) after authorization approval.
Does the process require a manual log?	Indicates that the process has a time sensitive usage log requirement driven by an air emission regulatory requirement.	Select the correct radio button (Yes or No).
DETAILS TAB		
What is the <i>typical</i> frequency at which this process is	The typical or average frequency the process is expected to be performed.	Enter a frequency (number) in the first box to represent how many times you typically perform this process. Then select a period of time from the drop down box to represent how

Screen Name	Definition	Shop Data Entry
performed?		<p>often the process is performed. Values in the drop down box are:</p> <ul style="list-style-type: none"> • DAILY • EVERY 2 YEARS • EVERY 3 YEARS • EVERY 4 YEARS • HOURLY • MONTHLY • QUARTERLY • WEEKLY • YEARLY <p>For example 8 x month, 1 x quarterly.</p> <p>This number will not affect the quantity of material you receive so please be as accurate as possible.</p> <p>A consideration that may be made as a result of this information is whether this process is infrequent and qualifies as a non-routine task under the Hazard Communication Standard.</p>
What is the <i>maximum</i> frequency at which this process is performed?	The maximum frequency the process is expected to be performed such as during surge periods.	<p>Enter a frequency (number) in the first box to represent how many times the process could be performed during a surge period. Then select a period of time from the drop down box to represent how often the process is performed. Values are:</p> <ul style="list-style-type: none"> • DAILY • EVERY 2 YEARS • EVERY 3 YEARS • EVERY 4 YEARS • HOURLY • MONTHLY • QUARTERLY • WEEKLY • YEARLY <p>For example 8 x month, 1 x quarterly, etc.</p> <p>If yes, depending on the hazards, there could be changes to PPE, engineering controls or a condition of use specifying workload limitations.</p>
Do the seasons affect how often this process is performed?	An indicator that the process is performed with more or less frequency during particular seasons.	Select the correct radio button (Yes or No) to indicate if the seasons affect how often this process is performed.
<i>If seasons affect how often this process is performed, please explain</i>		
Explanation	The explanation provided if the seasons affect the process.	If the seasons affect the process, provide an explanation of how the seasons affect the frequency of the process. For example de-icing of aircraft wings is performed only during the winter months or the base swimming pool may use chlorine only during the months of June, July and August.
What is the duration of the process?	The duration of a single occurrence of the process.	<p>Enter a numeric frequency and a Time Period from the drop down box for the length of time a process occurs.</p> <p>Time Periods are:</p> <ul style="list-style-type: none"> • H (Hours) • MIN (Minutes)

Screen Name	Definition	Shop Data Entry
		For example 2 hours or 30 minutes. For processes that are continuous, enter 24 hours.
Enter the date the process starts	The date the process starts	Choose the start date by clicking on the calendar icon, scrolling through the calendar screens until you find the correct date, and then clicking on the date to select.
<i>If you can project an end date, please specify date:</i>		
End date	The date the process ceased to be performed in the shop.	<p>DO NOT END DATE a process without prior consultation from your HMMP team. If the process is for a specific one-time use or Time Compliance Technical Order (TCTO) you may enter the projected end date.</p> <p>An example of a process that would have an end date is smoke oil used for the Thunderbird Air Show.</p> <p>Warning: once the process is end dated, all related items to that process are also end dated (materials, PPE, Engineering Controls, etc.)</p> <p>Once you've consulted with the HMMP team, and you must end date the process, choose the end date by clicking on the calendar icon, scrolling through the calendar screens until you find the correct date, and then clicking on the date to select.</p>
End Date Reason	The reason the process was end dated.	<p>Choose the appropriate reason the process is being ended by clicking on the drop down box.</p> <p>Values in the drop down box are:</p> <ul style="list-style-type: none"> • Original Approval was Incorrect • Other • Process Reorganization • Shop no longer exists or combined with another shop • Workload No Longer Exists
For ESOH Use Only		
BEE Process Description	For BEE to further describe the process for their use	Leave Blank - For BEE use only
Next Action Date	The date an ESOH reviewer may want to review the process	Leave Blank –For ESOH use only
WEAPON SYSTEMS SUBTAB		
Add Weapon System	Add a weapon system to your process.	Enter the weapon system that is affected by this process. You may enter more than one weapon system. If the end item is not a weapon system listed in this sub-tab, describe the end item under the Justification Tab and do not load a weapon system.
Service Component	The service component that owns the weapon system.	<p>Select each tier from the Weapon System List of Values :</p> <ul style="list-style-type: none"> • AIR FORCE • ARMY • COAST GUARD • NAVY
Category	The category of weapon system.	Make this first selection and it will determine what is filtered in the next list.
Type	The type of weapon system.	Select the type of weapon system. This selection will determine what displays on the next list.

Screen Name	Definition	Shop Data Entry
System	The name of the weapon system.	Select the name of the weapon system.
LOCATION TAB		
Is this process performed in the Shop?	Identifies if the process is performed in the shop.	Select the correct radio button (Yes or No) to indicate if the process is performed in the shop, as opposed to your shop personnel travel somewhere else to perform the process.
<i>If the process is not performed in the shop, specify where it is performed:</i>		
Location	The location(s) other than the shop where a process may be performed.	If the process is performed somewhere other than the shop, enter the location(s) where the process is performed. Example: if the shop is located inside an aircraft hangar, but the work is performed on the flight line, you would first select "No" then enter the location where the work will typically be performed. Select the locations from the List of Values. The location must have been entered in the location pick list associated to the shop for it to appear in the List of Values.
Is this process performed indoors, outdoors, or both?	Indicates if the process is performed indoors, outdoors, or both.	Select the correct radio button (Indoors, Outdoors, Both) to indicate if the process is performed indoors, outdoors, or both indoors and outdoors.
Is this process performed in a small or restricted space?	Indicates if the process is performed in a small or restricted space.	Select the correct radio button (Yes, No, or Not Selected) to indicate if the process is performed in a small or restricted space, such as a small room, inside an aircraft, or mechanical room. If you don't know, contact the Wing Safety Office, and they will help you.
Is this process performed in a confined space?	Indicates if the process is performed in a confined space as defined by 29 CFR 1910.146	Select the correct radio button (Yes, No, or Not Selected) to indicate if the process is performed in a confined space. If you are unsure whether this process is performed in a confined space, contact the base Safety office. There are specific AFOSH and OSHA requirements that must be met when a process is performed in a confined space.
JUSTIFICATIONS TAB		
Add Justification	Add a justification to your process.	Justifications include the driver for your process (i.e. Technical Order, DoD Publication, etc). You may have multiple justifications for a single process. You must have at least one justification.
<i>If the end item is not a Weapon System, describe the end item</i>		
Please describe the end item	A description of the end item affected by the process.	If the end item is not a weapon system, describe the end item. If the end item is a weapon system, enter the weapon system in the weapon system sub tab found under the Details Tab. The end item is whatever item you are applying the hazardous material to, such as a piece of Aerospace Ground Equipment, a tank, a building, etc.
Justification Type	The broad category of what justifies the process and/or materials.	Select the Justification Type from the drop-down list. Values are <ul style="list-style-type: none"> • COMMERCIAL PUBLICATION – this may include the Owner's manual • CONTRACTING DOCUMENT • DEPLOYMENT • DOD PUBLICATION – any government publication

Screen Name	Definition	Shop Data Entry
		<p>that is not a Technical Order, TCTO or Technical Manual such as an AFI</p> <ul style="list-style-type: none"> FACILITY MAINTENANCE – includes housekeeping functions such as stripping floors, cleaning windows, etc. LABORATORY PROCEDURE OFFICIAL CORRESPONDENCE SPECIAL PROJECT STANDARD OPERATING PROCEDURES - Use this justification when the process and material is a standard shop procedure and no critical end item or weapon system is involved. This justification is for processes that obviously have no written call-outs. A justification document is not expected to exist. An example is general purpose lubricating oil applied to tools for corrosion prevention. TECHNICAL ORDER/TCTO/TECHNICAL MANUAL
Is the document classified?		Click on the Yes or No radio button to indicate if the justification for the process is classified.
<i>If the justification type is a Technical Order, please provide a Tech Order Number</i>		
Tech Order Number	Document identifying the repair and maintenance of a weapon system end item.	<p>If the justification that supports the process or material(s) used in the process is a Technical Order or TCTO, select it from the List of Values.</p> <p>When the justification is a TO/TCTO/TM, and a specific system/equipment TO is applicable to the process and end item, it should be referenced as the primary justification rather than a general TO. In the event of a conflict between a system/equipment TO and a general TO, the system/equipment TO always takes precedence. If a system/equipment TO references a general TO for a chemical use, the general TO will be referenced as the secondary justification. In either case specific paragraphs in both TOs must be referenced. TOs are required as the justification if one has been published for the material, end item or process requested.</p>
Request New Technical Order	Request the Helpdesk add a new Technical Order to EESOH-MIS.	If the TO or TCTO is not listed in the LOV, click on the Request New Technical Order hyperlink, and enter the Technical Order number, Title directly off the front page of the document, and Revision if applicable. You may also call the EESOH-MIS Help Desk at 1-866-488-4069 with the information and they will validate the request and load the data.
Document #	Document number and/or name justifying the process and/or hazardous materials.	If the justification document is not a Technical Order or TCTO, enter the document number that supports the process or material(s) used in the process.
Page #	The Page No in the justification document supporting the process and/or hazardous materials	Enter the Page Number of the justification document. This is not required unless the justification is a Technical Order.
Paragraph #	The Paragraph No in the justification document supporting the process and/or hazardous materials	Enter the Paragraph Number of the justification document. This is not required unless the justification is a Technical Order.

Screen Name	Definition	Shop Data Entry
Revision #	The revision number of the Technical Order or other justification document supporting the process and/or hazardous material.	Enter the Revision Number of the justification documents. If a selection is made from the Tech Order LOV, this field should auto-populate.
Revision/Change Date	The revision or change date of the Technical Order or other justification document supporting the process and/or hazardous material	Enter the Revision or Change Date of the justification document. If a selection is made from the Tech Order LOV this field should auto-populate.
Justification Remarks	Additional information about the justification.	Enter any additional information to support the justification of the material and process. This field can be left blank if not known or not applicable.
Current File (5 MB Limit)		This will display any files previously uploaded. The maximum file size is (5MB). If the file is too large, any previous data entered on this page will not be saved.
Upload New File to Replace Current File	Browse and upload file to replace existing file.	Justification documents or pages from the document can be electronically attached to the process authorization. Click on the Browse Button to find the location of the file to upload and attach to the process. AFI 32-7086 requires that the justification for the process and/or hazardous materials is supported with the documentation. If the justification document is not electronically attached, hard copies can be provided to the approving officials.
MATERIAL HANDLING TAB		
How will the materials be mixed?	Describes how materials will be mixed in the process.	Describe how the hazardous materials will be mixed or combined with other ingredients in performing the requested process. Values in the drop down box are: <ul style="list-style-type: none"> • CLOSED CONTAINER MIXER • HAND • NOT MIXED • OPEN CONTAINER MIXER • STIRRED
How will the materials be abraded?	Describes how materials used in the process will be abraded.	Describe how the hazardous materials will be abraded, OR used to facilitate the abrasion of another material in performing the requested process. Values in the drop down box are: <ul style="list-style-type: none"> • GRINDER • NOT ABRADED • SANDER • WIRE BRUSH
How will the materials be heated?	Describes how materials will be heated in the process.	Describe how the hazardous materials will be heated in/by performing the requested process. Values in the drop down box are: <ul style="list-style-type: none"> • ELECTRIC HEATED TANK • ELECTRIC OVEN • GAS HEATED TANK • GAS OVEN • NOT HEATED

Screen Name	Definition	Shop Data Entry
		<ul style="list-style-type: none"> • OVEN • SOLDERING IRON • TANK • TORCH <p>If the hazardous materials will be heated, enter the estimated minimum and maximum temperatures.</p>
How will the materials be transferred?	Describes how materials will be transferred in the process.	<p>Describe how the hazardous materials will be transferred. Values in the drop down box are:</p> <ul style="list-style-type: none"> • NOT TRANSFERRED • POURED • PUMPED
<i>If materials will be heated, specify minimum and maximum temperatures:</i>		
Minimum	The minimum temperature material will be heated in the process.	Enter the minimum temperature at which material may be heated in the process.
Maximum	The maximum temperature material will be heated in the process.	Enter the maximum temperature at which material may be heated in the process.
Unit	The temperature unit of measure for a heated process	<p>Select from the drop down</p> <ul style="list-style-type: none"> • CELSIUS • FAHRENHEIT • KELVIN
What is the pressurization method?		<p>Describe how the hazardous materials will be pressurized during performing the requested process. Examples:</p> <ul style="list-style-type: none"> • AIR HOSE • HAND-PUMP • NOT PRESSURIZED
<i>If materials will be pressurized, specify minimum and maximum pressures:</i>		
Minimum	The minimum value the material will be pressurized in the process	Enter the minimum pressure at which material may be pressurized in the process.
Maximum	The maximum value the material will be pressurized in the process	Enter the maximum pressure at which material may be pressurized in the process.
Unit	The pressurization unit of measure for the process	<p>Select the unit of measurement from the drop down list. The values are:</p> <ul style="list-style-type: none"> • ATMOSPHERE • INCHES OF MERCURY • INCHES OF WATER • MILLIMETERS OF MERCURY • POUNDS PER SQUARE FOOT • POUNDS PER SQUARE INCH
MATERIALS TAB		
Add Material	Add a material used in your process.	You may add as many materials as required. It is helpful to know the MSN you need to add, any research for MSN should be conducted prior to adding the material to the process. Note: a process may be created without a hazmat.
MSN	The unique number identifying the hazardous material item. The number may be either a National	<p>Select the MSN that will be used in the process from the List of Values.</p> <p>The MSN must be verified within EESOH-MIS to proceed with</p>

Screen Name	Definition	Shop Data Entry
	Stock Number (NSN) or Stewarded Local Purchase Number (SLPN).	the addition of new material to this process. If the MSN is not verified, you may conduct further research in the Manage Products (MSDS) area, or contact the Installation SDS Gatekeeper for assistance. When the correct number is found, click CONTINUE. This will bring up details of the material selected and allow you to enter additional information.
Noun	The noun is a description of the material that is unique to the material without referencing a particular manufacturer.	Display Only Nouns are built with an item name from FEDLOG and contain other characteristics in the description of the material. They are generic in nature but informative and unique to the material. Example: Lubricating Oil, Engine 10W30 or Adhesive, White, Silicone Rubber.
Description of Material	This is additional information to help describe the material.	Display Only
Container Size	This is a unique numeric value for the material that helps construct the CUP – Container Unit of Measure and Package. Different CUPs will require a different MSN.	Display Only This is a numeric value that works in conjunction with the next two data fields to describe the unique size of material container and packaging.
Container UOM	The Unit Of Measure that makes up the CUP.	Display Only This value is a unit of measure that describes the means in which the container and package of the material are measured.
Container Package	The Container Package is the final component of the CUP. If this value should differ for the same material – then a new MSN is required.	Display Only This value is a text description of the package that stores the material.
Quantity in Package	This is the quantities that comprise the package or container.	Display Only This value shows the number of containers in the package.
Supply Unit of Issue	This value is directly from FEDLOG/WebFLIS	Display Only This value describes the type of container to be issued (i.e. CO-container, BX- Box, CY- Cylinder etc.)
<i>If this MSN is being added to replace an MSN already on the process, please select the existing MSN and the reason for the replacement:</i>		
MSN	List of previously approved MSNs are displayed in the dropdown	If the MSN is being added to replace an MSN already on the process, please select the existing MSN and the reason for the replacement.
Reason for MSN Replacement	Replacing an MSN in a process authorization may be required in the future to accurately describe the changes that can occur in the life of material usage for a process.	Select the appropriate reason from the following list of values: <ul style="list-style-type: none"> • Erroneously Approved • Hazardous Ingredient/Material Not Allowed on Base • Material Justification No Longer Supports • Material No Longer Available • Material No Longer Needed In Process • Material Poses Regulatory Concern • Other • Replaced with Less Hazardous/Exempt/Green Material
<i>Shop Material Preferences:</i> <i>Displayed are the shop's current preferences for this material.</i>		

Screen Name	Definition	Shop Data Entry
<p><i>If editable, the shop has no preferences for this material.</i></p> <p><i>To make changes to the Shop's Material Preferences, please go to Manage Shops:</i></p>		
Draw Amount	The amount a shop will typically draw when requesting the hazardous material from a HAZMART.	<p>Enter the Draw Amount, Frequency and Draw Frequency values. This will represent the quantity of material and number of times and frequency material will be drawn from your distribution point, usually a HTA.</p> <p>For example:</p> <ul style="list-style-type: none"> - 5 (units of issue) 5 X Month - 3 (units of issue) 1 X Yearly <p>The Draw Amount is used in conjunction with the Draw Frequency to reflect how much material and how often material will be withdrawn from the HTA for a typical/normal workload. Increased amounts may be required during surge periods.</p> <p>Note: Keep the CUP/QIP/SUI in mind, especially when selecting a large amount (55 GL DR) or boxes/cases (24/BX, 12/CS) of material.</p>
Draw Frequency	The typical frequency a shop will request the Draw Amount from a distribution point.	<p>The Draw Amount and Draw Frequency are numeric values – enter the number.</p> <p>Select the Draw Frequency from the drop down box.</p> <p>Values are:</p> <ul style="list-style-type: none"> • BI-WEEKLY • DAILY • GY – Greater than one Year • HOURLY • MONTHLY • ONE-TIME ONLY • QUARTERLY • WEEKLY • YEARLY
Max On Hand		Display Only. This will show as 0 until the process has been approved. EESOH-MIS will allow a max-on-hand of 3 times the draw amount. You may adjust this max on hand quantity once the material has been approved.
Will you accept the same draw amount of material in a smaller unit of issue?	Indicates a smaller unit of issue of the same material can be issued, should the original unit of issue not be available/in stock at the time of request.	<p>Click on the YES or NO radio button to indicate that you will accept the same material in a smaller unit of issue.</p> <p>Note: currently this functionality does not work</p>
Is there a sole source requirement for this material?	Indicator that the material has a sole source requirement.	<p>Click the Yes or No radio button to indicate there is a sole source requirement for this material.</p> <p>A sole source requirement is not a material preference but a documented requirement for a particular vendor's material. If this authorization indicates there is a sole source requirement, EESOH-MIS will only allow the issue of the particular material indicated as the sole source requirement.</p>
If there is a sole source requirement for this material, please complete the fields below:		

Screen Name	Definition	Shop Data Entry
Explanation	The justification for a sole source requirement.	Provide an explanation to justify the sole source requirement. Citing the document forcing you to buy a specific item, is very helpful!
Part #	The part number of the material required to satisfy a sole source requirement.	Click on the LOV to perform a search for the material part number that must be used for this process.
Trade Name	The trade name of the material required to satisfy a sole source requirement.	Enter the trade name only if you have chosen "Yes" to sole source requirement.
Manufacturer Name	The manufacturer's name of the material required to satisfy a sole source requirement	Enter the manufacturer name only if you have chosen "Yes" to sole source requirement.
<p>If the material is specifically called out by a specification, identify it here. The format displayed here is Justification Type and Document #.</p>		
Justification	The justification for a particular hazardous material in a process.	Select the justifications from the shuttle box list on the left that supports the requested hazardous material. Click the ADD button to move the justification to the right shuttle box. Only the justifications entered in the Justification Tab will appear in the left-hand shuttle box. If the particular justification for the material does not appear, save this screen and return to the Justifications Tab to enter the missing justification. Clicking on the REMOVE button will remove a selection from the right-hand shuttle box.
How is this material used in the process	Describe how the hazardous materials will be used in the requested process.	This is where you can add more detail about how the material is specifically used in this process.
ODS Approval Number	<p>An ODS Approval number that is granted for the use of an Ozone Depleting Substance that is managed in the DoD reserve for weapon system support.</p> <p>The DoD ODS reserve for weapon system support consist of various class 1 refrigerants (R-11, 12, 114, 500, 502), halons (1211, 1301, 1202), solvents (1,1,1 trichloroethane, & 113), and associated containers.</p>	Enter the ODS Approval Number as received from the ODS Management Office.
ODS Application	Indicates the ODC use category.	<p>Select the ODS Application from the drop down list.</p> <p>Values are:</p> <ul style="list-style-type: none"> • FIRE SUPPRESSANT • NOT APPLICABLE • OTHER • REFRIGERANT • SOLVENT
For ESOH Use Only		
Section 311/312	Describes the exemption under Emergency Planning Community Right to Know Act (EPCRA) Section 311 and 312 that the authorization	For Environmental Use

Screen Name	Definition	Shop Data Entry
	meets	
Section 313	Describes the exemption under EPCRA Section 313 that the authorization meets	For Environmental Use
WASTE TAB		
What happens to materials as a result of this process?	The anticipated method by which a material will be disposed of when used in the authorized process.	<p>There are many considerations with regards to where material will ultimately be or what may be generated as a result of the process. If hazardous materials are being used, consider where the material will be after the process occurs. Also, what may be generated as a result of the process? Select all that are applicable to the process.</p> <p>Select the applicable disposal method from the shuttle box list on the left. To add a disposal method, click the Add button. To remove a disposal method, click the Remove button.</p> <ul style="list-style-type: none"> • <u>Air Emission</u> – no containerized waste is generated for disposal and the process only generates air emissions • <u>Used Oil</u>- any oil that has been refined from crude oil, or any synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical impurities • <u>Burned/Incinerated</u> – the material or process generates a waste that is sent to an incinerator for disposal. • <u>Consumed in Use (Partially)</u> – the material is partially consumed and a portion has an alternate disposal method or emission. For example: the material used in painting; a portion will remain on the painted end item, a portion will become air emissions, and a portion will become containerized waste, i.e. filters, clean up of paint guns. • <u>Consumed in Use (Completely)</u> - the material is either consumed in use, is permanently applied to an item or becomes a part of the item and no waste is generated for disposal • <u>Drained to Industrial Waste Treatment Plant (IWTP)</u>- the material or process generates any amount of waste that is discharged down a dedicated line to an industrial waste treatment plant • <u>Drained to Sanitary Sewer</u> – the material or process generates any amount of waste that is discharged down a drain that leads to the sanitary sewer • <u>Industrial Waste Treatment Plant (IWTP)</u> – when the material or process generates any amount of waste that is accumulated in any type container for disposal at the IWTP • <u>Medical Waste, Removed By Contractor</u>- the material is removed by a contractor. For example, short-term contractors that remove their own waste or a “Safety

Screen Name	Definition	Shop Data Entry
		<p>Kleen” contractor who pumps out a tank and replaces it with clean solvent.</p> <ul style="list-style-type: none"> • <u>Other</u> – A disposal method is not listed here. Explain in the remarks block. • <u>Recycled Off-Site</u> – the material is recycled off-site after use in the process • <u>Recycled On-site</u> – the material is recycled on-site after use in the process • <u>Reused</u> – the material is reused after initial use in the process. • <u>Scrap Metal, Recycled</u> – The process generates a waste that is crushed and recycled. • <u>Stormwater</u> – the process generates waste that enters the storm water system, however, only a very special installation configuration would allow this to occur. Typically, hazardous material should never enter a storm water system. • <u>Trash, Municipal Waste</u> – the material or process generates any amount of waste that is disposed in a municipal dumpster that goes to the city landfill. • <u>Hazardous Waste</u> • <u>Universal Waste</u> • <u>Non-Hazardous Waste</u> • <u>Other Regulated waste</u> • <u>PCBs</u> • <u>State Listed Waste</u> • <u>Bulk Container</u> - the material or process generates any amount of waste that is disposed of in a tank, gondola, or other bulk container larger than an 110 gallon container
What will the waste generated from this process look like? (i.e., green sludge, metal chips)	The expected appearance of any waste generated from a process	<p>If you expect waste to be generated from the process describe as completely as possible what it will look like.</p> <p>Examples include:</p> <ul style="list-style-type: none"> -Rags contaminated with oil -Paint chips mixed with blast media
Is this process going to generate containerized waste?	Indicates the process will generate containerized waste.	<p>Click the Yes or No radio button to indicate that the material or process generates any amount of waste that is disposed of in a drum or container of 5 – 110 gallon capacity.</p> <p>If the process will generate containerized waste complete the questions below.</p>
<i>If the process will generate containerized waste complete the questions below.</i>		
Estimate Waste Container Size:	The size and type of waste container that will be used to collect waste	<p>Estimate the size of the waste container.</p> <p>Examples include:</p> <p>4 ft cardboard box</p> <p>8 ft cardboard box</p> <p>5 gallon metal bung type can</p> <p>10 gallon metal bung type can</p> <p>15 gallon metal bung type can</p> <p>20 gallon metal bung type can</p> <p>30 gallon metal bung type drum</p> <p>55 gallon metal bung type drum</p> <p>1 cubic yard DOT bag</p>

Screen Name	Definition	Shop Data Entry
		6 gallon cardboard drum 10 gallon cardboard drum 15 gallon cardboard drum 20 gallon cardboard drum 30 gallon cardboard drum 55 gallon cardboard drum Cardboard box 10 gallon octagon cardboard box 1 gallon capacity can 4 x 4 CW pallet Cylinder 30 yard bulk waste container 3 yard dempster dumpster Steel flask for mercury 19 yard gondola 250 gallon port tank (for IWTP) 5 gallon open-top metal drum 10 gallon open-top metal drum 12 gallon open-top metal drum 15 gallon open-top metal drum 20 gallon open-top metal drum 25 gallon open-top metal drum 30 gallon open-top metal drum 55 gallon open-top metal drum Open top over pack metal drum Open top plastic over pack 570 gallon port tank (USPCI) 1 gallon plastic container 5 gallon plastic container 10 gallon plastic container 15 gallon plastic container 20 gallon plastic container 30 gallon plastic container 35 gallon plastic container 55 gallon plastic container 300 gallon metal portable tote Dumpsters and storage tanks 300 – 350 gallon pallet size
Approximately how much waste will be generated?	Quantity and frequency of waste generated.	Estimate the quantity of waste to be generated in a given period of time. For example: 1 55 gallon drum per month
Waste Site:	The waste site number where the waste stream will be accumulated.	Enter the waste site number where the waste will be accumulated. A satellite accumulation point is assigned by the Environmental Flight representing a location where waste is accumulated under satellite accumulation rules. If the waste site number is unknown, contact the installation waste manager, typically in the Environmental Flight.
IH CONTROLS TAB		
User will click Add IH Control and list of previously entered PPE will be displayed, and entering the Start Date will associate PPE to the process. If the PPE you use is not displayed, click the Create IH Control button and follow the steps below.		

Screen Name	Definition	Shop Data Entry
Start Date	The start date the IH Control is added to the process.	Choose the start date by clicking on the calendar icon, scrolling through the calendar screens until you find the correct date, and then clicking on the date to select.
End Date	The end date the IH Control is no longer associated to the process.	Choose the end date by clicking on the calendar icon, scrolling through the calendar screens until you find the correct date, and then clicking on the date to select.
Comments	Free text field to enter additional information	
Control Category	<p>Industrial hygiene controls can be broken down into categories. These categories are listed as Administrative, PPE, and Engineering.</p> <p>Administrative controls are examples of training and certification. If you are not trained or certified – then you cannot perform the process.</p> <p>Personal Protective Equipment is another category that is available. This choice will help to specify particular type of protective equipment for an industrial hygiene control.</p> <p>The engineering category will help to identify specific types of engineering controls (i.e. ventilation systems, vacuum sanders) used in the process to protect the shop worker.</p>	<p>Drop down:</p> <ul style="list-style-type: none"> • PPE • Engineering • Administrative <p>The entire list of control categories, types, and names is at Attachment 4.</p>
Control Type	The control type is the general class of IH control. If you were to specify administrative as the category now you can specify signs, annual training, or ergonomics.	LOV – selecting a control category from above will determine a list of values unique to the control category. The entire list of control types and names is at Attachment 4.
Control Name	The control name now gets into the specific type of control. If you selected Control Type as sign now you can specify if this is a warning sign or painted lines.	LOV – selecting a control type will determine a list of values unique to the control type selecting from above. For example – if you picked the control type of Engineering – you would see lists for vibration control mat, and various other ergonomic controls.
Description	For the description you have the option of providing a further detailed description of the IH control in a free text field. “The lines are painted in yellow and black stripes on the raised edges of the floor entering the warehouse”	This is a text box that the user must utilize to further describe the IH control utilized in the process.
Facepiece	This field becomes mandatory if the PPE selected is a Respirator (i.e. full-face, half-face, etc.).	<p>Enter the information directly from the respirator</p> <p>FF Full-Face</p> <p>FFPD Filtering Facepiece (FFPD)</p>

Screen Name	Definition	Shop Data Entry
		GM Industrial Gas Mask HD Hood HD/AB Hood, Abrasive Blasting HD/W Hood, Welder's HEL Helmet HEL/AB Helmet, Abrasive Blasting HEL/W Helmet, Welding HM Half-Mask HM/HD Half-Mask with Hood MP Mouthpiece MSK Disposable Mask (Surgical/Dust) QM Quarter-Mask
Mask Type	This field becomes mandatory if the PPE selected is a Respirator (i.e. air purifying, airline, SCBA, PAPR).	Enter the information directly from the respirator Air Purifying (APR) Air Purifying/Supplied Air Particulate Respirator Powered Air Purifying (PAPR) Self-Contained Breathing Apparatus (SCBA), Closed Circuit Self-Contained Breathing Apparatus (SCBA), Open Circuit Supplied Air (SAR) Supplied Air, Entry/Escape Supplied Air, Escape Only
Equipment Tab		
Name	The equipment name.	If there is equipment associated to or used in the process, select the equipment from the LOV. The LOV will display the Name, Serial # and Model # of equipment that has been added in the Manage Equipment section and associated to the shop. Enter any and all equipment associated to the process.
Model #	The model number of the equipment.	
Serial #	The serial number of the equipment	
Sequence	Shop developed numbering system to identify equipment	
Location	Where Equipment is located	Location must be created in the Manage Equipment Section and associated to the shop
Start Date	The date the equipment is added to the process.	Choose the start date by clicking on the calendar icon, scrolling through the calendar screens until you find the correct date, and then clicking on the date to select.
Aspect/Hazard Inventory Tab		
Aspect	An aspect is an element of your organization's activities, products, or services that interact with the	LOV – There are 47 Aspect categories to choose from to determine the interaction or classification of interaction with the environment. Start by selecting the first aspect if there are

Screen Name	Definition	Shop Data Entry
	<p>environment. Examples of Aspects are air emissions from painting operations, or waste water generation from wash rack operations.</p>	<p>potentially many interactions with the environment. Pick an element of your organizations activities, products, or services that interact with the environment. There is not one choice that is correct – this is up to your interpretation and there could in fact be many interactions with the environment, not just one.</p> <p>At your installation this may be a task completed in conjunction with the base EMS manager.</p> <p>The following are examples of Aspect Categories:</p> <ul style="list-style-type: none"> Carbon monoxide emission Hazardous air pollutant emission Lead emission Nitrogen oxide emission Ozone emission (8 hour) Ozone depleting substance emission Particulate matter emission (2.5 microns) Sulfur oxide emission Volatile organic compound emission Other emissions to atmosphere Interaction with surface soil / sediment Interaction with subsurface soil/rock Interaction with land, other Interaction with groundwater, point source Interaction with groundwater, non-point source Interaction with surface water, point source Interaction with surface water, non-point source Interaction with wetland, point source Interaction with wetland, non-point source Interaction with water, other Conservation of cultural resources Conservation of energy Conservation of fuel Conservation of land Conservation of materials Conservation of natural resources Conservation of water Conservation of other Consumption of cultural resources Consumption of energy Consumption of fuel Consumption of land Consumption of materials Consumption of natural resources Consumption of water Consumption of other Generation of dust Generation of heat Generation of light Generation of noise Generation of odor Generation of radiation, ionizing Generation of radiation, non-ionizing

Screen Name	Definition	Shop Data Entry
		Generation of waste, hazardous Generation of waste, non-hazardous Generation of waste, solid Generation of other waste
Request New Aspect Button		Click on this button to request an aspect to be added to the available list of aspects. This form sends a work basket message including any text entered for the Steward to review. Enter the requested Aspect Description and click the SAVE button.
Aspect Info	Provide additional information about the aspect and its interaction with the environment. This can be helpful to further define the aspect and its interaction with the environment. This is especially helpful if there are similar aspects listed for one process.	Is this an aspect that requires special notification or extra clarification? This can be helpful to further define the aspect and its interaction with the environment. This is especially helpful if there are similar aspects listed for one process.
Aspect Group	Further definition of an aspect that is either permitted or not permitted.	Drop Down <ul style="list-style-type: none"> - Not Permitted/Unintended/Unregulated - Permitted/Intended/Regulated
Regulatory Driver	Each aspect for the process may have a related environmental law that regulates or monitors its interaction with the environment.	LOV – There are 26 regulatory drivers available to associate to this aspect to help define the regulatory requirements. There may be multiple environmental laws related to particular aspects, its' okay to pick more than one. The following are examples of regulatory drivers available for selection: <ul style="list-style-type: none"> - Clean Air Act - Clean Air Act Amendments - Comprehensive Environmental Response, Compensation, and Liability Act - Clean Water Act (Federal Water Pollution Control Act) - Clean Water Act Amendments - Emergency Planning And Community Right-To-Know Act - Food, Drug, and Cosmetic Act - Federal Facility Compliance Act - Federal Insecticide, Fungicide and Rodenticide Act - Hazardous Waste Operations and Emergency Response - Hazardous Materials Transportation Act - Hazardous and Solid Waste Amendments - National Environmental Policy Act - Oil Pollution Act - Occupational Safety and Health Act - Federal Pollution Prevention Act - Resource Conservation And Recovery Act - Superfund Amendments and Reauthorization Act - Safe Drinking Water Act

Screen Name	Definition	Shop Data Entry
		<ul style="list-style-type: none"> - Asbestos Hazard Emergency Response Act - Indoor Radon Abatement Act - Lead-Based Paint Exposure Reduction Act
End Date	Select an end date for this aspect if this is an aspect that has a possible time limit.	Calendar – Select the values from the calendar to enter the date that this aspect and its impacts will end.
Save Button		Click on the SAVE button to perform the Aspect Scoring
Add Impact Button	There are 46 Impacts that can be selected from to relate to the aspect that you have chosen	<ul style="list-style-type: none"> - Click on the Add Impact LOV to access the list of possible Impacts
Impact	An Impact is the determination to the degree of which an aspect will impact the environment positively or negatively.	<p>LOV - There are 46 Impact categories that can be selected from to relate to the aspect that you have identified for this process. This does not have to be a one to one relationship. Your aspects, your interaction with the environment from your product or service can have many impacts on the environment.</p> <p>Select the Impacts from the following list that apply for the process:</p> <ul style="list-style-type: none"> - Degradation/reduction of air quality, indoor - Degradation/reduction of air quality, outdoor - Degradation/reduction of built infrastructure/facilities - Degradation/reduction of cultural resources - Degradation/reduction of land quality - Degradation/reduction of natural resources - Degradation/reduction of water quality (drinking water) - Degradation/reduction of water quality (groundwater) - Degradation/reduction of water quality (surface/storm water) - Degradation/reduction of quality of life - Degradation/reduction of other - Disposal to surface (landfill) - Disposal to subsurface - Disposal to other - Improvement/preservation of air quality, indoor - Improvement/preservation of air quality, outdoor - Improvement/preservation of built infrastructure/facilities - Improvement/preservation of cultural resources - Improvement/preservation of land quality - Improvement/preservation of natural resources - Improvement/preservation of water quality (drinking water) - Improvement/preservation of water quality (groundwater) - Improvement/preservation of water quality (surface/storm water) - Improvement/preservation of quality of life - Improvement/preservation of other

Screen Name	Definition	Shop Data Entry
		<ul style="list-style-type: none"> - Recycling of air - Recycling of land - Recycling of water - Recycling of waste, hazardous - Recycling of waste, non-hazardous - Recycling of waste, solid - Recycling of other - Reuse of air - Reuse of land - Reuse of water - Reuse of waste, hazardous - Reuse of waste, non-hazardous - Reuse of waste, solid - Treatment of air - Treatment of land - Treatment of water - Treatment of waste, hazardous - Treatment of waste, non-hazardous - Treatment of waste, solid - Treatment of other - Reuse of Other
Relative Cost	Relative cost is the cost of compliance related to the aspect. This can be measured in terms of training, manpower, and the use of materials. This is not the cost of operation or maintenance but what is spent to stay in compliance.	<p>1 point – Relative costs in the lowest 20% (0 to 20%) of the range for all individual installation impacts.</p> <p>2 points – Relative costs in the fourth 20% (21-40%) of the range for all individual installation impacts; and</p> <p>3 points – Relative costs in the third 20% (41-60%) of the range for all individual installation impacts;</p> <p>4 points – Relative costs in the second 20% (61-80%) of the range for all individual installation impacts;</p> <p>5 points – Relative costs in the top 20% (81-100%) of the range for all individual installation impacts;</p>
Risk Probability	Assess the potential risk that this aspect impact poses on the local community and the environment. This is one category to determine the frequency of which this impact could occur to the local community or environment. This category in combination with risk severity will help to identify overall environmental risk.	<p>The following entries are selections found in the EESOH-MIS drop down menu</p> <p>Frequent: Qualitative Definition – Occurs often in the life of the system. Quantitative Definition – Probability of occurrence is greater than one in ten.</p> <p>Likely: Qualitative Definition – Occurs several times in the life of the system. Quantitative Definition – Probability of occurrence is less than one in ten but greater than one in a hundred.</p> <p>Occasional: Qualitative Definition – Will occur in the life of the system. Quantitative Definition – Probability of occurrence is less than one in a hundred but greater than one in a thousand.</p> <p>Seldom: Qualitative Definition – Unlikely, but could occur in the life of the system. Quantitative Definition – Probability of occurrence is less than one in a thousand but more than one in a million.</p> <p>Unlikely: Qualitative Definition – So unlikely you can assume it will not occur in life of the system. Quantitative Definition – Probability of occurrence is less than one in a million.</p>

Screen Name	Definition	Shop Data Entry
Risk Severity	The potential risk for an aspect is the impact it has on the local community and the environment in the worst case scenario. This in combination with risk probability will help to define the environmental risk.	The following definitions are used to describe the severity of consequences likely to result from the worst-case scenario impact. Catastrophic: Irreversible or extreme damage to a natural environment or loss of a critical natural habitat, natural resource or cultural resource. Replacement costs exceeding \$100,000, death, or permanent total disability to an individual. Critical: Reversible damage to a natural environment, major degradation to a critical natural habitat, natural resource or cultural resource. Replacement cost exceeding \$50K but less than \$100K. Permanent partial disability or severe injury or occupational illness that may result in hospitalization of at least one person. Reversible environmental damage causing a violation of law or regulation. Marginal: Minor reversible damage to a natural environment, natural habitat, natural resource or cultural resource. Loss exceeding \$10K but less than \$50K, injury or minor occupational illness resulting in a lost work day, or environmental damage where restoration activities can be accomplished without violation of law or regulation. Negligible: Less than minor environmental degradation, loss exceeds \$2K but less than \$10K, injury or occupational illness not resulting in a lost work day, or minimal environmental damage not violating law or regulation.
Regulatory Implications	Each aspect that has a relationship to a compliance requirement needs to be evaluated with a regulatory score.	1 point: Unregulated Aspect 2 points: Currently below regulated thresholds – Currently below regulated thresholds; would likely become regulated if thresholds are reduced or activity increases. 3 points: Currently in compliance – Currently in compliance with no history of non-compliance. 4 points: Not in Compliance no enforcement actions– Currently in compliance, but with a documented history of occasional instances on non-compliance. 5 points: Not in compliance with NOV issued– Currently not in compliance or in compliance with a substantial history of instances of non-compliance.
Potential Mission Degradation	This score is the ability of the aspect to affect the mission capability of supporting its mission requirements. Review each aspect and score to determine its ability to affect the mission.	1 = No mission restrictions 2 = Minor mission restrictions 3 = Moderate mission restrictions 4 = Serious mission restrictions 5 = Unable to accomplish mission
Community Concern	This criterion scores the local community's perception of environmental issues at your installation. The community perception of a crisis can seriously affect the installations ability to support the mission.	1 = Community supports/ unconcerned 2 = Community could become concerned 3 = Some concern 4 = Serious concern 5 = Public outcry / lawsuits
Calculated Aspect Score	EESOH-MIS combines the scores from all the criteria in the previous sections to provide a total score for	These scores help to define which aspects are significant for an installation. Some of the criteria may have more weight than other depending on the location of the installation, its

Screen Name	Definition	Shop Data Entry
	the aspect. The score can help to define the significance of the aspect.	compliance history, and relationship with the public. Do not forget that both Environmental Risk and Frequency are combined in a matrix to give a single score for each criterion.
Override Score	There is an opportunity for an ESOH team member to review the score set by shop personnel and copy or update the shop personnel's evaluation with an override score based on the ESOH team member's evaluation.	Provide the override score in the field based on the overall score from the ESOH reviewer for this processes aspect that is reviewed.
Override Reason	Text box available for entry of an override reason if the ESOH reviewers feel that it is necessary to load new scores against an environmental aspect.	
Is this a Significant Aspect?	There is a baseline score that should be identified at the installation by the Cross Functional Team that determines when an Aspect is significant and will be studied further.	Yes no radio
Objective	Objectives are the issues that will be the focus of the energies of the installation.	Type in the specific objective that is related to the Aspect that has been scored for this process. An example would be something like "Reduce air emissions"
Targets	The Target is the goal or milestone that is established to support the objective.	Type in the specific target that is related to the Aspect that has been scored for this process. An example of a target would be something like "Provide training to all shops that operate generators on maintaining usage logs by December 2006"

ATTACHMENT 3 - PROCESS CODES

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
A	Administrative	AD	Administrative	1104	Calculator/key pad use
				1172	Clerical and office automation
				1250	Computer use, multiple operations
				1251	Computer use, NOC
				1252	Computer use/keyboard and VDT
				1263	Copying/sorting
				1456	Filing/general
				1591	Keying/typing/mousing
				1614	Lifting/pushing/pulling
				1637	Management
				1707	Monitoring visual displays
				1756	Paper shredding
				1945	Stapling
				2043	Telephone use
				2149	Writing/illustrating
				1028	Administrative, NOC
I	Industrial	AB	Adhering/Bonding/Sealing	1021	Adhering/bonding/sealing - aerosol
				1022	Adhering/bonding/sealing - all usages
				1023	Adhering/bonding/sealing - brush/dobbing
				1024	Adhering/bonding/sealing - gun
				1025	Adhering/bonding/sealing - hand tool
				1026	Adhering/bonding/sealing - hand wipe
				1027	Adhering/bonding/sealing - squeeze tube
I	Industrial	AO	Aircraft/Flightline Operations	1033	Air traffic control
				1034	Aircraft loading
				1276	Cryogenics (liquid oxygen handling)
				1320	Deicing, chemical
				1321	Deicing, mechanical- hand
				1322	Deicing, mechanical- powered
				1425	Engine Run-Ups
				1471	Flight line operations
				1472	Flight line operations, multiple operations
				1473	Flight line operations, troubleshooting
				1474	Flight Ops, all modes
				1475	Flight Ops, landings
				1476	Flight Ops, takeoffs
				1477	Flight Ops, taxi

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1603	Launch and recovery
				1697	Mk105 sled operation
				1746	Operate support equipment
				2072	Unmanned aerial vehicle ops
				1035	Aircraft/flightline operations, NOC
I	Industrial	AW	Asbestos Work	1050	Asbestos abatement, blasting
				1051	Asbestos abatement, chemical encapsulation
				1052	Asbestos abatement, glovebag/box
				1053	Asbestos abatement, physical enclosure
				1054	Asbestos abatement, scraping
				1055	Asbestos abatement, stripping
				1056	Asbestos air sampling
				1057	Asbestos air sampling, background
				1058	Asbestos brake/clutch work
				1059	Asbestos fiber counting/identification
				1060	Asbestos gasket work
				1061	Asbestos inspection
				1062	Asbestos inspection and bulk sampling
				1063	Asbestos insulation, multiple operations
				1064	Asbestos work, fabrication
				1066	Asbestos, HEPA vacuum maintenance
				1067	Asbestos, installation
				1137	Class I OSHA asbestos work, glove box
				1138	Class I OSHA asbestos work, mini-enclosure
				1139	Class I OSHA asbestos work, multiple glove bag
				1140	Class I OSHA asbestos work, negative pressure enclosure
				1141	Class I OSHA asbestos work, single glove bag
				1142	Class I OSHA asbestos work, water spray process
				1143	Class II OSHA asbestos work
				1144	Class III OSHA asbestos work, glove bag
				1145	Class III OSHA asbestos work, mini-enclosure
				1146	Class IV OSHA asbestos work, building maintenance
				1527	Handling/cleanup, asbestos
				1525	Handling, mechanical loader bagging
				1654	Mechanical loader bagging
				1732	Non-containment removal
				1753	Packing material
				2063	Transite panel removal
				2092	Vinyl asbestos tile, floor care/maintenance

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1065	Asbestos work, NOC
I	Industrial	BC	Brazing/Soldering/Welding/ Cutting	1101	Brazing
				1289	Cutting, air carbon arc
				1290	Cutting, arc
				1291	Cutting, electron beam
				1292	Cutting, laser
				1293	Cutting, multiple operations
				1295	Cutting, oxygen/oxyacetylene
				1296	Cutting, plasma
				1297	Cutting, thermal
				1294	Cutting, NOC
				1346	Desoldering
				1555	Hotwork helper/firewatch
				1934	Soldering, electrical
				1935	Soldering, gun
				1936	Soldering, heated iron
				1938	Soldering, torch
				1937	Soldering, NOC
				2049	Tinning
				2124	Welding, air carbon arc
				2125	Welding, arc
				2126	Welding, electron beam
				2127	Welding, flux core processes
				2128	Welding, gas metal arc (MIG)
				2129	Welding, gas tungsten arc welding (TIG)
				2130	Welding, laser
				2131	Welding, multiple operations
				2133	Welding, oxyfuel gas
				2134	Welding, plasma arc
				2135	Welding, resistance spot
				2136	Welding, shielded metal arc welding (smaw/stick)
				2137	Welding, solid state
				2138	Welding, spot
				2139	Welding, stud
				2132	Welding, NOC
I	Industrial	CT	Cementing and Related Tasks	1103	Brick cutting
				1119	Cement/mortar mixing
				1120	Cementing and related tasks, multiple operations

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1652	Masonry
				1121	Cementing and related tasks, NOC
I	Industrial	CD	Cleaning- Chemical, & Degreasing	1013	Acid cleaning, bright dip
				1014	Acid cleaning, descaling
				1015	Acid cleaning, etching
				1016	Acid cleaning, pickling
				1017	Acid cleaning, spray
				1018	Acid cleaning, wipe
				1036	Alkali cleaning, etching
				1134	Chemical stripping
				1150	Cleaning, chemical
				1151	Cleaning, chemical, manual wiping
				1152	Cleaning, chemical, multiple operations
				1167	Cleaning/washing, cold dip tank & cold soak
				1168	Cleaning/washing, detergent
				1169	Cleaning/washing, enclosed washer
				1170	Cleaning/washing, flush cleaning
				1171	Cleaning/washing, heated dip tank/heated soak
				1301	Degreasing, brush/dobbing
				1302	Degreasing, dip tank, cold
				1303	Degreasing, dip tank, heated
				1304	Degreasing, emulsion
				1305	Degreasing, flush cleaning
				1306	Degreasing, gun
				1307	Degreasing, manual wiping
				1308	Degreasing, multiple operations
				1309	Degreasing, NOC
				1310	Degreasing, open-top vapor
				1311	Degreasing, power wash
				1312	Degreasing, spray
				1313	Degreasing, squeeze tube
				1314	Degreasing, vapor
				1315	Degreasing, wipe cleaning
					Degreasing, aerosol
I	Industrial	CL	Cleaning- Mechanical	1084	Barrel finishing
				1541	Handsanding
				1645	Manual wirebrushing
				1661	Metal cleaning, chipping

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1662	Metal cleaning, deck crawler
				1663	Metal cleaning, grinding
				1664	Metal cleaning, multiple operations
				1665	Metal cleaning, polishing and buffing
				1666	Metal cleaning, sanding
				1667	Metal cleaning, scraping
				1668	Metal cleaning, wirebrushing
				1810	Polishing, machine assisted
				1811	Polishing, manual
				1149	Cleaning- mechanical, NOC
I	Industrial	CO	Cleaning- Other	1153	Cleaning, other - all usages
				1154	Cleaning, other - gun
				1155	Cleaning, other - hand
				1156	Cleaning, other- hand sanding
				1157	Cleaning, other - hand wipe
				1158	Cleaning, other- compressed air
				1159	Cleaning, other- manual wirebrushing
				1160	Cleaning, other- media blasting
				1161	Cleaning, other- multiple operations
				1163	Cleaning, other- powered
				1164	Cleaning, other- scraping
				1165	Cleaning, other- steam
				1166	Cleaning, other- ultrasonic cleaning
				1162	Cleaning, other- NOC
I	Industrial	CR	Coating/Paint Removal	1001	Abrading
				1002	Abrasive blast, aluminum oxide
				1003	Abrasive blast, cleanup
				1004	Abrasive blast, glass bead
				1005	Abrasive blast, glove box, NOC
				1006	Abrasive blast, hopper tending/helper
				1007	Abrasive blast, hydro
				1008	Abrasive blast, mineral grit
				1009	Abrasive blast, organics
				1010	Abrasive blast, sand
				1011	Abrasive blast, shot
				1012	Abrasive blasting, NOC
				1178	Coating/paint removal, chemical stripping, dip
				1179	Coating/paint removal, chemical stripping, pour
				1180	Coating/paint removal, chemical stripping, spraying

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1181	Coating/paint removal, chemical stripping, wipe/brush
				1183	Coating/paint removal, heat gun
				1184	Coating/paint removal, laser
				1182	Coating/paint removal, hand sanding/scraping
				1185	Coating/paint removal, machine sanding/scraping
				1186	Coating/paint removal, needlegunning
				1188	Coating/paint removal, thermal stripping
				1187	Coating/paint removal, NOC
I	Industrial	CP	Coating/Painting Operations	1192	Coating/painting, brush/roller
				1175	Coating, powder
				1176	Coating, wipe
				1177	Coating/paint mixing/pouring
				1190	Coating/painting, airbrushing
				1191	Coating/painting, airless spraying
				1192	Coating/painting, brush/roller
				1193	Coating/painting, cleaning equipment
				1194	Coating/painting, dip
				1194	Coating/painting, dip
				1195	Coating/painting, electrophoretic
				1196	Coating/painting, multiple operations
				1196	Coating/painting, multiple operations
				1197	Coating/painting, plastic flame coating
				1202	Coating/painting, spray/aerosol
				1202	Coating/painting, spray/aerosol
				1198	Coating/painting, spray - electrostatic automatic
				1199	Coating/painting, spray - electrostatic manual
				1200	Coating/painting, spray - HVLP gun
				1201	Coating/painting, spray - standard gun
				1253	Conformal
				1651	Masking/Surface Prep
				1754	Painting, spray latex
				1189	Coating/painting operations, NOC
I	Industrial	CM	Communications	1225	Communications, equipment operation
				1226	Communications, microwave and radio frequencies
				1227	Communications, multiple operations
				1229	Communications, teletype operation
				1249	Computer room operation
				1228	Communications, NOC

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
I	Industrial	CW	Composite Work	1230	Composite work, cutting
				1231	Composite work, drilling
				1232	Composite work, grinding/sanding
				1233	Composite work, handling
				1234	Composite work, layup- hand
				1235	Composite work, layup- spray
				1236	Composite work, man-made fibers
				1237	Composite work, mixing
				1238	Composite work, molding of parts
				1239	Composite work, multiple operations
				1241	Composite work, remove paint- blast
				1242	Composite work, remove paint- grind
				1243	Composite work, remove paint- needlegun
				1244	Composite work, remove paint/sand
				1240	Composite work, NOC
I	Industrial	CF	Crafts	1048	Artifact restoration/preservation
				1122	Ceramics work
				1271	Crafts, multiple operations
				1509	Glass blowing
				1510	Glass cutting
				1511	Glazing
				1592	Kilning
				1272	Crafts, NOC
I	Industrial	DE	Dental	1324	Dental equipment sterilization
				1325	Dental, acid etching teeth
				1326	Dental, anesthesia
				1327	Dental, blasting
				1328	Dental, cement application
				1329	Dental, cleaning
				1330	Dental, filling/drilling
				1331	Dental, general
				1332	Dental, grinding
				1333	Dental, housekeeping services
				1334	Dental, laboratory analysis
				1335	Dental, mixing
				1336	Dental, multiple operations
				1337	Dental, NOC
				1338	Dental, prophylaxis
				1339	Dental, prosthetics casting
				1340	Dental, prosthetics grinding
				1341	Dental, prosthetics/acrylics

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1342	Dental, tooth extraction
				1344	Dental, x-rays
				1343	Dental, x-ray processing
				1423	Endodontics
				1747	Oral surgery
				1750	Orthodontics
				1950	Sterilization
				1956	Sterilization, using EtO
				1337	Dental, NOC
I	Industrial	DP	Drywall/Plastering	1385	Drywall installation
				1589	Joint compound, mix & apply
				1796	Plastering
				1797	Plastering, multiple operations
				1386	Drywall/Plastering, NOC
I	Industrial	EE	Electrical/Electronics	1077	Avionics equipment repair
				1395	Electrical, facility maintenance
				1398	Electrical, multiple operations
				1391	Electrical parts repair
				1393	Electrical, battery charging
				1394	Electrical, battery maintenance
				1396	Electrical, installation/repair
				1397	Electrical, motor rewind
				1399	Electrical, NOC
				1401	Electronics repair, pressurizing waveguide
				1402	Electronics repair, calibration, manometric
				1403	Electronics repair, calibration, other
				1404	Electronics repair, calibration, RFR equipment
				1405	Electronics repair, installation repair
				1406	Electronics repair, multiple operations
				1408	Electronics repair, operate equipment
				1407	Electronics repair, NOC
				1648	Manufacturing, circuit board
				2042	Telecommunications installation, repair, service
I	Industrial	EL	Electroplating	1409	Electroplating, brush/dobbing
				1410	Electroplating, dip tank
				1411	Electroplating, mixing/pouring solutions
				1413	Electroplating, spray - flame
				1414	Electroplating, spray - plasma
				1415	Electroplating, vaporization

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1903	Selective plating
				1412	Electroplating, NOC
				1583	Jet engine testing, afterburner
				1584	Jet engine testing, all modes
				1585	Jet engine testing, approach
				1586	Jet engine testing, idle
				1587	Jet engine testing, intermediate
				1588	Jet engine testing, military
				1426	Engine testing, NOC
I	Industrial	ER	Environmental & Remediation	1031	Air sparging
				1032	Air stripping
				1086	Bio remediation
				1087	Bio venting
				1092	Biomass
				1518	Groundwater monitoring
				1569	Injection wells
				1597	Land farming
				1819	Prescribed/controlled burns
				1840	Pump & treat
				1864	Remediation monitoring
				1932	Soil reclamation
				1933	Soil vapor extraction
				1430	Environmental remediation, NOC
I	Industrial	EV	Environmental Response	1088	Biological response, contamination reduction zone (decon)
				1089	Biological response, exclusion zone
				1091	Biological response, support zone
				1090	Biological response, NOC
				1130	Chemical response, contamination reduction zone (decon)
				1131	Chemical response, exclusion zone
				1133	Chemical response, support zone
				1132	Chemical response, NOC
				1737	Oil response, booming
				1738	Oil response, decontamination
				1739	Oil response, dispersant
				1740	Oil response, insitu burning
				1742	Oil response, shoreline cleanup
				1743	Oil response, support activities
				1744	Oil response, VOSS/SORS/Skimming
				1741	Oil response, NOC

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1848	Radiological response, contamination reduction zone (decon)
				1849	Radiological response, exclusion zone
				1851	Radiological response, support zone
				1850	Radiological response, NOC
I	Industrial	EQ	Equipment Repair/Prev. Maintenance	1124	Charging/recharging, closed-loop pressurized
				1125	Charging/recharging, electric current
				1126	Charging/recharging, NOC
				1127	Charging/recharging, R22 leak check
				1424	Engine accessory testing
				1428	Environmental chamber testing
				1429	Environmental cold chambers
				1434	Equipment assembly/disassembly
				1436	Equipment installation, cable pulling
				1437	Equipment installation/removal
				1491	Fuel accessory testing
				1504	Gauge calibration
				1570	Inspecting
				1625	Lubricating, aerosol
				1626	Lubricating, brush/dobbing
				1627	Lubricating, gun
				1628	Lubricating, hand application
				1629	Lubricating, heated dip tank /heated soak
				1630	Lubricating, multiple operations
				1716	NOC, body work
				1717	NOC, brake/gearbox/clutch work
				1719	NOC, electrical/battery
				1718	NOC, crane maintenance
				1720	NOC, elevator/hoist
				1725	NOC, non-asbestos gaskets
				1721	NOC, generators
				1722	NOC, hydraulics
				1723	NOC, life support/survival equipment
				1724	NOC, multiple operations
				1726	NOC, office equipment repair
				1727	NOC, pneudralics
				1728	NOC, prop & rotor
				1729	NOC, tire & wheel
				1822	Preventive maintenance
				1439	Equipment repair/prev. maint., NOC
I	Industrial	FW	Fabric Work	1106	Canvas fabrication/repair

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1173	Cloth impregnation
				1388	Dyeing
				1613	Leather cutting
				1631	Machine sewing
				1905	Sewing and cutting
				2046	Textile/rope cloth manufacturing
				1450	Fabric work, NOC
I	Industrial	FP	Food Preparation/Handling	1080	Baking
				1257	Cooking
				1351	Dishwashing
				1482	Food preparation and handling
				1484	Food service cleanup
				1485	Food serving
				1653	Meat cutting/packing
				1710	Multiple operations
				1751	Oven cleaning
				1899	Scullery work/dishwashing
				1483	Food preparation/handling, NOC
I	Industrial	FU	Fuels	1205	Combusting fuel, AV-gas, internal
				1206	Combusting fuel, coal, external
				1207	Combusting fuel, fuel oil #2/diesel, external
				1208	Combusting fuel, fuel oil #2/diesel, internal
				1209	Combusting fuel, fuel oil #4/kerosene, external
				1210	Combusting fuel, fuel oil #6/heating oil, external
				1211	Combusting fuel, isobutane
				1212	Combusting fuel, JP-10, internal
				1213	Combusting fuel, JP-4, internal
				1214	Combusting fuel, JP-5, internal
				1215	Combusting fuel, JP-7, internal
				1216	Combusting fuel, JP-8, internal
				1217	Combusting fuel, mogas unleaded regular (MUR), internal
				1218	Combusting fuel, natural gas, external
				1219	Combusting fuel, natural gas, internal
				1220	Combusting fuel, propane (LPG), external
				1221	Combusting fuel, propane (LPG), internal
				1222	Combusting starter fluid, internal
				1223	Combusting waste oil, external
				1224	Combusting, dimethyl ether, external
				1353	Dispense/load, pour

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1354	Dispense/load, pump/nozzle
				1355	Dispense/load, rack/arm
				1492	Fuel cell repair, NOC
				1493	Fuel cell, purging/depuddling - air
				1494	Fuel cell, purging/depuddling - ambient air
				1495	Fuel cell, purging/depuddling - pump/blower/misc
				1496	Fuel/defuel aircraft
				1498	Fueling/defueling, non-aircraft
				1499	Fuels distribution
				1500	Fuels lab
				1941	Spilling/mishaps/leaking, equipment
				1501	Fuels, NOC
I	Industrial	HM	HM/HW Handling & Cleanup	1254	Container crushing/puncturing
				1255	Container opening/sampling
				1256	Contaminated materials handling
				1531	Handling/cleanup, issue/receive
				1526	Handling/cleanup, aerosol can crush/puncture
				1535	Handling/cleanup, mixed waste operations
				1538	Handling/cleanup, solvent/metal reclamation
				1539	Handling/cleanup, spill response
				1540	Handling/cleanup, tank cleaning/flushing
				1532	Handling/cleanup, lead shielding
				1534	Handling/cleanup, medical biological and infectious material
				1528	Handling/cleanup, ballast installation
				1529	Handling/cleanup, ballast removal
				1530	Handling/cleanup, filter maintenance
				1536	Handling/cleanup, multiple operations
				1537	Handling/cleanup, PCBs
				1615	Light bulb crushing
				1798	Plastic waste shredder/processor operation
				1816	Pouring
				1861	Recycling/reclaiming, closed-loop
				1862	Recycling/reclaiming, distillation
				1863	Recycling/reclaiming, solvents
				1859	Recycling multiple operations
				1860	Recycling, NOC
				1553	HM/HW handling & cleanup, NOC
I	Industrial	HJ	Housekeeping/Janitorial/Maintenance	1245	Compressed air cleaning
				1452	Facility maintenance, crawl space/attic

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1453	Facility maintenance, general
				1454	Facility maintenance, multiple operations
				1455	Facility maintenance, NOC
				1506	General housekeeping
				1582	Janitorial/custodial, multiple operations
				1821	Pressure wash
				2035	Sweeping
				2142	Wet/dry vacuum operation
				1557	Housekeeping/janitorial, NOC
I	Industrial	HV	HVAC	1030	Air conditioning/refrigeration charging
				1147	Clean ventilation system
				1558	HVAC repair & maintenance
				1559	HVAC, NOC
I	Industrial	HA	Hyperbaric Atmospheres	1710	Multiple operations
				1939	Sonar dome work
				1560	Hyperbaric atmospheres, NOC
I	Industrial	IN	Incinerating	1565	Incineration, multiple chamber
				1566	Incineration, single chamber
I	Industrial	IS	Insulation	1573	Insulation, fabrication
				1574	Insulation, installation
				1575	Insulation, multiple operations
				1577	Insulation, removal
				1635	Man made fibers, multiple operations
				1636	Man made fibers, patching
				1640	Man-made fibers, fabrication
				1641	Man-made fibers, installation
				1643	Man-made fibers, removal
				1642	Man-made fibers, NOC
				1576	Insulation, NOC
I	Industrial	LO	Laboratory Operations	1040	Analysis, biological
				1041	Analysis, chemical
				1042	Analysis, environmental or occupational
				1347	Destructive testing
				1381	Drug testing
				1710	Multiple operations
				1790	Physical testing
				1834	Propulsion laboratory
				1839	Protocol research
				1843	Radiation research
				1847	Radiological analysis
				1865	Research and development

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1866	Research and development, NOC
				1594	Laboratory operations, NOC
I	Industrial	LS	Laundry Services	1382	Dry cleaner maintenance
				1383	Dry cleaning
				1604	Laundry services, multiple operations
				1618	Linen exchange
				1619	Linen folding
				1942	Spot removal
				1948	Steam pressing/ironing
				2097	Washer/dryer/pressing operation
				1605	Laundry services, NOC
I	Industrial	LA	Lead Paint Abatement	1533	Handling/cleanup, lead-based paint
				1607	Lead abatement, all methodologies
				1608	Lead abatement, blasting
				1609	Lead abatement, encapsulating
				1610	Lead abatement, scraping
				1611	Lead abatement, stripping
I	Industrial	MD	Medical	1037	Ambulance drivers/EMT
				1043	Anatomical specimen preservation
				1045	Anesthesia
				1100	Brace fabrication
				1109	Cast cutting
				1110	Cast fabrication
				1203	Collection of body fluid/waste samples
				1269	Corrective lens edging
				1270	Corrective lens manufacturing
				1282	Cryotherapy
				1420	Embalming
				1422	Emergency room services
				1524	Handling medical waste
				1556	Housekeeping services
				1563	Immunizations
				1593	Lab analysis
				1647	Manufacture of orthotic devices
				1655	Medical maintenance/optics repair
				1656	Medical, general or operations
				1657	Medical, multiple operations
				1659	Medical, radiology procedures, NOC
				1660	Medical, x-rays
				1734	Nuclear procedures/medicine

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1735	Occupational/physical therapy
				1758	Pathology lab/morgue
				1759	Patient care
				1760	Patient handling
				1761	Patient records
				1782	Pharmaceutical mixing/dispensing
				1783	Phlebotomy
				1835	Prosthetics work
				1868	Respiratory therapy
				1940	Specimen testing
				1951	Sterilization, chemical
				1952	Sterilization, EtO
				1954	Sterilization, oven/autoclave
				1955	Sterilization, ultrasonic
				1953	Sterilization, NOC
				2034	Surgical procedures
				2050	Tissue conference
				2051	Tissue disposal
				2052	Tissue/organ grossing
				1658	Medical, NOC
I	Industrial	MF	Metal Forming	1670	Metal forming, bending
				1671	Metal forming, crimping
				1672	Metal forming, drawing
				1673	Metal forming, extrusion
				1674	Metal forming, multiple operations
				1676	Metal forming, peening
				1677	Metal forming, squeezing
				1678	Metal forming, twisting
				1675	Metal forming, NOC
I	Industrial	MO	Metal Foundry Operations	1108	Cast cleaning/finishing
				1111	Casting, arc furnace
				1112	Casting, crucible furnace
				1113	Casting, cupola
				1114	Casting, furnace melting
				1115	Casting, induction furnace
				1116	Casting, open hearth
				1148	Cleaning and finishing
				1264	Coremaking, hot box system
				1265	Coremaking, no bake
				1266	Coremaking, shell
				1267	Coremaking, sodium silicate

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1488	Foundry operations, babbiting
				1489	Foundry operations, multiple operations
				1486	Forging
				1502	Furnance operation
				1612	Lead pouring operation
				1646	Manufacture of foundry items
				1681	Metal mold shakeout
				1682	Metal molding
				1698	Molding, full mold
				1699	Molding, green sand
				1701	Molding, investment casting
				1703	Molding, shell
				1705	Molten metal pouring
				1886	Sand casting
				1906	Shakeout
				1929	Small melt/pour operations
				2061	Transfer/pouring/cooling
				1490	Foundry operations, NOC
I	Industrial	MM	Metal Machining	1288	Cutting, abrasive blast method
				1367	Drilling and boring
				1400	Electro-discharge
				1515	Grinding
				1554	Honing
				1624	Locksmith
				1632	Machining, shear
				1679	Metal machining, multiple operations
				1679	Metal machining, multiple operations
				1679	Metal machining, multiple operations
				1679	Metal machining, multiple operations
				1685	Metals/plastic engraving
				1690	Milling
				1791	Piercing or punching
				1792	Pipe threading
				1871	Riveting
				1898	Sawing
				1907	Shaping
				1907	Shaping
				1907	Shaping
				1926	Slotting
				2068	Turning
				1680	Metal machining, NOC

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
I	Industrial	MT	Metals Treatment	1543	Heat treating/hardening, annealing
				1544	Heat treating/hardening, carburizing
				1545	Heat treating/hardening, cyaniding
				1546	Heat treating/hardening, gas nitriding
				1547	Heat treating/hardening, multiple operations
				1549	Heat treating/hardening, quenching
				1548	Heat treating/hardening, NOC
				1669	Metal etching
				1684	Metals treatment, NOC
I	Industrial	MI	Miscellaneous Operations	1117	Cathodic/anodic protection
				1118	Cathodic/anodic protection, zinc anode work
				1128	Chemical milling/masking
				1129	Chemical processing, NOC
				1129	Chemical processing, NOC
				1259	Cooling, cryogenics
				1260	Cooling, evaporative tower
				1261	Cooling, heat exchanger
				1258	Cooling maintenance
				1262	Cooling, natural convection
				1274	Crushing, manual
				1275	Crushing, mechanical
				1277	Cryogenics handling/transport
				1278	Cryogenics production
				1279	Cryogenics storage
				1280	Cryogenics, multiple operations
				1281	Cryogenics, NOC
				1284	Curing/Drying/Baking, autoclave
				1285	Curing/Drying/Baking, dryer
				1286	Curing/Drying/Baking, oven
				1300	Decontamination
				1356	Disposing/recycling, bulk
				1357	Disposing/recycling, container
				1358	Disposing/recycling, labpack
				1359	Disposing/recycling, NOC
				1438	Equipment monitoring
				1521	Haircutting/cosmetology, cutting hair
				1522	Haircutting/cosmetology, multiple operations
				1523	Haircutting/cosmetology, NOC
				1580	Ionizing radiation source use

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1600	Laser operations, chemical
				1601	Laser operations, optical
				1634	Mailroom operations
				1692	Miscellaneous, multiple operations
				1712	Nail salon processes
				1730	Noise hazardous equipment use
				1731	Non permit confined space entry
				1766	Permit required confined space entry
				1807	Pneumatic tool operation
				1845	Radiofrequency radiation (RFR) use
				1854	Rap job
				1869	Retail sales
				1892	Sanitation landfill operation
				1919	Shoe repair
				2030	Suit testing
				2066	Trash compacting
				2143	Wind tunnel testing
				1567	Industrial, NOC
				1567	Industrial, NOC
				1904	Service, NOC
				1904	Service, NOC
				2044	Testing, hazardous waste
				2045	Testing, NOC
I	Industrial	NC	NOC	1715	NOC
I	Industrial	ND	Non-Destructive Inspection/Testing	1019	Acid spot testing
				1020	Acoustical emission test
				1599	Laser inspection/test
				1620	Liquid penetrant test
				1633	Magnetic particle test
				1710	Multiple operations
				1757	Patch test
				1846	Radiography
				2069	Ultrasonic test
				2093	Visual inspection
				2122	Weight test
				1733	Non-destructive inspection/testing, NOC
I	Industrial	PC	Pest Control	1767	Pest control, aerosol can spray
				1768	Pest control, baiting/trapping
				1769	Pest control, fogging
				1770	Pest control, fumigation
				1771	Pest control, indoor

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1772	Pest control, multiple operations
				1774	Pest control, powder application
				1775	Pest control, power spraying from vehicle
				1776	Pest control, sprayer, hand-pump
				1777	Pest control, sprayer, powered
				1778	Pest control, spreader
				1779	Pesticide disposal
				1780	Pesticide mixing
				1781	Pesticide storage
				1773	Pest control, NOC
I	Industrial	PH	Photography/Graphic Arts	1427	Engraving
				1459	Film developing, automatic
				1460	Film developing, manual
				1461	Film processor chemical mixing
				1299	Decal manufacture
				1513	Graphic arts equipment cleaning
				1514	Graphics development
				1562	Illustration
				1621	Lithographics/photolithography
				1785	Photoetching
				1786	Photography equipment cleaning
				1923	Silk screening
				1949	Stenciling
I	Industrial	PP	Plastics/Rubber Processing	1787	Photography/graphic arts, NOC
				1283	Curing
				1287	Cutting
				1345	Depotting
				1366	Drilling
				1449	Extruding
				1479	Foaming
				1512	Gluing
				1515	Grinding
				1542	Heat sealing
				1542	Heat sealing
				1551	Helmet pour
				1596	Laminating
				1691	Milling/machining/engraving
				1693	Mixing, machine-assisted
				1694	Mixing, manual
				1700	Molding, injection
				1702	Molding, pour

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1793	Plaque pour
				1800	Plastisol
				1809	Polishing and buffing
				1815	Potting
				1826	Processing, multiple operations
				1887	Sanding
				1799	Plastics/rubber processing, NOC
I	Industrial	PL	Plumbing	1803	Plumbing, minor facility maintenance
				1802	Plumbing installation/repair
				1802	Plumbing installation/repair
				1804	Plumbing, multiple operations
				1806	Plumbing, transite water pipe
				1805	Plumbing, NOC
I	Industrial	PR	Printing/Reproduction	1038	Ammonia reproduction machine operation
				1085	Binding
				1093	Blueprint developing, Diazo/Blueline machine
				1204	Color printing
				1361	Document preparation
				1435	Equipment cleaning
				1736	Offset printing
				1745	Operate equipment
				1784	Photocopying/reproduction
				1824	Printing, multiple operations
				1875	Rotogravature
				1825	Printing/reproduction, NOC
I	Industrial	PT	Professional/Technical	1248	Computer operations
				1431	Environmental surveys
				1481	Food inspections
				1572	Inspections
				1595	Laboratory, chemical analysis/sampling
				1638	Management, multiple operations
				1639	Management, NOC
				1686	Microscope use
				1706	Monitoring
				1711	Musical performance
				1823	Preventive medicine services
				1827	Production control
				1830	Professional and technical, multiple operations
				1831	Professional, tech and mgmt
				1833	Project/process review

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1841	QA/product control
				1867	Respirator fit testing
				1876	Safety/industrial hygiene surveys
				1877	Sampling air
				1878	Sampling asbestos
				1879	Sampling drinking water
				1880	Sampling hazardous waste
				1881	Sampling lead
				1885	Sampling, remediation
				1882	Sampling storm water
				1883	Sampling waste water
				1884	Sampling, NOC
				1924	Simulator training
				2031	Supervision
				2040	Teaching/training
				2148	Workplace monitoring/measurements
				1832	Professional/technical, NOC
				1832	Professional/technical, NOC
I	Industrial	PF	Protective Services-Fire	1457	Filling fire extinguishers
				1458	Filling SCBA tanks
				1464	Firefighting
				1465	Firefighting training
				1462	Fire training pit, JP-8
				1463	Fire training pit, propane
				1838	Protective services, fire, NOC
I	Industrial	PS	Protective Services-Security	1268	Correctional facility operations
				1362	Document shredding
				1363	Dog handling
				1421	Emergency response
				1466	Firing range cleaning
				1467	Firing range pit cleaning
				1467	Firing range pit cleaning
				1468	Firing range supervision
				1519	Guard operations
				1762	Patrolling, bicycle
				1763	Patrolling, foot
				1764	Patrolling, vehicle
				1872	Road patrols/guard duty
				1902	Security, multiple operations
				1927	Small arms cleaning
				1928	Small arms firing

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				2041	Tear gas exercises
				1837	Protective services- security, NOC
I	Industrial	RS	Recreation/Services	1099	Bowling alley operation/maintenance
				1105	Campground operation/maintenance
				1520	Gym/recreational equipment maintenance
				1789	Physical fitness training
				1856	Recreation
				1925	Ski area operation/maintenance
				2036	Swimming pool operation/maintenance
				1857	Recreation/Services, NOC
I	Industrial	RG	Roads & Grounds Maintenance	1316	Deicing runway/road, chemical
				1317	Deicing runway/road, mechanical - hand
				1318	Deicing runway/road, mechanical - powered
				1319	Deicing runway/road, salting and sanding
				1348	Digging/excavating, machine
				1350	Digging/excavating, tool-powered
				1349	Digging/excavating, tool-hand
				1349	Digging/excavating, tool-hand
				1441	Excavating/grading
				1516	Grounds maintenance, multiple operations
				1517	Grounds maintenance, NOC
				1550	Heavy equipment operation
				1581	Jackhammering
				1606	Lawn maintenance
				1709	Mower operation
				1765	Paving
				1765	Paving
				1931	Snow removal
				2008	Street sweeping
				2067	Tree maintenance
				1873	Roads and grounds maintenance, NOC
I	Industrial	SM	Semiconductor Manufacturing	1135	Chemical vapor deposition
				1384	Dry etching
				1392	Electrical testing
				1579	Ion implantation
				1650	Mask making
				1683	Metallization
				1704	Molecular beam epitaxy
				1788	Photolithography (semiconductor)
				1794	Plasma etching
				2039	Tab assembly

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				2094	Wafer cutting
				2141	Wet etching
I	Industrial	SH	Stone/Mineral Handling	1842	Quarry work
				1957	Stone, mineral handling, cutting
				1958	Stone, mineral handling, drilling
				1959	Stone, mineral handling, installation
				1960	Stone, mineral handling, multiple operations
				1962	Stone, mineral handling, removal
				1961	Stone, mineral handling, NOC
I	Industrial	ST	Storage of Materials	1247	Compressed gas service
				1964	Storing, ASTs- chemical
				1965	Storing, ASTs- fuel AV gas
				1966	Storing, ASTs- fuel commingled
				1976	Storing, ASTs- fuel oil #2/diesel
				1977	Storing, ASTs- fuel oil #4/kerosene
				1978	Storing, ASTs- fuel oil #6/heating oil
				1967	Storing, ASTs- fuel isobutane
				1968	Storing, ASTs- fuel JP-10
				1969	Storing, ASTs- fuel JP-4
				1970	Storing, ASTs- fuel JP-5
				1971	Storing, ASTs- fuel JP-7
				1972	Storing, ASTs- fuel JP-8
				1973	Storing, ASTs- fuel liquid propane (LPG)
				1974	Storing, ASTs- fuel mogas unleaded regular (MUR)
				1975	Storing, ASTs- fuel natural gas
				1979	Storing, ASTs- fuel PF1
				1980	Storing, ASTs- hazardous waste
				1981	Storing, ASTs- materials
				1982	Storing, ASTs- waste oil
				1983	Storing, chemical
				1984	Storing, fuels/waste oil
				1985	Storing, hazardous waste
				1986	Storing, materials
				1987	Storing, sludge
				1988	Storing, storage piles
				1989	Storing, used oil
				1990	Storing, USTs- chemicals
				1991	Storing, USTs- fuel AV gas
				1992	Storing, USTs- fuel commingled
				2001	Storing, USTs- fuel oil #2/diesel

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				2002	Storing, USTs- fuel oil #4/kerosene
				2003	Storing, USTs- fuel oil#6/heating oil
				1993	Storing, USTs- fuel JP-10
				1994	Storing, USTs- fuel JP-4
				1995	Storing, USTs- fuel JP-5
				1996	Storing, USTs- fuel JP-7
				1997	Storing, USTs- fuel JP-8
				1998	Storing, USTs- fuel liquid propane (LPG)
				1999	Storing, USTs- fuel mogas unleaded regular (MUR)
				2000	Storing, USTs- fuel natural gas
				2004	Storing, USTs- fuel PF1
				2005	Storing, USTs- fuel waste oil
				2006	Storing, USTs- hazardous waste
				2007	Storing, USTs- materials
				2070	Underground storage tank testing
				1963	Storage of materials, NOC
I	Industrial	SX	Structure Demolition	2009	Structure demolition, ceiling tile removal
				2010	Structure demolition, floor tile removal
				2011	Structure demolition, machine assisted
				2012	Structure demolition, manual
				2013	Structure demolition, mastic removal
				2014	Structure demolition, multiple operations
				2016	Structure demolition, roof removal
				2017	Structure demolition, siding removal
				2018	Structure demolition, thermal system insulation removal
				2015	Structure demolition, NOC
				2015	Structure demolition, NOC
I	Industrial	SF	Structure Fabrication/Renovation	1713	Nailing
				1898	Sawing
				1505	General construction
				1505	General construction
				2019	Structure fabrication/renovation, ceiling installation
				2020	Structure fabrication/renovation, ceiling repair
				2021	Structure fabrication/renovation, floor
				2022	Structure fabrication/renovation, multiple operations
				2025	Structure fabrication/renovation, roofing repair
				2027	Structure fabrication/renovation, thermal system insulation removal/repair
				2028	Structure fabrication/renovation, transite

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
					panel removal
				2029	Structure fabrication/renovation, wharf building
				2024	Structure fabrication/renovation, powder actuated tool
				2026	Structure fabrication/renovation, structure lock/door
				2023	Structure fabrication/renovation, NOC
I	Industrial	SP	Supplies/Materials Handling	1068	Assemble/disassemble, bolting/screwing
				1070	Assemble/disassemble, prying
				1071	Assemble/disassemble, tool - manual
				1072	Assemble/disassemble, tool - powered
				1073	Assemble/disassemble, turning
				1074	Assemble/disassemble, wrenching
				1069	Assemble/disassemble, NOC
				1078	Bagging
				1082	Banding/unbanding
				1083	Bar code scanning
				1273	Crane operation
				1480	Foam-in-place packaging
				1622	Loading/unloading
				1644	Manual lifting
				1487	Forklift operation
				1752	Packaging
				1755	Palletizing
				1870	Rigging
				1918	Shipping
				2032	Supply and materials handling, multiple operations
				2053	Tool and parts issue
				2095	Warehousing, manual
				2096	Warehousing, mechanical
				2033	Supply and materials handling, NOC
I	Industrial	TS	Thermal Spraying	1389	Electric arc spraying
				1470	Flame spraying
				1552	High velocity oxyfuel (HVOF) spraying
				1795	Plasma spraying
				2047	Thermal spraying, multiple operations
				2048	Thermal spraying, NOC
I	Industrial	TR	Transportation	1352	Dispatching
				1374	Driving, paved roads
				1375	Driving, taxi/bus
				1376	Driving, tractor trailer

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1377	Driving, truck
				1378	Driving, unpaved roads
				1852	Railroad track maintenance
				1853	Railroad yard operations
				1930	Small watercraft operation
				2060	Train operation
				2064	Transportation, multiple operations
				2065	Transportation, NOC
I	Industrial	UT	Utility Production/Distribution	1079	Baghouse maintenance/overhaul
				1094	Boiler ash removal
				1095	Boiler cleaning
				1096	Boiler plant operation
				1097	Boiler repair
				1098	Boiler water treatment
				1136	Chiller plant operation
				1174	Coal conveyor maintenance
				1246	Compressed air/breathing air distribution
				1390	Electrical distribution
				1438	Equipment monitoring
				1440	ESP maintenance/cleaning
				1503	Gas distribution
				1507	Generator and heating plant operation
				1508	Generator testing/operation
				1828	Production/dist. of utilities, multiple operations
				1909	Ship/shore connection
				1943	Stack cleaning
				1946	Steam line repair
				1947	Steam pit maintenance
I	Industrial	VM	Vehicle Maintenance	2062	Transformer repair/maintenance
				1829	Production/distribution of utilities, NOC
				2078	Vehicle repair, multiple operations
				2078	Vehicle repair, multiple operations
				2076	Vehicle repair, brake work
				2077	Vehicle repair, clutch work
				2073	Vehicle body repair, NOC
				2079	Vehicle testing/tuning
				2080	Vehicle tire repair
I	Industrial	VS	Veterinary Services/Animal Care	2075	Vehicle radiator repair, NOC
				2074	Vehicle maintenance, NOC
				1046	Animal care, multiple operations

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1047	Animal care, NOC
				1045	Anesthesia
				2091	Veterinary surgical procedures
				2090	Veterinary services, NOC
I	Industrial	WW	Water/Wastewater Plant Operations	1371	Drinking water system, operation and maintenance
				1372	Drinking water treating, chemical
				1373	Drinking water treating, mechanical
				2037	Swimming pool water treating, chemical
				2038	Swimming pool water treating, mechanical
				2098	Wastewater pre-treatment, chemical
				2099	Wastewater pre-treatment, mechanical
				2104	Wastewater/sanitary sewer operation and maintenance
				2100	Wastewater treatment, chemical
				2101	Wastewater treatment, mechanical
				2102	Wastewater treatment, multiple operations
				2103	Wastewater treatment, NOC
				2106	Water treatment, chlorination/bromination/other
				2107	Water treatment, multiple operations
				2108	Water treatment, NOC
				2109	Water/wastewater plant monitoring
				2110	Water/wastewater plant operations, NOC
I	Industrial	WP	Weapons & Ordnance	1039	Ammunition handling
				1049	Artillery repair
				1102	Breeching
				1123	Charging of chemical and riot dispersal cannisters
				1323	Demilitarization
				1433	EOD, explosives detonating
				1432	EOD operations, NOC
				1442	Explosive production, cleaning mixing equipment
				1443	Explosive production, detonation
				1444	Explosive production, mixing and pouring
				1445	Explosive production, multiple operations
				1447	Explosive production, premix operations
				1448	Explosive production, testing
				1446	Explosive production, NOC
				1564	Incendiary manufacturing
				1568	Inert ammunition loading

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				1571	Inspection of ammunition
				1689	Military specific operations
				1695	Mixing/bagging/handling explosives
				1696	Mixing/bagging/handling smokes and/or chemicals
				1748	Ordnance assembly/disassembly
				1749	Ordnance testing
				1855	Recoil mechanism testing
				1874	Rocket motor detonation
				1908	Shell loading
				2054	Torpedo assembly/disassembly
				2055	Torpedo disassembly
				2056	Torpedo fueling/defueling
				2057	Torpedo fueling/refueling
				2058	Torpedo priming
				2113	Weapons cleaning/preventive maintenance
				2114	Weapons/small arms firing, indoor range
				2116	Weapons/small arms firing, outdoor range
				2115	Weapons/small arms firing, NOC
				2117	Weapons/small arms handling, multiple operations
				2119	Weapons/small arms, backstop/pit cleanup
				2120	Weapons/small arms, range cleaning
				2121	Weapons/small arms, range supervision
				2118	Weapons/small arms repair
				2112	Weapons & Ordnance, NOC
I	Industrial	WD	Woodworking	1366	Drilling
				1387	Dust collector cleaning
				1512	Gluing
				1590	Jointing
				1602	Lathes
				1708	Mortising/routing
				1714	Nailing, automatic
				1820	Preservative application
				1888	Sanding, belt
				1889	Sanding, disk
				1890	Sanding, drum
				1891	Sanding, hand
				1898	Sawing
				1901	Sealing
				1944	Staining
				2144	Woodworking hobbies

Category Code	Process Category	Type Code	Process Type	Name Code	Process Name
				2145	Woodworking, multiple operations
				2146	Woodworking, NOC
I	Industrial	XR	X-Ray Processing	2150	X-ray developer chemicals, add/mix
				2151	X-ray developer chemicals, change-out
				2152	X-ray developing
				1818	Precious metal recovery

ATTACHMENT 4 - EESOH-MIS IH Controls List of Values

Control Category/Type/Name			
PPE	BIB-OVERALLS, FABRIC	COAT/JACKET, ALUMINIZED LEATHER JACKET (SHORT)	COVERALLS, CHLORINATED POLYETHYLENE
BODY/CLOTHING	BIB-OVERALLS, HEAT RESISTANT	COAT/JACKET, ALUMINIZED RAYON JACKET (SHORT)	COVERALLS, CHROME LEATHER
ANTI-SAW CHAPS	BIB-OVERALLS, LEATHER	COAT/JACKET, BUTYL RUBBER	COVERALLS, COTTON
APRON, BUTYL RUBBER	BIB-OVERALLS, NATURAL RUBBER	COAT/JACKET, CHLORINATED POLYETHYLENE	COVERALLS, FABRIC
APRON, CHLORINATED POLYETHYLENE	BIB-OVERALLS, NEOPRENE	COAT/JACKET, CHROME LEATHER	COVERALLS, FLAME RETARDANT
APRON, CHROME LEATHER	BIB-OVERALLS, NITRILE RUBBER	COAT/JACKET, FABRIC	COVERALLS, HEAT RESISTANT
APRON, DENIM	BIB-OVERALLS, NITRILE/POLYVINYL CHLORIDE	COAT/JACKET, HEAT RESISTANT	COVERALLS, INDURA
APRON, FABRIC	BIB-OVERALLS, NITRILE-BUTADIENE RUBBER	COAT/JACKET, LEATHER COAT (LONG)	COVERALLS, INSULATED, COTTON/POLY-COTTON
APRON, HEAT RESISTANT	BIB-OVERALLS, OTHER	COAT/JACKET, LEATHER JACKET (SHORT)	COVERALLS, KERMEL
APRON, LEAD	BIB-OVERALLS, POLYETHYLENE	COAT/JACKET, NATURAL RUBBER	COVERALLS, LEATHER
APRON, LEATHER	BIB-OVERALLS, POLYURETHANE	COAT/JACKET, NEOPRENE	COVERALLS, NATURAL RUBBER
APRON, NATURAL RUBBER	BIB-OVERALLS, POLYVINYL ALCOHOL	COAT/JACKET, NITRILE RUBBER	COVERALLS, NEOPRENE
APRON, NEOPRENE	BIB-OVERALLS, POLYVINYL CHLORIDE	COAT/JACKET, NITRILE/POLYVINYL CHLORIDE	COVERALLS, NITRILE RUBBER
APRON, NITRILE RUBBER	BIB-OVERALLS, SAFEGUARD CPF	COAT/JACKET, NITRILE-BUTADIENE RUBBER	COVERALLS, NITRILE/POLYVINYL CHLORIDE
APRON, NITRILE/POLYVINYL CHLORIDE	BIB-OVERALLS, SARANEX	COAT/JACKET, OTHER	COVERALLS, NITRILE-BUTADIENE RUBBER
APRON, NITRILE-BUTADIENE RUBBER	BIB-OVERALLS, SONTARA	COAT/JACKET, POLYETHYLENE	COVERALLS, NOMEX
APRON, OTHER	BIB-OVERALLS, STYRENE-BUTADIENE RUBBER	COAT/JACKET, POLYURETHANE	COVERALLS, OTHER
APRON, PLASTIC	BIB-OVERALLS, TYVEK	COAT/JACKET, POLYVINYL ALCOHOL	COVERALLS, PBI
APRON, POLYETHYLENE	BIB-OVERALLS, VINYL	COAT/JACKET, POLYVINYL CHLORIDE	COVERALLS, POLY-COTTON
APRON, POLYURETHANE	BIB-OVERALLS, VITON	COAT/JACKET, SAFEGUARD CPF	COVERALLS, POLYETHYLENE
APRON, POLYVINYL ALCOHOL	BULLET PROTECTIVE VEST	COAT/JACKET, SARANEX	COVERALLS, POLYURETHANE
APRON, POLYVINYL CHLORIDE	BUNKER GEAR, NOMEX	COAT/JACKET, SONTARA	COVERALLS, POLYVINYL ALCOHOL
APRON, SAFEGUARD CPF	BUNKER GEAR, PBI	COAT/JACKET, STYRENE-BUTADIENE RUBBER	COVERALLS, POLYVINYL CHLORIDE
APRON, SARANEX	CAPE AND SLEEVES, WELDING	COAT/JACKET, TYVEK	COVERALLS, RFR PROTECTION
APRON, SONTARA	CHEMICAL SPLASH, BARRICADE COATED	COAT/JACKET, VINYL	COVERALLS, SAFEGUARD CPF
APRON, STAINLESS STEEL MESH	CHEMICAL SPLASH, POLYETHYLENE	COAT/JACKET, VITON	COVERALLS, SARANEX
APRON, STYRENE-BUTADIENE RUBBER	CHEMICAL SPLASH, SARANEX COATED	COAT/JACKET, WELDING	COVERALLS, SONTARA
APRON, TYVEK	CHEMICAL SPLASH, TYVEK/SARANEX	COLD, INSULATED JACKET WITH HOOD	COVERALLS, STYRENE-BUTADIENE RUBBER
APRON, VINYL	CHEST ARMOR	COLD, PARKA	COVERALLS, TRI-LAYER
APRON, VITON	COAT/JACKET, ALUMINIZED CARBON KEVLAR COAT (LONG)	COLD, REFRIGWEAR INSULATED SUITS	COVERALLS, TYVEK
BATTLE DRESS UNIFORM (BDU'S)	COAT/JACKET, ALUMINIZED CARBON KEVLAR JACKET (SHORT)	COVERALLS, ALUMINIZED CARBON KEVLAR	COVERALLS, VINEX
BIB-OVERALLS, BUTYL RUBBER	COAT/JACKET, ALUMINIZED LEATHER COAT (LONG)	COVERALLS, BUTYL RUBBER	COVERALLS, VITON
BIB-OVERALLS, CHLORINATED POLYETHYLENE			HARNES, FALL PROTECTION
BIB-OVERALLS, CHROME LEATHER			KNEE PADS
			LAB COAT

LAB SMOCK	PANTS, LEATHER	TOTAL ENCAPSULATING, OTHER	GOGGLES, CUSHIONED FITTING, RIGID BODY
LEGGINGS/CHAPS, ALUMINIZED CARBON KEVLAR	PANTS, NATURAL RUBBER	TOTAL ENCAPSULATING, POLYETHYLENE	GOGGLES, DUST
LEGGINGS/CHAPS, ALUMINIZED LEATHER	PANTS, NEOPRENE	TOTAL ENCAPSULATING, POLYURETHANE	GOGGLES, FLEXIBLE, HOODED VENTILATION
LEGGINGS/CHAPS, BUTYL RUBBER	PANTS, NITRILE RUBBER	TOTAL ENCAPSULATING, POLYVINYL ALCOHOL	GOGGLES, FLEXIBLE, REGULAR VENTED
LEGGINGS/CHAPS, CHLORINATED POLYETHYLENE	PANTS, NITRILE/POLYVINYL CHLORIDE	TOTAL ENCAPSULATING, POLYVINYL CHLORIDE	GOGGLES, FREE FALL
LEGGINGS/CHAPS, CHROME LEATHER	PANTS, NITRILE-BUTADIENE RUBBER	TOTAL ENCAPSULATING, REFLECTOR	GOGGLES, IMPACT/SAFETY
LEGGINGS/CHAPS, FABRIC	PANTS, OTHER	TOTAL ENCAPSULATING, RESPONDER	GOGGLES, LASER
LEGGINGS/CHAPS, HEAT RESISTANT	PANTS, POLYETHYLENE	TOTAL ENCAPSULATING, RESPONDER PLUS	GOGGLES, WELDING
LEGGINGS/CHAPS, LEATHER	PANTS, POLYURETHANE	TOTAL ENCAPSULATING, SAFEGUARD CPF	GOGGLES, WELDING, COVERSPEC TYPE
LEGGINGS/CHAPS, NATURAL RUBBER	PANTS, POLYVINYL ALCOHOL	TOTAL ENCAPSULATING, SONTARA	GOGGLES, WELDING, EYECUP TYPE
LEGGINGS/CHAPS, NEOPRENE	PANTS, POLYVINYL CHLORIDE	TOTAL ENCAPSULATING, STYRENE-BUTADIENE RUBBER	OTHER
LEGGINGS/CHAPS, NITRILE RUBBER	PANTS, SAFEGUARD CPF	TOTAL ENCAPSULATING, TEFLON	SAFETY GLASSES
LEGGINGS/CHAPS, NITRILE/POLYVINYL CHLORIDE	PANTS, SARANEX	TOTAL ENCAPSULATING, TRELLECHEM HPS	SAFETY GLASSES, COBALT BLUE LENS
LEGGINGS/CHAPS, NITRILE-BUTADIENE RUBBER	PANTS, SONTARA	TOTAL ENCAPSULATING, TYCHEM 10,000	SAFETY GLASSES, EYECUP TYPE SIDESHIELD
LEGGINGS/CHAPS, OTHER	PANTS, TYVEK	TOTAL ENCAPSULATING, TYCHEM 9400	SAFETY GLASSES, LASER EYEWEAR
LEGGINGS/CHAPS, POLYETHYLENE	PANTS, VITON	TOTAL ENCAPSULATING, TYVEK QC	SAFETY GLASSES, SEMI/FLAT FOLD SIDESHIELDS
LEGGINGS/CHAPS, POLYURETHANE	RAIN GEAR	TOTAL ENCAPSULATING, TYVEK/SARANEX	SAFETY GLASSES, TINTED
LEGGINGS/CHAPS, POLYVINYL ALCOHOL	SAFETY BELT	TOTAL ENCAPSULATING, VITON	SAFETY GLASSES, WITHOUT SIDESHIELDS
LEGGINGS/CHAPS, POLYVINYL CHLORIDE	SAFETY LANYARD	EYES	SUNGLASSES
LEGGINGS/CHAPS, SAFEGUARD CPF	SCRUBS, HOSPITAL TYPE	#10 SHADE LENS MINIMUM	FACE
LEGGINGS/CHAPS, SARANEX	SLEEVES, POLYVINYL CHLORIDE	#11 SHADE LENS MINIMUM	FULL FACE SHIELD
LEGGINGS/CHAPS, SONTARA	SLEEVES, PROTECTIVE, KEVLAR	#12 SHADE LENS MINIMUM	FULL FACE SHIELD, CLEAR
LEGGINGS/CHAPS, STYRENE-BUTADIENE RUBBER	SLEEVES, PROTECTIVE, LEATHER	#13 SHADE LENS MINIMUM	FULL FACE SHIELD, GOLD FILM
LEGGINGS/CHAPS, TYVEK	SLEEVES, PROTECTIVE, SILVERSHIELD	#14 SHADE LENS MINIMUM	FULL FACE SHIELD, LASER PROTECTION
LEGGINGS/CHAPS, VITON	SLEEVES, PROTECTIVE, TYVEK	#2 SHADE LENS MINIMUM	FULL FACE SHIELD, LEADED
NBC PROTECTIVE WEAR	SURGICAL GOWNS	#3 SHADE LENS MINIMUM	FULL FACE SHIELD, PLASTIC
OTHER	TOTAL ENCAPSULATING, BUTYL RUBBER	#4 SHADE LENS MINIMUM	FULL FACE SHIELD, PLASTIC WITH EYECUP TYPE SIDESHIELD SPECTACLES
PANTS, ALUMINIZED CARBON KEVLAR	TOTAL ENCAPSULATING, CHLORINATED POLYETHYLENE	#5 SHADE LENS MINIMUM	FULL FACE SHIELD, PLASTIC WITH SEMI/FLAT FOLD SIDESHIELD SPECTACLES
PANTS, ALUMINIZED LEATHER LEGGINGS	TOTAL ENCAPSULATING, CPF	#6 SHADE LENS MINIMUM	FULL FACE SHIELD, PLASTIC WITH SPECTACLES WITHOUT SIDESHIELDS
PANTS, BUTYL RUBBER	TOTAL ENCAPSULATING, FABRIC	#7 SHADE LENS MINIMUM	FULL FACE SHIELD, TINTED
PANTS, CHLORINATED POLYETHYLENE	TOTAL ENCAPSULATING, HEAT RESISTANT	#8 SHADE LENS MINIMUM	FULL FACE SHIELD, UV LIGHT
PANTS, CHROME LEATHER	TOTAL ENCAPSULATING, NATURAL RUBBER	#9 SHADE LENS MINIMUM	FULL FACE SHIELD, WELDING
PANTS, FABRIC	TOTAL ENCAPSULATING, NEOPRENE	GOGGLES, CHEMICAL SPLASH	FULL FACE SHIELD, WIRE MESH
PANTS, HEAT RESISTANT	TOTAL ENCAPSULATING, NITRILE RUBBER	GOGGLES, CHIPPING, COVERSPEC TYPE	
	TOTAL ENCAPSULATING, NITRILE RUBBER/POLYVINYL CHLORIDE	GOGGLES, CHIPPING, EYECUP TYPE	

FULL FACE SHIELD, WIRE MESH WITH EYECUP TYPE SIDESHIELD SPECTACLES	SHOES, CLOSED-TOE LEATHER	METAL MESH	FIREFIGHTER HELMET
FULL FACE SHIELD, WIRE MESH WITH LASER SPECTACLES AND SIDESHIELD	SHOES, CONDUCTIVE	NATURAL RUBBER	FLAME RESISTANT HOOD
FULL FACE SHIELD, WIRE MESH WITH SEMI/FLAT FOLD SIDESHIELD SPECTACLES	SHOES, METATARSAL GUARD	NBC AGENTS	GRINDING HOOD
FULL FACE SHIELD, WIRE MESH WITH SPECTACLES WITHOUT SIDESHIELDS	SHOES, PUNCTURE RESISTANT	N-DEX	HAIR NET/CAP
OTHER	SHOES, SAFETY TOE, ESD	NEOPRENE	HARD HAT
WELDER'S HOOD	SHOES, SAFETY/NON-CONDUCTIVE	NITRILE RUBBER	HELMET
FEET	SHOES, STEEL TOE	NITRILE RUBBER SOLES	KEVLAR BATTLE HELMET
BOOTS, BUTYL RUBBER	SHOES, STEEL TOE, METATARSAL GUARD	NITRILE/BUTYL RUBBER	OTHER
BOOTS, CHEMICAL RESISTANT	SHOES, TRACTION	NITRILE/POLYVINYL CHLORIDE	SURGICAL CAP
BOOTS, COLD WEATHER	GLOVES	NITRILE-BUTADIENE RUBBER	WELDING HELMET
BOOTS, CONDUCTIVE	ALUMINIZED	OTHER	HEARING
BOOTS, FIREFIGHTER/BUNKER	ANTI-VIBRATION	PE/EVAL (4H OR SILVER SHIELD)	COMBINATION, MUFF/EARPLUG
BOOTS, FOUNDRY	BUTYL RUBBER	POLYETHYLENE	COMBINATION, MUFF/EARPLUG WITH TIME LIMIT
BOOTS, MOLDER	CARBON FIBER	POLYURETHANE	COMMUNICATION HEADSET
BOOTS, NATURAL RUBBER	CHLORINATED POLYETHYLENE	POLYVINYL ALCOHOL	DOUBLE PROTECTION, NOC
BOOTS, NEOPRENE	CHROME LEATHER	POLYVINYL CHLORIDE	EAR/CIRCUMAUURAL MUFF
BOOTS, POLYVINYL CHLORIDE	COATED FABRIC	RUBBER, ELECTRICIAN	EAR/CIRCUMAUURAL MUFF, HIGH PERFORMANCE
BOOTS, PUNCTURE RESISTANT	COLD SURFACES	SAFEGUARD CPF	EAR/CIRCUMAUURAL MUFF, TYPE I/II
BOOTS, STEEL TOE	COTTON	SARANEX	EARPLUG
BOOTS, STEEL TOE WITH METATARSAL GUARDS	COTTON TUSETS	SONTARA	EARPLUG, DISPOSABLE, FOAM PLASTIC
BOOTS, STEEL TOE, POLYVINYL CHLORIDE	CUT RESISTANT/METAL MESH	STAINLESS STEEL MESH	EARPLUG, DISPOSABLE, NON-HARDENING SILICONE
BOOTS, STEEL TOE, RUBBER	CUTTING	STYRENE-BUTADIENE RUBBER	EARPLUG, SIZED, SINGLE FLANGE
BOOTS, STEEL TOE, RUBBER, DIELECTRIC	DISPOSABLE	TEFLON	EARPLUG, SIZED, TRIPLE FLANGE
BOOTS, STEEL TOE, STEEL SHANK	DOUBLE	TERRY CLOTH	HEARING BANDS/EAR CAPS/CANAL CAPS
BOOTS, TYVEK DISPOSABLE	DOUBLE SURGICAL	TYVEK	HELMET, AVIATION
GUARDS, METATARSAL	ELBOW LENGTH BUTYL RUBBER	VINYL	HELMET, NOISE ATTENUATION
GUARDS, STEEL TOE	ELECTRICAL PROTECTION	VITON	OTHER
INSERTS, SHOCK-ABSORBING	FABRIC	WELDING, HEAT RESISTANT	SINGLE PROTECTION, NOC
LEATHER SPATS	FUEL HANDLER, LEATHER	HAND	MISCELLANEOUS
OTHER	FUEL HANDLER, SYNTHETIC	BARRIER CREAM	OTHER
OVERBOOTS	HEAT RESISTANT	FINGER COTS	RESPIRATOR
OVERSHOES	HOT MILL	OTHER	RESPIRATORY PROTECTION
SHOE COVERS, DISPOSABLE	HOT SURFACES, COTTON	WRIST GUARDS	ENGINEERING
SHOES, CLOSED-TOE	IMPERVIOUS	HEAD	EMERGENCY WASH
	KEVLAR	AIRMAN'S LINE CAP	DELUGE SHOWER/EYE WASH
	LATEX, MEDICAL EXAM	BRIMMED HAT	FIXED EYEWASH
	LEAD	BUMP CAP	PORTABLE EYEWASH
	LEATHER	CHEMICAL HOOD	
	LEATHER GAUNTLETS	COLD WEATHER HAT	
	LEATHER WELDING	CRANIALS	
		DISPOSABLE HEAD COVERING	

ERGONOMICS	ANGLE TELEPHONE BASE SLIGHTLY	HEAT METAL/MATERIAL TO MAKE MORE PLIABLE	LOWER THE CHAIR
ANTI-FATIGUE MAT/INSOLES	ANGLE THE WORKSURFACE TO BRING THE WORK CLOSER TO THE BODY AND THE EYE	IMPROVE CHARACTER SIZE AND STYLE ON DOCUMENT AND MONITOR	LOWER THE HANDLE
ANTI-VIBRATION MAT			LOWER THE MONITOR/SCREEN
ANTI-VIBRATION SEATING	ANGLE WORK SURFACE TO BRING WORK CLOSER TO THE BODY AND THE EYES	IMPROVE CLEAT DESIGN	LOWER THE PERSON
ANTI-VIBRATION WRAP/BARRIER	AVOID HIGH FORCE TASKS WHILE SEATED	IMPROVE FLOOR CONDITION	LOWER THE WORK PIECE/WORK SURFACE
CHAIR/SEATING (INCLUDING ADD-ONS)	CALL FOR ASSISTANCE	IMPROVE VISUAL ACCESS TO WORK	MAINTAIN BOLTS AND SCREWS
DOCUMENT HOLDER	CENTER NUMERIC PAD OR CALCULATOR IN FRONT OF BODY / MONITOR	IMPROVE WHEEL CONDITION	MAINTAIN HAND TOOL/POWER TOOLS
DOLLY/HAND TRUCK	CHANGE A PINCH GRIP TO A POWER GRIP	INCORPORATE HEALTH COMFORT STRATEGIES: ALTERNATE TASKS, STRETCH, TAKE REST PAUSES	MAINTAIN TRACKS, ROLLERS, AND MOVEMENT MECHANISMS
EQUIPMENT LOCATION/POSITION	CHANGE LIFTING/CARRYING TASK INTO A ROLLING OR SLIDING TASK	INCORPORATE REST PAUSES	MINIMIZE CLUTTER ON DESK/WORKSURFACE
FOOTREST	CHANGE POSTURE FREQUENTLY	INCREASE HANDLE LENGTH TO IMPROVE LEVERAGE	MINIMIZE MATERIAL WHICH MUST BE REMOVED MANUALLY
GLARE CONTROL (ANTI-GLARE SCREEN, PARABOLIC LOUVERS, HOODS, SHADES)	CLEAN SCREEN REGULARLY	INCREASE LIGHT LEVELS	MODIFY FACILITIES TO DECREASE HANDLING
KEYBOARD TRAY (INCLUDES ADD-ONS FOR MOUSE)	CLOSE BLINDS OR CURTAINS	INCREASE ROOM TEMPERATURE	MODIFY FOOT PEDAL
KEYBOARD/SPLIT KEYBOARD	CLOSE DOORS WHEN POSSIBLE TO REDUCE NOISE	INCREASE TASK VARIETY	MOVE CHAIR CLOSER TO SURFACE EDGE
LIFT ASSIST DEVICES (LIFT TABLE, HOIST)	COVER OR TURN OFF UNDER CABINET LIGHTING	INCREASE WEIGHT OF WORK PIECE	MOVE CLOSER TO THE WORK LOCATION
LUMBAR SUPPORT, EXCLUDING BACK BRACES	DECREASE LIGHT LEVELS	INSTALL ALTERNATIVE MOUSE / CALCULATOR / KEYBOARD	MOVE KEYBOARD / MOUSE / MICROSCOPE FORWARD SO FOREARMS REST EVENLY ON SURFACE
OTHER	DIRECT COLD AIR AWAY FROM THE HANDS	INSTALL ANTI-GLARE SCREEN	MOVE MONITOR / SCREEN CLOSER TO BODY
PATIENT-HANDLING EQUIPMENT	DISTRIBUTE INTENSIVE ACTIVITIES THROUGHOUT THE PROCESS	INSTALL PALM SUPPORT ENTIRE LENGTH OF DRAFTING TABLE	MOVE MONITOR / SCREEN FURTHER AWAY FROM BODY
SPECIALIZED EQUIPMENT	ELIMINATE EXPOSURE TO HARD EDGES	INSTALL PARABOLIC LOUVERS TO DIRECT LIGHT DOWN ON THE SURFACE	MOVE MONITOR FROM UNDERNEATH SHELF/CABINET LIGHTING
SPECIALIZED FIXTURE	ELIMINATE NEED TO CONSTANTLY HOLD TRIGGER	INSTALL PRINTER COVERS TO ISOLATE NOISE	MOVE STAPLER CLOSER TO WORK SURFACE EDGE
SPECIALIZED TOOL	ELIMINATE UNNECESSARY TASKS	INSTALL PUSH BUTTON PHONE	MOVE WORK PIECE CLOSER TO BODY
TOOL COUNTERBALANCE	ELIMINATE/REDUCE LOUD RADIOS, PA ANNOUNCEMENTS, AND PHONE SIGNALS (RINGERS)	INSTALL SEPARATE AIR CONDITIONING UNITS WHEN POSSIBLE	OBTAIN PATIENT'S ASSISTANCE
TOOL DESIGN	ENCOURAGE APPROPRIATE SEASONAL CLOTHING	INSTALL WALL / ACOUSTICAL PANELS	OPEN DOORS/WINDOWS WHEN POSSIBLE
TOOL LOCATION/POSITION	ENCOURAGE ERGONOMIC WORK TECHNIQUES	KNEEL TO ACCESS LOW LEVEL SHELVES	ORIENT PAPER BY TURNING IT SO WORK AREA IS CLOSE TO THE BODY
TOOL, EQUIPMENT MAINTENANCE (IMPROVE PERFORMANCE, REDUCE VIBRATION)	ENCOURAGE PERSON TO HAVE VISUAL DISORDERS CORRECTED	KNEEL TO ACCESS LOWER LEVEL OF PHOTOCOPIER	OTHER
WORK REACH ADJUSTMENT (ALL DIRECTIONS INCLUDING FORWARD & OVERHEAD)	GROUP FREQUENTLY USED ITEMS TOGETHER FOR CONVENIENT RETRIEVAL	LOCATE FREQUENTLY RETRIEVED ITEMS BETWEEN SHOULDER AND WAIST LEVEL	PERIODICALLY LOOK AWAY FROM MICROSCOPE / SCREEN TO CHANGE THE TASK DEMAND ON THE EYE, AND FOCUS ON AN OBJECT OF VARYING DISTANCE.
WORKING HEIGHT/WORKING SURFACE ADJUSTMENT		LOCATE HEAVY ITEMS BETWEEN KNEE AND WAIST LEVEL	PLACE HAND ON WORK SURFACE OR LAP WHEN NOT DIALING.
WORKSTATION MODIFICATION		LOCATE SORTING PILES NEAR WORK SURFACE EDGE	
WRIST REST/MOUSE REST		LOWER KEYBOARD TRAY / WORK PIECE / WORK SURFACE	
ERGONOMICS, CORRECTIVE ACTIONS			
ALTERNATE BETWEEN SITTING AND STANDING TASKS			
ALTERNATE GRIPS FOR PEN TO HELP REDUCE GRIPPING FORCE			

PLACE KEYBOARD / CALCULATOR /MONITOR ONTO LARGER SURFACE	PROVIDE A FLAT / LEVEL KEYBOARD	PROVIDE A TOOL WHICH MINIMIZES EXPOSURE TO VIBRATION/IMPACT/ TORQUE	PROVIDE AUTOMATIC OR SEMI-AUTOMATIC FEED FOR FASTENERS
PLACE MONITOR ON ALTERNATIVE WORK SURFACE	PROVIDE A FOOT PEDAL WHICH REQUIRES THE CORRECT AMOUNT OF FORCE TO USE	PROVIDE A TOOL WHICH REQUIRES MINIMAL FORCE TO USE	PROVIDE BOLT AND SCREW HEAD DESIGNS THAT ARE DURABLE
PLACE MONITOR PERPENDICULAR TO WINDOW	PROVIDE A FOOT PUMP	PROVIDE A TOOL WITH AN APPROPRIATE HANDLE ANGLE	PROVIDE CONTROLS WHICH DO NOT REQUIRE EXCESSIVE FORCES
PLACE THE TRIGGER/SWITCH TO ALLOW A COMFORTABLE HAND/ARM POSITION	PROVIDE A FOOTRAIL OR FOOTREST	PROVIDE A WHEEL BARROW	PROVIDE DISPLAYS WHICH ARE READABLE AND EASY TO UNDERSTAND
POSITION DOCUMENT AT A COMFORTABLE VIEWING DISTANCE FOR LARGER BLUE PRINTS BY FOLDING OR LOOSELY ROLLING DOCUMENT	PROVIDE A FULL-SIZED INPUT DEVICE	PROVIDE A WORK SURFACE THAT IS HEIGHT ADJUSTABLE	PROVIDE EXTENSIONS FOR TOOLS
POSITION DOCUMENT AT SAME HEIGHT AND ANGLE AS MONITOR, ON SIDE OF DOMINANT EYE. IF DOCUMENT IS HANDLED, FLIPPED, OR WRITTEN ON, SLIGHTLY INCLINE.	PROVIDE A HIGH FRICTION GRIPPING SURFACE	PROVIDE ADDITIONAL STAFF	PROVIDE HANDLES WITH INSULATING MATERIAL
POSITION MONITOR 18 - 30 INCHES (45.7-76.2 CM.) FROM EYES	PROVIDE A HOOK-TYPE TOOL TO PULL ITEMS	PROVIDE ADEQUATE LEG CLEARANCE	PROVIDE PORTABLE FAN(S)
POSITION MONITOR APPROPRIATELY. FOR BIFOCAL USER, SO THAT THE NECK IS UPRIGHT, NOT TILTED, PLACE ON MONITOR BLOCKS, STAND, OR OTHER ELEVATED SURFACE.	PROVIDE A KEYBOARD THAT DOES NOT REQUIRE EXCESSIVE FORCES	PROVIDE ADEQUATE STORAGE	PROVIDE PORTABLE HEATER(S)
POSITION MONITOR APPROPRIATELY. FOR DRAWING WORK, SO THAT EYE LEVEL IS AT MID-SCREEN.	PROVIDE A KEYBOARD WHICH DOES NOT REQUIRE EXCESSIVE KEYING FORCES	PROVIDE ADEQUATE TOE CLEARANCE	PROVIDE POWERED ASSISTANCE FOR A MANUAL ACTIVITY
POSITION MONITOR APPROPRIATELY. FOR NON-DRAWING TASKS, THE PRIMARY WORK AREA ON THE SCREEN SHOULD BE JUST BELOW EYE LEVEL.	PROVIDE A LARGER WORKSURFACE	PROVIDE ADEQUATE WORK SPACE	PROVIDE POWERED OR MECHANICAL ASSISTANCE FOR DOOR
POSITION MONITOR SO EYES ARE MID LEVEL ON SCREEN	PROVIDE A LIGHTER WEIGHT DOOR	PROVIDE ALTERNATIVE WORK SURFACE LAYOUT	PROVIDE PROTECTION FROM GLARE FROM NATURAL LIGHT
POSITION MONITOR/SCREEN IN FRONT OF THE BODY	PROVIDE A MACHINE/AUTOMATE SYSTEM	PROVIDE AN ADJUSTABLE HEIGHT LIFT TABLE	PROVIDE PROTECTION FROM GLARE FROM OVERHEAD LIGHTS / TASK LIGHTS
POSITION MOUSE/ INPUT DEVICE NEXT TO KEYBOARD	PROVIDE A MAGNIFYING GLASS	PROVIDE AN ADJUSTABLE MIRROR	PROVIDE SCREEN HOOD/VISOR
POSITION THE MONITOR/SCREEN IN FRONT OF THE BODY	PROVIDE A MECHANICAL LIFT DEVICE	PROVIDE AN ALTERNATE CONTAINER	PROVIDE SHIELDS OR BARRIERS FROM WIND
PROGRAM MACRO KEYS TO REDUCE KEYING	PROVIDE A MULTI-FINGER TRIGGER	PROVIDE AN ALTERNATIVE KEYBOARD/MOUSE	PROVIDE STANDING WORKSTATION
PROVIDE A BALL-BEARING ROTATION TABLE	PROVIDE A PADDED, COMPRESSIBLE SURFACE TO LAY ON	PROVIDE AN APPROPRIATE ANTI-FATIGUE MAT	PROVIDE STAPLER WITH LONGER LEVER ARM
PROVIDE A CART	PROVIDE A PADDED, COMPRESSIBLE SURFACE TO SIT ON	PROVIDE AN APPROPRIATE CHAIR / STOOL	PROVIDE SUPPORT FOR REFERENCE DOCUMENTS
PROVIDE A CONTAINER FOR CARRYING TOOLS/SUPPLIES	PROVIDE A PALM REST	PROVIDE AN APPROPRIATE HANDLE DIAMETER	PROVIDE SUPPORT FOR THE ARMS
	PROVIDE A POWER TOOL	PROVIDE AN APPROPRIATE HANDLE GRIP SPAN ON PLIERS-TYPE TOOLS	PROVIDE SUPPORT FOR THE CABLE OR HOSE
	PROVIDE A POWERED CART	PROVIDE AN AUXILIARY TABLE	PROVIDE SUPPORT FOR THE HEAD
	PROVIDE A SHORTER HANDLE TO REDUCE ARM MOVEMENT	PROVIDE ANTI-VIBRATION MATERIALS	PROVIDE SUPPORT FOR THE LOWER BACK
	PROVIDE A SMALLER CONTAINER	PROVIDE APPROPRIATE ABRASIVE MATERIAL	PROVIDE SUPPORT FOR THE TOOL
	PROVIDE A SPRING RELEASE MECHANISM ON PLIERS-TYPE TOOLS	PROVIDE APPROPRIATE ANTI-FATIGUE MAT	PROVIDE SUPPORT FOR THE UPPER BODY
	PROVIDE A STORAGE BAG WHICH IS EASY TO PACK/UNPACK	PROVIDE APPROPRIATE CART	PROVIDE SUPPORT FOR THE WORK PIECES
	PROVIDE A SWIVEL CONNECTION FOR AIR HOSE	PROVIDE APPROPRIATE EQUIPMENT	PROVIDE TASK LIGHT
	PROVIDE A TELEPHONE HEAD SET	PROVIDE APPROPRIATE GLOVES	PROVIDE TELEPHONE HEAD SET
	PROVIDE A TOOL THAT CAN BE USED WITH BOTH HANDS	PROVIDE APPROPRIATE HANDLES	PROVIDE WHEELS
		PROVIDE APPROPRIATE KNEE PROTECTION	RAISE ARM REST(S)
		PROVIDE APPROPRIATE SHOE INSERTS	RAISE KEYBOARD / WORK SURFACE / WORK PIECE
		PROVIDE APPROPRIATE SOLVENT SOLUTION	RAISE THE CHAIR

RAISE THE HANDLE	TILT MONITOR DOWN SO IT IS PARALLEL TO THE FLOOR	AIR LOCKS	ENCLOSED BEAM PATH
RAISE THE MONITOR/SCREEN	TRAIN PROPER BODY MECHANICS/POSTURE	AUDIBLE ALARMS/SIGNALS	ENCLOSED CLASS 3B/4, INTERLOCKS ON PROTECTIVE HOUSING
RAISE THE PERSON	TRAIN PROPER CHAIR ADJUSTMENT	BARRIERS/SHIELDING	ENCLOSED CLASS 3B/4, SERVICE ACCESS PANELS
RAISE THE WORK PIECE/WORK SURFACE	TRAIN PROPER FOOTREST USE	CONTROLLED AREA	LASER IN NAVIGABLE AIRSPACE
REARRANGE DESK/WORKSURFACE	TRAIN PROPER KEYING STYLE	EMERGENCY SHUTOFF	OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)
REARRANGE WORK AREA TO AVOID FACE-TO-FACE WORK STATIONS	TRAIN PROPER MICROSCOPE TECHNIQUE	FENCES	OTHER
RECESS CONTAINER INTO WORK SURFACE	TRAIN PROPER TYPING/MOUSING STYLE	GLOVE BOXES	PROTECTIVE HOUSING
RE-DESIGN JOB	USE A DESK-BASED TAPE DISPENSER INSTEAD OF A HAND-HELD DISPENSER	HANDLING MATERIALS (TONGS, REMOTE UNITS, MECHANICAL DEVICES)	TEMPORARY LASER CONTROLLED AREA
RE-DESIGN THE WORK SPACE	USE A FLAT STAPLE REMOVER WITH A POWER GRIP RATHER THAN A PINCH GRIP	INTERLOCKS	VIEWING PORTALS/WINDOWS
REDIRECT AIR CONDITIONING UNITS AND/OR FANS	USE AIR CONDITIONING WHEN PROVIDED	KILL SWITCH	LASER - ANSI CLASS 3B
REDUCE CARRY DISTANCE	USE ALTERNATIVE FASTENERS	OTHER	ACTIVATION WARNING SYSTEMS
REDUCE DEPTH OF STORAGE CONTAINER	USE AUTOMATIC STAPLER	ROPE OR CHAIN BARRIER	BEAM STOP OR ATTENUATOR
REDUCE FORCE REQUIRED TO INSTALL OR REMOVE THE COMPONENT	USE AVAILABLE ALTERNATIVE WORK SURFACE	WARNING LIGHTS	COORDINATE USE IN NAVIGABLE AIRSPACE WITH FAA
REDUCE NUMBER OF FASTENERS USED	USE AVAILABLE CHAIR WITH ADJUSTABLE ARMREST(S) FOR FOREARM SUPPORT	LASER - ANSI CLASS 1	EMISSION INDICATOR
REDUCE THE ANGLE A PERSON HAS TO TURN TO TRANSFER AN ITEM	USE CART TO MOVE BOXES AND FILES	ACTIVATION WARNING SYSTEM, WALK-IN PROTECTIVE HOUSING	ENCLOSED BEAM PATH
REDUCE THE WEIGHT OF THE LOAD ON THE CART	USE HEAVY EXCAVATION EQUIPMENT (E.G., BACKHOE)	ENCLOSED BEAM PATH	GUARDED SWITCH
REDUCE WEIGHT OF WORK PIECE	USE HEIGHT ADJUSTABLE ARMRESTS TO SUPPORT THE FOREARM	ENCLOSED CLASS 3B/4, INTERLOCKS ON PROTECTIVE HOUSING	INDOOR LASER CONTROLLED AREA
RELOCATE THE WORK	USE LARGER STAPLER WITH LONGER LEVER ARMS	ENCLOSED CLASS 3B/4, SERVICE ACCESS PANELS	INTERLOCK AT ENTRANCE TO LASER CONTROLLED AREA
REMOVE OBSTRUCTIONS	USE STEP STOOL TO ACCESS HIGH LEVEL SHELVES	OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)	INTERLOCKS ON PROTECTIVE HOUSING
REMOVE OR LOWER ARMRESTS	USE TWO OR MORE PERSONS TO PERFORM THE LIFT/TRANSFER	OTHER	KEY CONTROL/MASTER SWITCH
REPLACE ABRASIVE OR CUTTING MATERIAL FREQUENTLY	USE WELL-FITTING "GRIPPER" GLOVES TO PULL FILES	PROTECTIVE HOUSING	LASER OUTDOOR CONTROLS
REPLACE STANDING FOOT PEDALS WITH ALTERNATIVE CONTROLS	VENT PORTABLE AIR CONDITIONERS AND OTHER HEAT PRODUCING EQUIPMENT TO OUTDOORS WHEN POSSIBLE	TEMPORARY LASER CONTROLLED AREA	LASER TREATMENT CONTROLLED AREA
REPOSITION FOOT PEDAL	WEAR APPROPRIATE SHOES	LASER - ANSI CLASS 2	LIMITED OPEN BEAM PATH, HAZARD ANALYSIS/ESTABLISH CONTROLLED AREA
ROTATE THE WORK PIECE	INTERLOCK	EMISSION INDICATOR	OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)
SHARPEN BLADES FREQUENTLY	INTERLOCK	ENCLOSED BEAM PATH	OTHER
STAND TO PERFORM TASK	IONIZING RADIATION	ENCLOSED CLASS 3B/4, INTERLOCKS ON PROTECTIVE HOUSING	PROTECTIVE BARRIERS AND CURTAINS
STAND UP AND REACH FOR ITEMS POSITIONED ABOVE DESK OR IN REFERENCE ZONE		ENCLOSED CLASS 3B/4, SERVICE ACCESS PANELS	PROTECTIVE HOUSING
STORE MATERIALS IN THE SAME ORIENTATION IN WHICH THEY ARE USED		OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)	REMOTE INTERLOCK CONNECTOR
SUGGEST COMPUTER GLASSES		OTHER	SERVICE ACCESS PANELS (INTERLOCKED, KEYED, OR WARNING LABEL)
		PROTECTIVE HOUSING	TOTALLY OPEN BEAM PATH, HAZARD ANALYSIS/ESTABLISH CONTROLLED AREA
		TEMPORARY LASER CONTROLLED AREA	
		VIEWING PORTALS/WINDOWS	
		LASER - ANSI CLASS 3A	
		EMISSION INDICATOR	

VIEWING PORTALS/WINDOWS	VIEWING WITH A FILTERED OPTICAL INSTRUMENT	TEMPORARY LASER CONTROLLED AREA	EMISSION INDICATOR
LASER - ANSI CLASS 4	VIEWING WITH INDIRECT IMAGE CONVERTER	VIEWING PORTALS/WINDOWS	ENCLOSED BEAM PATH
ACTIVATION WARNING SYSTEMS	LASER-ANSI CLASS 1M	LASER-FDA CLASS I	ENCLOSED CLASS 3B/4, INTERLOCKS ON PROTECTIVE HOUSING
BEAM STOP OR ATTENUATOR	ACTIVATION WARNING SYSTEM, WALK-IN PROTECTIVE HOUSING	ACTIVATION WARNING SYSTEM, WALK-IN PROTECTIVE HOUSING	ENCLOSED CLASS 3B/4, SERVICE ACCESS PANELS
COORDINATE USE IN NAVIGABLE AIRSPACE WITH FAA	ENCLOSED BEAM PATH	ENCLOSED BEAM PATH	LASER IN NAVIGABLE AIRSPACE
EMERGENCY SHUTOFF	ENCLOSED CLASS 3B/4, INTERLOCKS ON PROTECTIVE HOUSING	ENCLOSED CLASS 3B/4, INTERLOCKS ON PROTECTIVE HOUSING	OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)
EMISSION DELAY	ENCLOSED CLASS 3B/4, SERVICE ACCESS PANELS	ENCLOSED CLASS 3B/4, SERVICE ACCESS PANELS	OTHER
EMISSION INDICATOR	OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)	OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)	PROTECTIVE HOUSING
ENCLOSED BEAM PATH	OTHER	OTHER	TEMPORARY LASER CONTROLLED AREA
GUARDED SWITCH	PROTECTIVE HOUSING	PROTECTIVE HOUSING	VIEWING PORTALS/WINDOWS
INDOOR LASER CONTROLLED AREA	TEMPORARY LASER CONTROLLED AREA	TEMPORARY LASER CONTROLLED AREA	LASER-FDA CLASS IIIB
INTERLOCK AT ENTRANCE TO LASER CONTROLLED AREA	LASER-ANSI CLASS 2M	LASER-FDA CLASS II	ACTIVATION WARNING SYSTEMS
INTERLOCKS ON PROTECTIVE HOUSING	EMISSION INDICATOR	EMISSION INDICATOR	BEAM STOP OR ATTENUATOR
KEY CONTROL/MASTER SWITCH	ENCLOSED BEAM PATH	ENCLOSED BEAM PATH	COORDINATE USE IN NAVIGABLE AIRSPACE WITH FAA
LASER OUTDOOR CONTROLS	ENCLOSED CLASS 3B/4, INTERLOCKS ON PROTECTIVE HOUSING	ENCLOSED CLASS 3B/4, INTERLOCKS ON PROTECTIVE HOUSING	EMISSION INDICATOR
LASER TREATMENT CONTROLLED AREA	ENCLOSED CLASS 3B/4, SERVICE ACCESS PANELS	ENCLOSED CLASS 3B/4, SERVICE ACCESS PANELS	ENCLOSED BEAM PATH
LIMITED OPEN BEAM PATH, HAZARD ANALYSIS/ESTABLISH CONTROLLED AREA	OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)	OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)	GUARDED SWITCH
OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)	OTHER	OTHER	INDOOR LASER CONTROLLED AREA
OTHER	PROTECTIVE HOUSING	PROTECTIVE HOUSING	INTERLOCK AT ENTRANCE TO LASER CONTROLLED AREA
PROTECTIVE BARRIERS AND CURTAINS	TEMPORARY LASER CONTROLLED AREA	TEMPORARY LASER CONTROLLED AREA	INTERLOCKS ON PROTECTIVE HOUSING
PROTECTIVE HOUSING	VIEWING PORTALS/WINDOWS	VIEWING PORTALS/WINDOWS	KEY CONTROL/MASTER SWITCH
REMOTE FIRING AND MONITORING	LASER-ANSI CLASS 3R	LASER-FDA CLASS IIA	LASER OUTDOOR CONTROLS
REMOTE INTERLOCK CONNECTOR	EMISSION INDICATOR	ACTIVATION WARNING SYSTEM, WALK-IN PROTECTIVE HOUSING	LASER TREATMENT CONTROLLED AREA
SERVICE ACCESS PANELS (INTERLOCKED, KEYED, OR WARNING LABEL)	ENCLOSED BEAM PATH	ENCLOSED BEAM PATH	LIMITED OPEN BEAM PATH, HAZARD ANALYSIS/ESTABLISH CONTROLLED AREA
TOTALLY OPEN BEAM PATH, HAZARD ANALYSIS/ESTABLISH CONTROLLED AREA	ENCLOSED CLASS 3B/4, INTERLOCKS ON PROTECTIVE HOUSING	ENCLOSED CLASS 3B/4, INTERLOCKS ON PROTECTIVE HOUSING	OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)
VIEWING PORTALS/WINDOWS	ENCLOSED CLASS 3B/4, SERVICE ACCESS PANELS	ENCLOSED CLASS 3B/4, SERVICE ACCESS PANELS	OTHER
LASER - OFCS	LASER IN NAVIGABLE AIRSPACE	OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)	PROTECTIVE BARRIERS AND CURTAINS
AUTOMATIC POWER REDUCTION	OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)	OTHER	PROTECTIVE HOUSING
CONTAINMENT OF BEAM	OTHER	PROTECTIVE HOUSING	REMOTE INTERLOCK CONNECTOR
DE-ENERGIZE THE OFCS	PROTECTIVE HOUSING	TEMPORARY LASER CONTROLLED AREA	SERVICE ACCESS PANELS (INTERLOCKED, KEYED, OR WARNING LABEL)
OTHER		LASER-FDA CLASS IIIB	
SERVICE CONNECTORS			
TOOL-SECURED ACCESS			

TOTALLY OPEN BEAM PATH, HAZARD ANALYSIS/ESTABLISH CONTROLLED AREA	MECHANICAL/MOTORIZED ASSISTANCE	DUCT END (ROUND)	VENTILATION - GAS TREATMENT
VIEWING PORTALS/WINDOWS	OTHER	DUCT END (SQUARE)	ETHYLENE OXIDE STERILIZERS
LASER-FDA CLASS IV	PROCESS CHANGE	FLANGED DUCT END (ROUND)	FUMIGATION BOOTH
ACTIVATION WARNING SYSTEMS	PROCESS ENCLOSURE	FLANGED DUCT END (SQUARE)	VENTILATION - KITCHEN EQUIPMENT
BEAM STOP OR ATTENUATOR	ROPE BARRIERS	FLANGED MULTIPLE SLOT OPENING, 2 OR MORE SLOTS	CHARCOAL BROILER & BARBEQUE PIT VENTILATION
COORDINATE USE IN NAVIGABLE AIRSPACE WITH FAA	WORKER ENCLOSURE	FREE-STANDING SLOT HOOD, END FLANGES INSTALLED	DISHWASHER VENTILATION
EMERGENCY SHUTOFF	PROCESS ISOLATION	GENERAL DIP TANK	KITCHEN RANGE HOOD
EMISSION DELAY	BARRIERS/SHIELDING	LAB FUME	KITCHEN RANGE HOODS
EMISSION INDICATOR	DISTANCE	OPEN SURFACE TANK, CANOPY	VENTILATION - LABORATORY
ENCLOSED BEAM PATH	GLOVE BAGS	OTHER	BIOLOGICAL SAFETY CABINET-CLASS I
GUARDED SWITCH	GLOVE BOXES	PLAIN MULTIPLE SLOT OPENING, 2 OR MORE SLOTS	BIOLOGICAL SAFETY CABINET-CLASS II, TYPE A
INDOOR LASER CONTROLLED AREA	MACHINE GUARDING	PLAIN OPENING	BIOLOGICAL SAFETY CABINET-CLASS II, TYPE B
INTERLOCK AT ENTRANCE TO LASER CONTROLLED AREA	MINI-ENCLOSURES	PLAIN SLOT	BIOLOGICAL SAFETY CABINET-CLASS III
INTERLOCKS ON PROTECTIVE HOUSING	OTHER	SLOTTED WITH SIDES AND BACK	DRY BOX OR GLOVE HOOD FOR HIGH TOXICITY & RADIOACTIVE MATERIALS
KEY CONTROL/MASTER SWITCH	PROCESS ISOLATION	TAPERED	HORIZONTAL LAMINAR FLOW CLEAN BENCH (PRODUCT PROTECTION ONLY)
LASER OUTDOOR CONTROLS	TIME	VENTILATION - CONFINED SPACES	OVEN EXHAUST
LASER TREATMENT CONTROLLED AREA	RFR	BLOWER	PERCHLORIC ACID HOOD
LIMITED OPEN BEAM PATH, HAZARD ANALYSIS/ESTABLISH CONTROLLED AREA	ABSORBERS	EXHAUST	SPECIALIZED LABORATORY HOOD DESIGNS
OPTICAL AIDS/COLLECTING OPTICS (ATTENUATED, FILTERED)	AZIMUTH BLANKING	VENTILATION - DILUTION	TYPICAL LABORATORY HOOD
OTHER	BARRIERS/SHIELDING	MECHANICAL DILUTION	VERTICAL LAMINAR FLOW CLEAN BENCH (PRODUCT PROTECTION ONLY)
PROTECTIVE BARRIERS AND CURTAINS	CONTROLLED AREA	NATURAL DILUTION	VENTILATION - LOW VOLUME - HIGH VELOCITY EXHAUST SYSTEMS
PROTECTIVE HOUSING	DEAD MAN SWITCH	VENTILATION - FILLING OPERATIONS	EXTRACTOR HEAD FOR SMALL RADIAL GRINDERS
REMOTE FIRING AND MONITORING	DUMMY LOAD	BAG FILLING	EXTRACTOR HOOD FOR DISC SANDER
REMOTE INTERLOCK CONNECTOR	FENCES	BAG TUBE PACKER	EXTRACTOR TOOL FOR VIBRATORY SANDER
SERVICE ACCESS PANELS (INTERLOCKED, KEYED, OR WARNING LABEL)	FLASHING LIGHTS/AUDIBLE SIGNALS	BARREL FILLING	HOOD FOR CUP TYPE SURFACE GRINDER AND WIRE BRUSHES
TOTALLY OPEN BEAM PATH, HAZARD ANALYSIS/ESTABLISH CONTROLLED AREA	INTERLOCKING RFR HATS	SAMPLING BOX	PNEUMATIC CHISEL SLEEVE
VIEWING PORTALS/WINDOWS	INTERLOCKS	SHAFT SEAL ENCLOSURE	TYPICAL SYSTEM, LOW VOLUME-HIGH VELOCITY
MISCELLANEOUS	KILL SWITCH/PANIC BUTTON	TOXIC MATERIAL BAG OPENING	VENTILATION - MACHINING
ADDITIONAL LIGHTING	OTHER	WEIGH HOOD ASSEMBLY - DRY MATERIAL	COLD HEADING MACHINE VENTILATION
DEAD MAN SWITCH	REMOTE OPERATION	WEIGH HOOD DETAILS - DRY MATERIAL	
MATERIAL SUBSTITUTION	ROPE OR CHAIN BARRIER	VENTILATION - FOUNDRY OPERATIONS	
	SHIELDED ROOM	CORE MAKING MACHINE-SMALL ROLLOVER TYPE	
	VENTILATION - CLEAN ROOMS	FOUNDRY SHAKEOUT	
	DUCTED MODULE	FOUNDRY SHAKEOUT-ENCLOSING	
	PRESSURIZED PLENUM	FOUNDRY SHAKEOUT-SIDE DRAFT	
	RETURN AIR ARRANGEMENTS	SHELL CORE MAKING	
	VENTILATION - COMMON HOODS		
	BELL MOUTH		
	BOOTH WITH STRAIGHT TAKEOFF		
	BOOTH WITH TAPERED TAKEOFF		

HIGH TOXICITY MATERIALS MILLING MACHINE HOOD	VENTILATION - METAL MELTING FURNACES	VENTILATION - OPEN SURFACE TANKS	AUXILIARY EXHAUST RETROFIT FOR AIR POWERED ORBITAL HAND SANDER
LATHE HOOD	CRUCIBLE MELTING FURNACE - HIGH TOXICITY MATERIAL	OPEN SURFACE TANKS, VS-70-01	BAND SAW
METAL CUTTING BANDSAW	FIXED POSITION DIE CASTING HOOD	OPEN SURFACE TANKS, VS-70-02	DISC SANDERS
METAL SHEARS HIGH TOXICITY MATERIALS	INDUCTION MELTING FURNACE - TILTING	PUSH-PULL HOOD	EXHAUST PLENUM RETROFIT FOR ORBITAL HAND SANDER
OTHER	MELTING FURNACE - ELECTRIC, ROCKING	SOLVENT DEGREASING TANKS	FLOOR TABLE SAW
VENTILATION - MATERIAL TRANSPORT	MELTING FURNACE - ELECTRIC, TOP ELECTRODE	SOLVENT VAPOR DEGREASING	HORIZONTAL BELT SANDER, STRIPPER SYSTEM
BIN & HOPPER VENTILATION	MELTING FURNACE CRUCIBLE, NON-TILT	VENTILATION - OTHER	HORIZONTAL BELT SANDERS
BUCKET ELEVATOR VENTILATION	MELTING FURNACE, TILTING	TEMPORARY SERVICES	JET STRIPPER FOR DISC SANDER
CONVEYOR BELT VENTILATION	MELTING POT & FURNACE	VENTILATION - PAINTING OPERATIONS	JOINTERS
RAIL LOADING	MOBILE HOOD, DIE CASTING	DIP TANK	MULTIPLE DRUM SANDER
TOXIC MATERIAL BELT CONVEYING HEAD PULLEY	POURING STATION	DRYING OVEN VENTILATION	RADIAL ARM SAW
TOXIC MATERIAL CONVEYOR BELT LOADING	VENTILATION - MISCELLANEOUS OPERATIONS	LARGE DRIVE-THROUGH SPRAY PAINT BOOTH	SINGLE DRUM SANDER
TRUCK LOADING	BACK DRAFT/SIDE DRAFT SLOT	LARGE PAINT BOOTH	SWING SAW
VENTILATION - MECHANICAL SURFACE CLEANING AND FINISHING	CANOPY HOOD	PAINT BOOTH VEHICLE SPRAY	TABLE SAW GUARD EXHAUST
ABRASIVE BLASTING CABINET	DOWNDRAFT TABLE	PAINT MIX STORAGE ROOM	WOOD LATHE
ABRASIVE BLASTING ROOM	FLUIDIZED BEDS	SMALL PAINT BOOTH	ADMINISTRATIVE
ABRASIVE CUT-OFF SAW	FURNITURE STRIPPING TANK	TRAILER INTERIOR SPRAY PAINTING	COMPLIANCE PLANS
BACKSTAND IDLER POLISHING MACHINE	HANDGUN AND SMALL BORE RIFLE RANGE	VENTILATION - VEHICLE	1,2-DIBROMO-3-CHLOROPROPANE
BUFFING LATHE	MORTUARY TABLE EXHAUST HOOD	DIESEL ENGINES UNDER LOAD	1,3-BUTADIENE
CIRCULAR AUTOMATIC BUFFING	NEGATIVE PRESSURE ENCLOSURES	OTHER	2-ACETYLAMINOFLUORENE
CORE GRINDER	OTHER	SERVICE GARAGE VENTILATION - OVERHEAD	3,3'-DICHLOBENZIDINE
GRINDING WHEEL HOOD - SURFACE SPEEDS ABOVE 6500 SFPM	OUTBOARD MOTOR TEST	SERVICE GARAGE VENTILATION - UNDER FLOOR	4-AMINODIPHENYL
GRINDING WHEEL HOOD - SURFACE SPEEDS BELOW 6500 SFPM	SCREENS	VENTILATED BOOTH FOR RADIATOR REPAIR SOLDERING	4-DIMETHYLAMINOAZOBENZENE
HAND GRINDING BENCH	SPRAY ROOM, HANGAR	WATER WASH DOWNDRAFT PAINT BOOTH	ACRYLONITRILE
HORIZONTAL DOUBLE-SPINDLE DISC GRINDER	TABLE SLOT	VENTILATION - WELDING AND CUTTING	ALPHA-NAPHTHYLAMINE
MANUAL BUFFING AND POLISHING	VENTILATION - MIXING	FUME EXTRACTION GUN	ASBESTOS
METAL POLISHING BELT	AIR-COOLED MIXER AND MULLER	METAL SPRAYING	BENZENE
OTHER	BANBURY MIXER	PRODUCTION LINE WELDING BOOTH	BENZIDINE
PORTABLE CHIPPING AND GRINDING TABLE	MIXER AND MULLER HOOD	ROBOTIC APPLICATION	BETA-NAPHTHYLAMINE
STRAIGHT LINE AUTOMATIC BUFFING	ROLLER MILL VENTILATION	TORCH CUTTING VENTILATION	BETA-PROPIOLACTONE
SURFACE GRINDER	RUBBER CALENDAR ROLLS	WELDING VENTILATION - MOVABLE EXHAUST HOOD	BIS-CHLOROMETHYL ETHER
SWING GRINDER	VENTILATION - MOVEABLE EXHAUST HOODS	WELDING VENTILATION BENCH HOOD	CADMIUM
TUMBLING MILLS	GRANITE CUTTING AND FINISHING	VENTILATION - WOODWORKING	ETHYLENE OXIDE
VERTICAL SPINDLE DISC GRINDER	HAWLEY TRAV-L-VENT PERSPECTIVE LAYOUT		ETHYLENEIMINE
	MOVABLE EXHAUST HOODS		FORMALDEHYDE
			INORGANIC ARSENIC
			LEAD

METHYL CHLOROMETHYL ETHER	CLOSE DOORS WHEN POSSIBLE TO REDUCE NOISE	INSTALL ALTERNATIVE MOUSE / CALCULATOR / KEYBOARD	MOVE KEYBOARD / MOUSE / MICROSCOPE FORWARD SO FOREARMS REST EVENLY ON SURFACE
METHYLENE CHLORIDE	COVER OR TURN OFF UNDER CABINET LIGHTING	INSTALL ANTI-GLARE SCREEN	
METHYLENEDIANILINE		INSTALL PALM SUPPORT ENTIRE LENGTH OF DRAFTING TABLE	MOVE MONITOR / SCREEN CLOSER TO BODY
N-NITROSODIMETHYLAMINE	DECREASE LIGHT LEVELS	INSTALL PARABOLIC LOUVERS TO DIRECT LIGHT DOWN ON THE SURFACE	MOVE MONITOR / SCREEN FURTHER AWAY FROM BODY
OTHER	DIRECT COLD AIR AWAY FROM THE HANDS	INSTALL PRINTER COVERS TO ISOLATE NOISE	MOVE MONITOR FROM UNDERNEATH SHELF/CABINET LIGHTING
VINYL CHLORIDE	DISTRIBUTE INTENSIVE ACTIVITIES THROUGHOUT THE PROCESS	INSTALL PUSH BUTTON PHONE	MOVE STAPLER CLOSER TO WORK SURFACE EDGE
ERGONOMICS	ELIMINATE EXPOSURE TO HARD EDGES	INSTALL SEPARATE AIR CONDITIONING UNITS WHEN POSSIBLE	MOVE WORK PIECE CLOSER TO BODY
BROADENING/VARYING JOB CONTENT	ELIMINATE NEED TO CONSTANTLY HOLD TRIGGER	INSTALL WALL / ACOUSTICAL PANELS	OBTAIN PATIENT'S ASSISTANCE
EXERCISE/STRETCHING	ELIMINATE UNNECESSARY TASKS	KNEEL TO ACCESS LOW LEVEL SHELVES	OPEN DOORS/WINDOWS WHEN POSSIBLE
JOB ROTATION	ELIMINATE/REDUCE LOUD RADIOS, PA ANNOUNCEMENTS, AND PHONE SIGNALS (RINGERS)	KNEEL TO ACCESS LOWER LEVEL OF PHOTOCOPIER	ORIENT PAPER BY TURNING IT SO WORK AREA IS CLOSE TO THE BODY
OTHER	ENCOURAGE APPROPRIATE SEASONAL CLOTHING	LOCATE FREQUENTLY RETRIEVED ITEMS BETWEEN SHOULDER AND WAIST LEVEL	OTHER
RECOVERY PAUSES	ENCOURAGE ERGONOMIC WORK TECHNIQUES	LOCATE HEAVY ITEMS BETWEEN KNEE AND WAIST LEVEL	PERIODICALLY LOOK AWAY FROM MICROSCOPE / SCREEN TO CHANGE THE TASK DEMAND ON THE EYE, AND FOCUS ON AN OBJECT OF VARYING DISTANCE.
REDUCE SHIFT LENGTH	ENCOURAGE PERSON TO HAVE VISUAL DISORDERS CORRECTED	LOCATE SORTING PILES NEAR WORK SURFACE EDGE	PLACE HAND ON WORK SURFACE OR LAP WHEN NOT DIALING.
REST BREAKS	GROUP FREQUENTLY USED ITEMS TOGETHER FOR CONVENIENT RETRIEVAL	LOWER KEYBOARD TRAY / WORK PIECE / WORK SURFACE	PLACE KEYBOARD / CALCULATOR /MONITOR ONTO LARGER SURFACE
WORK/REST CYCLE	HEAT METAL/MATERIAL TO MAKE MORE PLIABLE	LOWER THE CHAIR	PLACE MONITOR ON ALTERNATIVE WORK SURFACE
WORKER PLACEMENT	IMPROVE CHARACTER SIZE AND STYLE ON DOCUMENT AND MONITOR	LOWER THE HANDLE	PLACE MONITOR PERPENDICULAR TO WINDOW
WORKER ROTATION	IMPROVE CLEAT DESIGN	LOWER THE MONITOR/SCREEN	PLACE THE TRIGGER/SWITCH TO ALLOW A COMFORTABLE HAND/ARM POSITION
ERGONOMICS, CORRECTIVE ACTIONS	IMPROVE FLOOR CONDITION	LOWER THE PERSON	POSITION DOCUMENT AT A COMFORTABLE VIEWING DISTANCE FOR LARGER BLUE PRINTS BY FOLDING OR LOOSELY ROLLING DOCUMENT
ALTERNATE BETWEEN SITTING AND STANDING TASKS	IMPROVE VISUAL ACCESS TO WORK	LOWER THE WORK PIECE/WORK SURFACE	POSITION DOCUMENT AT SAME HEIGHT AND ANGLE AS MONITOR, ON SIDE OF DOMINANT EYE. IF DOCUMENT IS HANDLED, FLIPPED, OR WRITTEN ON, SLIGHTLY INCLINE.
ALTERNATE GRIPS FOR PEN TO HELP REDUCE GRIPPING FORCE	IMPROVE WHEEL CONDITION	MAINTAIN BOLTS AND SCREWS	POSITION MONITOR 18 - 30 INCHES (45.7-76.2 CM.) FROM EYES
ANGLE TELEPHONE BASE SLIGHTLY	INCORPORATE HEALTH COMFORT STRATEGIES: ALTERNATE TASKS, STRETCH, TAKE REST PAUSES	MAINTAIN HAND TOOL/POWER TOOLS	
ANGLE THE WORKSURFACE TO BRING THE WORK CLOSER TO THE BODY AND THE EYE	INCORPORATE REST PAUSES	MAINTAIN TRACKS, ROLLERS, AND MOVEMENT MECHANISMS	
ANGLE WORK SURFACE TO BRING WORK CLOSER TO THE BODY AND THE EYES	INCREASE HANDLE LENGTH TO IMPROVE LEVERAGE	MINIMIZE CLUTTER ON DESK/WORKSURFACE	
AVOID HIGH FORCE TASKS WHILE SEATED	INCREASE LIGHT LEVELS	MINIMIZE MATERIAL WHICH MUST BE REMOVED MANUALLY	
CALL FOR ASSISTANCE	INCREASE ROOM TEMPERATURE	MODIFY FACILITIES TO DECREASE HANDLING	
CENTER NUMERIC PAD OR CALCULATOR IN FRONT OF BODY / MONITOR	INCREASE TASK VARIETY	MODIFY FOOT PEDAL	
CHANGE A PINCH GRIP TO A POWER GRIP	INCREASE WEIGHT OF WORK PIECE	MOVE CHAIR CLOSER TO SURFACE EDGE	
CHANGE LIFTING/CARRYING TASK INTO A ROLLING OR SLIDING TASK		MOVE CLOSER TO THE WORK LOCATION	
CHANGE POSTURE FREQUENTLY			
CLEAN SCREEN REGULARLY			
CLOSE BLINDS OR CURTAINS			

POSITION MONITOR APPROPRIATELY. FOR BIFOCAL USER, SO THAT THE NECK IS UPRIGHT, NOT TILTED, PLACE ON MONITOR BLOCKS, STAND, OR OTHER ELEVATED SURFACE.	PROVIDE A MACHINE/AUTOMATE SYSTEM	PROVIDE AN ALTERNATE CONTAINER	PROVIDE PROTECTION FROM GLARE FROM OVERHEAD LIGHTS / TASK LIGHTS
	PROVIDE A MAGNIFYING GLASS	PROVIDE AN ALTERNATIVE KEYBOARD/MOUSE	
	PROVIDE A MECHANICAL LIFT DEVICE	PROVIDE AN APPROPRIATE ANTI-FATIGUE MAT	PROVIDE SCREEN HOOD/VISOR
POSITION MONITOR APPROPRIATELY. FOR DRAWING WORK, SO THAT EYE LEVEL IS AT MID-SCREEN.	PROVIDE A MULTI-FINGER TRIGGER	PROVIDE AN APPROPRIATE CHAIR / STOOL	PROVIDE SHIELDS OR BARRIERS FROM WIND
	PROVIDE A PADDED, COMPRESSIBLE SURFACE TO LAY ON	PROVIDE AN APPROPRIATE HANDLE DIAMETER	PROVIDE STANDING WORKSTATION
POSITION MONITOR APPROPRIATELY. FOR NON-DRAWING TASKS, THE PRIMARY WORK AREA ON THE SCREEN SHOULD BE JUST BELOW EYE LEVEL.	PROVIDE A PADDED, COMPRESSIBLE SURFACE TO SIT ON	PROVIDE AN APPROPRIATE HANDLE GRIP SPAN ON PLIERS-TYPE TOOLS	PROVIDE STAPLER WITH LONGER LEVER ARM
	PROVIDE A PALM REST		PROVIDE SUPPORT FOR REFERENCE DOCUMENTS
	PROVIDE A POWER TOOL	PROVIDE AN AUXILIARY TABLE	PROVIDE SUPPORT FOR THE ARMS
POSITION MONITOR SO EYES ARE MID LEVEL ON SCREEN	PROVIDE A POWERED CART	PROVIDE ANTI-VIBRATION MATERIALS	PROVIDE SUPPORT FOR THE CABLE OR HOSE
POSITION MONITOR/SCREEN IN FRONT OF THE BODY	PROVIDE A SHORTER HANDLE TO REDUCE ARM MOVEMENT	PROVIDE APPROPRIATE ABRASIVE MATERIAL	PROVIDE SUPPORT FOR THE HEAD
	PROVIDE A SMALLER CONTAINER	PROVIDE APPROPRIATE ANTI-FATIGUE MAT	PROVIDE SUPPORT FOR THE LOWER BACK
POSITION MOUSE/ INPUT DEVICE NEXT TO KEYBOARD	PROVIDE A SPRING RELEASE MECHANISM ON PLIERS-TYPE TOOLS	PROVIDE APPROPRIATE CART	PROVIDE SUPPORT FOR THE TOOL
POSITION THE MONITOR/SCREEN IN FRONT OF THE BODY	PROVIDE A STORAGE BAG WHICH IS EASY TO PACK/UNPACK	PROVIDE APPROPRIATE EQUIPMENT	PROVIDE SUPPORT FOR THE UPPER BODY
PROGRAM MACRO KEYS TO REDUCE KEYING	PROVIDE A SWIVEL CONNECTION FOR AIR HOSE	PROVIDE APPROPRIATE GLOVES	PROVIDE SUPPORT FOR THE WORK PIECES
PROVIDE A BALL-BEARING ROTATION TABLE	PROVIDE A TELEPHONE HEAD SET	PROVIDE APPROPRIATE HANDLES	PROVIDE TASK LIGHT
	PROVIDE A TOOL THAT CAN BE USED WITH BOTH HANDS	PROVIDE APPROPRIATE KNEE PROTECTION	PROVIDE TELEPHONE HEAD SET
PROVIDE A CART	PROVIDE A TOOL WHICH MINIMIZES EXPOSURE TO VIBRATION/IMPACT/ TORQUE	PROVIDE APPROPRIATE SHOE INSERTS	PROVIDE WHEELS
PROVIDE A CONTAINER FOR CARRYING TOOLS/SUPPLIES	PROVIDE A TOOL WHICH REQUIRES MINIMAL FORCE TO USE	PROVIDE APPROPRIATE SOLVENT SOLUTION	RAISE ARM REST(S)
PROVIDE A FLAT / LEVEL KEYBOARD	PROVIDE A TOOL WITH AN APPROPRIATE HANDLE ANGLE	PROVIDE AUTOMATIC OR SEMI-AUTOMATIC FEED FOR FASTENERS	RAISE KEYBOARD / WORK SURFACE / WORK PIECE
PROVIDE A FOOT PEDAL WHICH REQUIRES THE CORRECT AMOUNT OF FORCE TO USE	PROVIDE A WHEEL BARROW	PROVIDE BOLT AND SCREW HEAD DESIGNS THAT ARE DURABLE	RAISE THE CHAIR
PROVIDE A FOOT PUMP	PROVIDE A WORK SURFACE THAT IS HEIGHT ADJUSTABLE	PROVIDE CONTROLS WHICH DO NOT REQUIRE EXCESSIVE FORCES	RAISE THE HANDLE
PROVIDE A FOOTREST OR FOOTREST	PROVIDE ADDITIONAL STAFF	PROVIDE DISPLAYS WHICH ARE READABLE AND EASY TO UNDERSTAND	RAISE THE MONITOR/SCREEN
PROVIDE A FULL-SIZED INPUT DEVICE	PROVIDE ADEQUATE LEG CLEARANCE	PROVIDE EXTENSIONS FOR TOOLS	RAISE THE PERSON
PROVIDE A HIGH FRICTION GRIPPING SURFACE	PROVIDE ADEQUATE STORAGE	PROVIDE HANDLES WITH INSULATING MATERIAL	RAISE THE WORK PIECE/WORK SURFACE
PROVIDE A HOOK-TYPE TOOL TO PULL ITEMS	PROVIDE ADEQUATE TOE CLEARANCE	PROVIDE PORTABLE FAN(S)	REARRANGE DESK/WORKSURFACE
PROVIDE A KEYBOARD THAT DOES NOT REQUIRE EXCESSIVE FORCES	PROVIDE ADEQUATE WORK SPACE	PROVIDE PORTABLE HEATER(S)	REARRANGE WORK AREA TO AVOID FACE-TO-FACE WORK STATIONS
PROVIDE A KEYBOARD WHICH DOES NOT REQUIRE EXCESSIVE KEYING FORCES	PROVIDE ALTERNATIVE WORK SURFACE LAYOUT	PROVIDE POWERED ASSISTANCE FOR A MANUAL ACTIVITY	RECESS CONTAINER INTO WORK SURFACE
PROVIDE A LARGER WORKSURFACE	PROVIDE AN ADJUSTABLE HEIGHT LIFT TABLE	PROVIDE POWERED OR MECHANICAL ASSISTANCE FOR DOOR	RE-DESIGN JOB
PROVIDE A LIGHTER WEIGHT DOOR	PROVIDE AN ADJUSTABLE MIRROR	PROVIDE PROTECTION FROM GLARE FROM NATURAL LIGHT	RE-DESIGN THE WORK SPACE
			REDIRECT AIR CONDITIONING UNITS AND/OR FANS
			REDUCE CARRY DISTANCE
			REDUCE DEPTH OF STORAGE CONTAINER
			REDUCE FORCE REQUIRED TO INSTALL OR REMOVE THE COMPONENT

REDUCE NUMBER OF FASTENERS USED	USE AVAILABLE ALTERNATIVE WORK SURFACE	LASER - ANSI CLASS 1	OUTPUT EMISSION LIMITATIONS
REDUCE THE ANGLE A PERSON HAS TO TURN TO TRANSFER AN ITEM	USE AVAILABLE CHAIR WITH ADJUSTABLE ARMREST(S) FOR FOREARM SUPPORT	OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL	STANDARD OPERATING PROCEDURES
REDUCE THE WEIGHT OF THE LOAD ON THE CART	USE CART TO MOVE BOXES AND FILES	OTHER	WARNING SIGNS
REDUCE WEIGHT OF WORK PIECE	USE HEAVY EXCAVATION EQUIPMENT (E.G., BACKHOE)	WARNING AREA SIGN POSTED (OPERATED WITHOUT PROTECTIVE HOUSING, MPE EXCEEDED)	WARNING/IDENTIFICATION/APERTURE LABELS
RELOCATE THE WORK	USE HEIGHT ADJUSTABLE ARMRESTS TO SUPPORT THE FOREARM	WARNING/IDENTIFICATION/APERTURE LABELS	LASER - ANSI CLASS 4
REMOVE OBSTRUCTIONS	USE LARGER STAPLER WITH LONGER LEVER ARMS	LASER - ANSI CLASS 2	ACCESS LIMITED TO AUTHORIZED PERSONNEL
REMOVE OR LOWER ARMRESTS	USE STEP STOOL TO ACCESS HIGH LEVEL SHELVES	ALIGNMENT PROCEDURES	ALIGNMENT PROCEDURES
REPLACE ABRASIVE OR CUTTING MATERIAL FREQUENTLY	USE TWO OR MORE PERSONS TO PERFORM THE LIFT/TRANSFER	OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL	LIMITATIONS ON SPECTATORS
REPLACE STANDING FOOT PEDALS WITH ALTERNATIVE CONTROLS	USE WELL-FITTING "GRIPPER" GLOVES TO PULL FILES	OTHER	MAINTENANCE AND SERVICE ONLY BY TRAINED PERSONNEL
REPOSITION FOOT PEDAL	VENT PORTABLE AIR CONDITIONERS AND OTHER HEAT PRODUCING EQUIPMENT TO OUTDOORS WHEN POSSIBLE	WARNING AREA SIGN POSTED (OPERATED WITHOUT PROTECTIVE HOUSING, MPE EXCEEDED)	MANUFACTURER'S OPERATING, MAINTENANCE AND SERVICING PROCEDURES
ROTATE THE WORK PIECE	WEAR APPROPRIATE SHOES	WARNING SIGNS	OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL
SHARPEN BLADES FREQUENTLY	IONIZING RADIATION	WARNING/IDENTIFICATION/APERTURE LABELS	OTHER
STAND TO PERFORM TASK	ACCESS LIMITED TO AUTHORIZED PERSONNEL	LASER - ANSI CLASS 3A	OUTPUT EMISSION LIMITATIONS
STAND UP AND REACH FOR ITEMS POSITIONED ABOVE DESK OR IN REFERENCE ZONE	ACTIVATION KEY CONTROLLED	ALIGNMENT PROCEDURES	STANDARD OPERATING PROCEDURES
STORE MATERIALS IN THE SAME ORIENTATION IN WHICH THEY ARE USED	DISTANCE	OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL	WARNING SIGNS
SUGGEST COMPUTER GLASSES	DOSIMETERS WORN PROPERLY	OTHER	WARNING/IDENTIFICATION/APERTURE LABELS
TILT MONITOR DOWN SO IT IS PARALLEL TO THE FLOOR	OTHER	OUTPUT EMISSION LIMITATIONS	LASER - OFCS
TRAIN PROPER BODY MECHANICS/POSTURE	REMOVAL OF PERSONNEL, DOSE LIMITATION	WARNING SIGNS	CONTROLLED AREA DURING SERVICE AND INSTALLATION
TRAIN PROPER CHAIR ADJUSTMENT	STANDARD OPERATING PROCEDURES	WARNING/IDENTIFICATION/APERTURE LABELS	INSTALLATION AND SERVICE ONLY BY AUTHORIZED PERSONNEL
TRAIN PROPER FOOTREST USE	TIME	LASER - ANSI CLASS 3B	OTHER
TRAIN PROPER KEYING STYLE	WARNING LABELS	ACCESS LIMITED TO AUTHORIZED PERSONNEL	UNAUTHORIZED PERSONNEL EXCLUDED FROM THE NHZ OF SG3B OR SG4 OFCS DURING INSTALLATION/SERVICE
TRAIN PROPER MICROSCOPE TECHNIQUE	WARNING SIGN ALERTING FEMALES TO NOTIFY TECHNICIAN IF PREGNANT	ALIGNMENT PROCEDURES	WARNING LABELS
TRAIN PROPER TYPING/MOUSING STYLE	WARNING SIGN IDENTIFYING EMERGENCY KILL SWITCHES	LIMITATIONS ON SPECTATORS	WARNING SIGNS
USE A DESK-BASED TAPE DISPENSER INSTEAD OF A HAND-HELD DISPENSER	WARNING SIGN ON ENTRANCE TO KNOCK BEFORE ENTERING ROOM	MAINTENANCE AND SERVICE ONLY BY TRAINED PERSONNEL	LASER-ANSI CLASS 1M
USE A FLAT STAPLE REMOVER WITH A POWER GRIP RATHER THAN A PINCH GRIP	WARNING SIGNS	MANUFACTURER'S OPERATING, MAINTENANCE AND SERVICING PROCEDURES	OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL
USE AIR CONDITIONING WHEN PROVIDED		OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL	OTHER
USE ALTERNATIVE FASTENERS		OTHER	WARNING AREA SIGN POSTED (OPERATED WITHOUT PROTECTIVE HOUSING, MPE EXCEEDED)
USE AUTOMATIC STAPLER			WARNING/IDENTIFICATION/APERTURE LABELS

LASER-ANSI CLASS 2M	OTHER	OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL	RFR
ALIGNMENT PROCEDURES	WARNING AREA SIGN POSTED (OPERATED WITHOUT PROTECTIVE HOUSING, MPE EXCEEDED)	OTHER	CONES
OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL	WARNING/IDENTIFICATION/APERTURE LABELS	OUTPUT EMISSION LIMITATIONS	CONSTANT OBSERVATION
OTHER	LASER-FDA CLASS IIIA	STANDARD OPERATING PROCEDURES	OTHER
WARNING AREA SIGN POSTED (OPERATED WITHOUT PROTECTIVE HOUSING, MPE EXCEEDED)	ALIGNMENT PROCEDURES	WARNING SIGNS	PRIOR COORDINATION
WARNING SIGNS	OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL	WARNING/IDENTIFICATION/APERTURE LABELS	STANDARD OPERATING PROCEDURES
WARNING/IDENTIFICATION/APERTURE LABELS	OTHER	MEDICAL REMOVAL	WARNING SIGNS
LASER-ANSI CLASS 3R	OUTPUT EMISSION LIMITATIONS	BENZENE	SIGNS/DISTANCE
ALIGNMENT PROCEDURES	WARNING SIGNS	CADMIUM	AUDIBLE ALARMS
OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL	WARNING/IDENTIFICATION/APERTURE LABELS	LEAD	OTHER
OTHER	LASER-FDA CLASS IIIB	OTHER	PAINTED LINES
OUTPUT EMISSION LIMITATIONS	ACCESS LIMITED TO AUTHORIZED PERSONNEL	PREGNANCY	WARNING FLASHERS
WARNING SIGNS	ALIGNMENT PROCEDURES	MISCELLANEOUS	WARNING SIGNS
WARNING/IDENTIFICATION/APERTURE LABELS	LIMITATIONS ON SPECTATORS	ADJUST WORK SCHEDULE	TRAINING
LASER-FDA CLASS I	MAINTENANCE AND SERVICE ONLY BY TRAINED PERSONNEL	CHEMICAL HYGIENE PLAN	1,2-DIBROMO-3-CHLOROPROPANE
OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL	MANUFACTURERS OPERATING, MAINTENANCE AND SERVICING PROCEDURES	HOUSEKEEPING AND MAINTENANCE	1,3-BUTADIENE
OTHER	OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL	JOB ROTATION	2-ACETYLAMINOFLUORENE
WARNING AREA SIGN POSTED (OPERATED WITHOUT PROTECTIVE HOUSING, MPE EXCEEDED)	OTHER	OTHER	3,3'-DICHLOROBENZIDINE (AND ITS SALTS)
WARNING/IDENTIFICATION/APERTURE LABELS	OUTPUT EMISSION LIMITATIONS	PERSONAL HYGIENE	4,4'-METHYLENEDIANILINE
LASER-FDA CLASS II	STANDARD OPERATING PROCEDURES	PROPER HYDRATION	4-AMINODIPHENYL
ALIGNMENT PROCEDURES	WARNING SIGNS	REGULATED AREA	4-DIMETHYLAMINOAZOBENZENE
OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL	WARNING/IDENTIFICATION/APERTURE LABELS	REST BREAKS	4-NITROBIPHENYL
OTHER	LASER-FDA CLASS IV	SMOKING, DRINKING, EATING NOT ALLOWED	ACRYLONITRILE (VINYL CYANIDE)
WARNING AREA SIGN POSTED (OPERATED WITHOUT PROTECTIVE HOUSING, MPE EXCEEDED)	ACCESS LIMITED TO AUTHORIZED PERSONNEL	STANDARD OPERATING PROCEDURES	ALPHA-NAPHTHYLAMINE
WARNING SIGNS	ALIGNMENT PROCEDURES	TIME LIMITS	ARC WELDING AND CUTTING
WARNING/IDENTIFICATION/APERTURE LABELS	LIMITATIONS ON SPECTATORS	UNIVERSAL PRECAUTIONS	ASBESTOS, AWARENESS
LASER-FDA CLASS IIA	MAINTENANCE AND SERVICE ONLY BY TRAINED PERSONNEL	WORK/REST CYCLES	ASBESTOS, WORKER
OPERATED BY QUALIFIED AND AUTHORIZED PERSONNEL	MANUFACTURERS OPERATING, MAINTENANCE AND SERVICING PROCEDURES	WORKER ISOLATION	AUDIOMETRIC TESTING
		WORKER ROTATION	BENZENE
		PERSONAL MONITORING DEVICE	BENZIDINE
		ELECTROGONIOMETER	BERYLLIUM AND BERYLLIUM COMPOUNDS
		OTHER	BETA-NAPHTHYLAMINE
		PERSONAL GAS MONITOR	BETA-PROPIOLACTONE
		PERSONAL RF MONITOR	BIS-CHLOROMETHYL ETHER
		POCKET DOSIMETER	BLASTER QUALIFICATIONS (29 CFR 1926 SUBPART U - BLASTING AND USE OF EXPLOSIVES)
		THERMOLUMINESCENT DOSIMETER	BLOODBORNE PATHOGENS
		PROCESS BASED	
		WET METHOD	

BULK DELIVERY AND MIXING VEHICLES (29 CFR 1910 SUBPART H - HAZARDOUS MATERIALS)	EMPLOYEE EMERGENCY PLANS AND FIRE PLANS (29 CFR 1910 SUBPART E - MEANS OF EGRESS)	GENERAL PROVISIONS (29 CFR 1926 SUBPART U - BLASTING AND USE OF EXPLOSIVES)	LAUNDRY MACHINERY AND OPERATING RULES (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)
CABLE FAULT LOCATING (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)	ENTRY INTO BINS, SILOS, AND TANKS (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)	GENERAL REQUIREMENTS (29 CFR 1910 SUBPART Q - WELDING, CUTTING AND BRAZING)	LEAD (29 CFR 1910 SUBPART Z - TOXIC AND HAZARDOUS SUBSTANCES)
CADMIUM	ERGONOMICS, GENERAL AWARENESS	GENERAL REQUIREMENTS (29 CFR 1926 SUBPART V - POWER TRANSMISSION AND DISTRIBUTION)	LEAD IN CONSTRUCTION (29 CFR 1926 SUBPART D - OCC. HEALTH AND ENVIRONMENTAL CONTROLS)
CARE AND USE OF PERSONAL FALL ARREST SYSTEMS (29 CFR 1910.66, APPENDIX C, SECTION 1)	ERGONOMICS, LIFTING/BACK	GENERAL SAFETY AND HEALTH PROVISIONS (29 CFR 1926 SUBPART C - GENERAL SAFETY AND HEALTH PROVISIONS)	LOCKOUT OR TAGOUT DEVICES REMOVED
CHROMIUM AND CHROMATES	ERGONOMICS, MANUAL MATERIAL HANDLING	GRAIN HANDLING FACILITIES (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)	LOGGING (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)
CHUTES (29 CFR 1926 SUBPART T - DEMOLITION)	ERGONOMICS, UPPER EXTREMITY/REPETITION	GROUND-FAULT PROTECTION (29 CFR 1926 SUBPART K - ELECTRICAL)	MATERIAL HANDLING EQUIPMENT (29 CFR 1926 SUBPART O - MOTOR VEHICLES, MECHANIZED EQUIPMENT, AND MARINE OPERATIONS)
COKE OVEN EMISSIONS	ERGONOMICS, VDT	GUARDING MANHOLES (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)	MATERIAL HOISTS, PERSONNEL HOISTS, AND ELEVATORS (29 CFR 1926 SUBPART N - CRANES, DERRICKS, HOISTS, ELEVATORS, AND CONVEYORS)
COMPRESSED AIR	ETHYLENE OXIDE	GUARDING OF LOW-PITCHED ROOF PERIMETERS DURING THE PERFORMANCE OF BUILT-UP ROOFING WORK (29 CFR 1926 SUBPART L - SCAFFOLDING)	MECHANICAL DEMOLITION (29 CFR 1926 SUBPART T - DEMOLITION)
CONCRETE AND MASONRY CONSTRUCTION	ETHYLENEIMINE	HAZARD COMMUNICATION	MECHANICAL INTEGRITY (29 CFR 1910 SUBPART H - HAZARDOUS MATERIALS)
CONFINED SPACES	EXPLOSIVES AND BLASTING AGENTS	HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE	MECHANICAL POWER PRESSES (29 CFR 1910 SUBPART O - MACHINERY AND MACHINE GUARDING)
CONSTRUCTION IN ENERGIZED SUBSTATIONS (29 CFR 1926 SUBPART V - POWER TRANSMISSION AND DISTRIBUTION)	FALL PROTECTION (29 CFR 1926 SUBPART L - SCAFFOLDING)	HEARING CONSERVATION PROGRAM	MECHANICAL POWERS PRESSES INSTRUCTION TO OPERATORS (29 CFR 1910 SUBPART O - MACHINERY AND MACHINE GUARDING)
CONTENT OF TRAINING (29 CFR 1910 SUBPART S - ELECTRICAL SAFETY-RELATED WORK PRACTICES)	FIRE BRIGADES (29 CFR 1910 SUBPART L - FIRE PROTECTION)	HEARING PROTECTION PROGRAM	MEDICAL SERVICES AND FIRST AID
CONTRACT EMPLOYER RESPONSIBILITIES (29 CFR 1910 SUBPART H - HAZARDOUS MATERIALS)	FIRE DETECTION SYSTEMS (29 CFR 1910 SUBPART L - FIRE PROTECTION)	HEAT/COLD STRESS	MERCURY AND MERCURY COMPOUNDS
CONTRACTORS (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)	FIRE PREVENTION (29 CFR 1926 SUBPART J - WELDING AND CUTTING)	HYDRAZINE	METHYL CHLOROMETHYL ETHER
CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)	FIRE PROTECTION	INORGANIC ARSENIC	METHYLENE CHLORIDE
COTTON DUST	FIRING THE BLAST (29 CFR 1926 SUBPART U - BLASTING AND USE OF EXPLOSIVES)	INSPECTION, MAINTENANCE, AND INSTALLATION (VENTILATION)	MOVING THE LOAD (29 CFR 1910 SUBPART N - MATERIALS HANDLING AND STORAGE)
CRANES AND DERRICKS	FIXED EXTINGUISHING SYSTEMS (29 CFR 1910 SUBPART L - FIRE PROTECTION)	IONIZING RADIATION	NEW TECHNOLOGY PROGRAMS (29 CFR 1910 SUBPART H - HAZARDOUS MATERIALS)
CRAWLER LOCOMOTIVE AND TRUCK CRANES (29 CFR 1910 SUBPART N - MATERIALS HANDLING AND STORAGE)	FLAMMABLE AND COMBUSTIBLE LIQUIDS	ISOCYANATES	N-NITROSODIMETHYLAMINE
DERRICK TRUCKS (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)	FOOD SAFETY	JET FUELS/POLS	NON-IONIZING RADIATION
ELECTRIC POWER GENERATION, TRANSMISSION, AND DISTRIBUTION (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)	FORGING MACHINES (29 CFR 1910 SUBPART O - MACHINERY AND MACHINE GUARDING)	JOINT POWER AND TELECOMMUNICATION MANHOLES (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)	
EMPLOYEE ALARM SYSTEMS (29 CFR 1910 SUBPART N - MATERIALS HANDLING AND STORAGE)	FORMALDEHYDE	LADDERS (29 CFR 1926 SUBPART V - POWER TRANSMISSION AND DISTRIBUTION)	
	GAS WELDING AND CUTTING (29 CFR 1926 SUBPART J - WELDING AND CUTTING)		
	GASES, VAPORS, FUMES, DUSTS AND MISTS (29 CFR 1926 SUBPART D - OCC. HEALTH & ENVIRONMENTAL CONTROLS)		
	GENERAL PROTECTION REQUIREMENTS (29 CFR 1926 SUBPART P - EXCAVATIONS)		

OCCUPATIONAL EXPOSURE TO HAZARDOUS CHEMICALS IN LABORATORIES	POWERED INDUSTRIAL TRUCKS (29 CFR 1910 SUBPART N - MATERIALS HANDLING AND STORAGE)	SCAFFOLDING (29 CFR 1926 SUBPART L - SCAFFOLDING)	TRAINING OF MAINTENANCE PERSONNEL (29 CFR 1910 SUBPART O - MACHINERY AND MACHINE GUARDING)
OPERATIONS-TRAINING (29 CFR 1910 SUBPART F - POWERED PLATFORMS, MANLIFTS, VEHICLE-MOUNTED WORK PLATFORMS)	POWER-OPERATED HAND TOOLS (29 CFR 1926 SUBPART I - TOOLS-HAND AND POWER)	SERVICING OF MULTI-PIECE AND SINGLE-PIECE RIM WHEELS (29 CFR 1910 SUBPART N - MATERIALS HANDLING AND STORAGE)	TRAINING PROGRAM (NOISE EXPOSURE, 29 CFR 1910 SUBPART G - OCC. HEALTH AND ENVIRONMENTAL CONTROL)
OPERATOR TRAINING (29 CFR 1910 SUBPART O - MACHINERY AND MACHINE GUARDING)	PREPARATORY OPERATIONS (29 CFR 1926 SUBPART T - DEMOLITION)	SIGNALING (29 CFR 1926 SUBPART G - SIGNS, SIGNALS, AND BARRICADES)	TREE TRIMMING-ELECTRICAL HAZARDS (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)
OTHER	PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS (29 CFR 1926 SUBPART D, 29 CFR 1910 SUBPART H)	SITE CLEARING (29 CFR 1926 SUBPART O - MOTOR VEHICLES, MECHANIZED EQUIPMENT, AND MARINE OPERATIONS)	UNDERGROUND CONSTRUCTION
OUTSIDE PERSONNEL (29 CFR 1910 SUBPART J - GENERAL ENVIRONMENTAL CONTROLS)	PULP, PAPER, AND PAPERBOARD MILLS (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)	SOLVENTS	UNDERGROUND LINES (29 CFR 1926 SUBPART V - POWER TRANSMISSION AND DISTRIBUTION)
OVERHEAD LINES (29 CFR 1926 SUBPART V - POWER TRANSMISSION AND DISTRIBUTION)	PULPWOOD LOGGING (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)	SPECIFICATIONS FOR ACCIDENT PREVENTION SIGNS AND TAGS (29 CFR 1910 SUBPART J - GENERAL ENVIRONMENTAL CONTROLS)	VINYL CHLORIDE
OXYGEN-FUEL GAS WELDING AND CUTTING (29 CFR 1910 SUBPART Q - WELDING, CUTTING, AND BRAZING)	QUALIFICATIONS OF DIVE TEAM (29 CFR 1910 SUBPART T - COMMERCIAL DIVING OPERATIONS)	STORAGE AND HANDLING OF LIQUEFIED PETROLEUM GASES	WELDING, CUTTING AND HEATING IN WAY OF PRESERVATIVE COATINGS (29 CFR 1926 SUBPART J - WELDING AND CUTTING)
PERSONAL PROTECTION (FOR BLASTING OPERATIONS) (29 CFR 1910 SUBPART G - OCC. HEALTH AND ENVIRONMENTAL CONTROL)	RESISTANCE WELDING (29 CFR 1910 SUBPART Q - WELDING, CUTTING, AND BRAZING)	SURFACE TRANSPORTATION OF EXPLOSIVES (29 CFR 1926 SUBPART U - BLASTING AND USE OF EXPLOSIVES)	WOODWORKING TOOLS (29 CFR 1926 SUBPART I - TOOLS-HAND AND POWER)
PERSONAL PROTECTIVE EQUIPMENT	RESPIRATORY PROTECTION	TELECOMMUNICATIONS (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)	
PESTICIDES, HERBICIDES AND INSECTICIDES	SAFETY TRAINING AND EDUCATION (29 CFR 1926 SUBPART C - GENERAL SAFETY AND HEALTH PROVISIONS)	TEMPORARY LABOR CAMPS (29 CFR 1910 SUBPART J - GENERAL ENVIRONMENTAL CONTROLS)	
PORTABLE FIRE EXTINGUISHERS (29 CFR 1910 SUBPART L - FIRE PROTECTION)	SAWMILLS (29 CFR 1910 SUBPART R - SPECIAL INDUSTRIES)		

FREQUENTLY ASKED QUESTIONS CONT.

Sampling - When do I need to get something sampled?

Most often a waste stream will have to be sampled if it is new, the process has changed or the waste is an unknown. (40 CFR 262.11; JBLE-Langley Hazardous Waste Management Plan)

Sampling - Who do I call to get something sampled or my waste characterized?

You should call 633 CES/CEIE 764-1133.

Universal Waste -What waste streams are considered Universal Waste?

Batteries, except flashlight & lead-acid batteries; pesticides; mercury thermostats, and fluorescent lamps. Other items are under consideration, for inclusion in the Universal Waste Rule. You can call the HW program manager at 764-1133, if you have any questions. (40 CFR 273.3-4.)

Universal Waste - Can I mix my Universal Waste batteries together?

No...You must collect like batteries together in separate containers, i.e. Ni-Cad with Ni-Cad, Lithium with Lithium.

Universal Waste - How must I mark my Universal Waste container?

You must mark the universal waste to identify the type of universal waste is in the container, i.e. Universal Waste lamps, Universal Waste batteries (Lithium), (Ni-Cad) Universal Waste pesticides.

A start date must be marked on the container. The start date must indicate the date the first item went into the container. This is the date the ten month accumulation period begins. (40 CFR 273.34; JBLE-Langley Hazardous Waste Management Plan).

Universal Waste - How long can I store my universal waste?

Federal regulation allows the installation one year to accumulate Universal Waste. At Langley AFB you are only allowed 10 months to accumulate your Universal Waste at the IAP because it takes the program managers two months to process the waste for disposal off the base. (40 CFR 273.35 (a);

Universal Waste – How do I dispose of lead-acid batteries or alkaline batteries that are not considered Universal Waste?

We recommend one for one purchase of the Lead acid battery. To dispose of small amount email 633.CES.HAZ@us.af.mil We recommend you contact Battery Outlet 867-8280 in Tabb/Yorktown or Battery Plus 874-7090 in Newport news.

Who shall I contact to have my waste picked up?

Email: 633.CES.HAZ@us.af.mil

Call 225-5808.

THE HAZARDOUS WASTE GOLDEN RULE !

DO NOT GUESS!

**IF YOU ARE EVER IN DOUBT PLEASE DO NOT
HESITATE TO CONTACT YOUR GROUP
ENVIRONMENTAL MANAGER (GEM), UNIT
ENVIRONMENTAL COORDINATOR (UEC) OR THE
HAZARDOUS WASTE MANAGER**

**RONALD HOLCOMB AT 764-1133 OR
ronald.holcomb.1 @us.af.mil**

UNIVERSAL WASTE DISPOSAL CHEAT SHEET

All Universal Waste Lamps will be collected and turned into the Central Accumulation Point (CAP). No lamps are allowed to be thrown into the trash as of 1 Aug 17. This includes all green tip and green writing lamps.

Please refer to the MEMORANDUM FOR UNIVERSAL WASTE dated 01 Aug 17 for proper management and disposal.

NOTE: Universal Waste can only be stored for 10 month regardless if container is filled.

JBLE-Langley Air Force Base

633 CES/CEIE



Hazardous Waste Frequently Asked Questions and Guide

Hazardous Waste Team is responsible for ensuring the day to day compliance of Federal, State, and Air Force regulations.

HAZARDOUS WASTE PROGRAM OVERVIEW

Responsible for:

Ensuring the day-to-day compliance of federal, state, local and Air Force regulations concerning hazardous waste generation and management; “cradle to grave”.



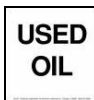
—Hazardous Waste (HW)



—Universal Waste (UW) Management



—Non-Regulated Waste Management

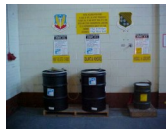


—Used Oil

Container Management—



—Central & Initial Accumulation Point management



—Training

Assessment & Inspection —



—Waste Reduction Efforts

—Review & Authorize Chemical & HazMat Usage



Hazwaste Mgmt Plan Revisions—



FREQUENTLY ASKED QUESTIONS

Evaporators -Who trains on use and cleaning of the evaporators?

1 MXG operates three scrubber water evaporators. One is managed by the AGE shop 4-2888, Corrosion Control, 4-5281, and MXS, 4-3346. Contact those offices for training. Contact the CAP at 225-5808 for cleaning of the evaporators.

Initial Accumulation Point (IAP) - I have a new waste, how do I set up an IAP?

Once a new waste stream has been identified the shop environmental coordinator initiates communication with the Squadron Unit Environmental Coordinator. One of those two will generate a letter requesting authorization to accumulate the waste. The letter indicates the location of the accumulation point, the waste accumulated there and the names and contact information for the primary and alternate accumulation managers. The letter, signed by the unit or section commander, must include coordination by the Group Environmental Manager, Wing Safety, (SEG) Bio-environmental Engineers, (SGPB), Civil Engineering Fire Department (CEF) and Civil Engineering Environmental Management Element (CEIE). (*JBLE-Langley Hazardous Waste Management Plan*).

IAP - Who can do the weekly inspection of the initial accumulation point?

Air Force guidance requires a weekly inspection of all IAPs. The IAP can be inspected by anyone who is trained and proficient in hazardous waste management. In most cases this will be the primary or alternate IAP manager.

IAP - How can I get containers or other supplies for my waste?

Containers for accumulating wastes are the responsibility of the unit to obtain through supply channels or by using the GPC. CES Environmental Management can provide vendor information for research and purchase.

IAP - Where do I get labels for my containers?

Labels for your containers can be obtained from your Unit Environmental Coordinator, Group Environmental Manager, or CES Environmental Management.

IAP - Who do I call when the containers are full?

When a container becomes full, federal regulation requires that the container be picked up within 3 days of becoming full. The user is required to email or call the pick up contractor as soon as the container becomes full at 633.CES.HAZ@us.af.mil; or 225-5808. Call the HW program manager if the container is not picked up in a timely manner (before end of second day). (*40 CFR 262.34(c)(2)*; *JBLE-Langley HW Management Plan, pg. 30, section 7.5 IAP Management*)

IAP - How often do I need IAP training?

Facility personnel identified as required to obtain training must take part in an annual review of the training program. For new personnel, training must be successfully completed prior to their assignment to a position involving the handling or management of hazardous waste. Until that time, untrained personnel must not perform any task involving hazardous waste management unless trained personnel supervise them. (*40 CFR 265.16(c)*; *JBLE-Langley HW Management Plan pg. 15, section 5.1*)

IAP - Who needs IAP training?

Hazardous waste management training is required for any personnel who handle hazardous waste at facilities or more specifically: work at a 90-day hazardous waste accumulation facility, manage a hazardous waste initial accumulation points, or conduct emergency response to a hazardous waste incident. You may also be required to obtain initial accumulation point training if you carry out any of the tasks or supervise anyone performing the following tasks:

- Decide which wastes are hazardous waste
- Add hazardous waste into accumulation containers at accumulation points;
- Remove hazardous waste from accumulation tanks or containers;

FREQUENTLY ASKED QUESTIONS CONT.

IAP - Who needs IAP training (Cont.)?

All personnel whose work involves HW, and their immediate supervisors, must successfully complete HW training appropriate to their job responsibilities - (*40 CFR 265.16*; *JBLE-Langley Hazardous Waste Management Plan, pg 15*).

Collection Area (CA) - What is it?

A CA is used to collect non-regulated waste, Universal Waste (UW), recyclable materials and other materials that are not Hazardous Waste. CA's are managed similar to IAP's but are not as strict. Inspections are done every 30 days instead of 7 days. CA's help provide a area to manage non-Hazardous Waste in one area instead of multiple.

Guidance –

Most Hazardous Waste related guidance can be found on Langley's e-DASH Hazardous Waste web page:

https://cs2.eis.af.mil/sites/10623/JBLE/_layouts/15/start.aspx#/SitePages/Home.aspx

There you will find information on: Aerosol cans, Sealants, Fluorescent Lamps, Floor Scrubber Water, Absorbent Pad drums

Used Oil - Who shall I call to get used oil pumped?

You should call 633 CES/CEIE at 764-1130.

Aerosol procedures—How do I manage Aerosol cans?

Place aerosols cans (paint, oil, solvents) into a closed 5, 20, or 30 gallon container with a green label as re-issue/reuse, or recycled. The container must remain close except when adding to the container. The shops are not required to make the reuse or recycle determination; this is the responsibility of the pick-up contractor.

Hazardous Materials - What is the difference between Hazardous Materials and Hazardous Waste?

A hazardous material is one that presents a physical or health hazard and requires an SDS. HAZMAT includes all items (including medical supply items, but excluding drugs in their finished form and pharmaceuticals in individually-issued items) covered under the EPCRA tracking requirement, the OSHA HAZCOM Standard, and all Class I and Class II ODS. It does not include munitions or HW.

Hazardous Waste is defined in 40 CFR 261.3. It is a solid waste that is not excluded from regulation and meets any of the following characteristics; exhibits a characteristic of ignitability, corrosivity, reactivity, or toxicity. The waste may also be on a list found in 40 CFR 261.

Where can I get a copy of the Hazardous Waste Management Plan?

The Langley Hazardous Waste Management Plan is located on the eDASH website: https://cs2.eis.af.mil/sites/10623/JBLE/_layouts/15/start.aspx#/SitePages/Home.aspx

ACC



Providing the world's best combat Air Forces – Delivering rapid, decisive, sustainable

633d Air Base Wing

Setting the Standard

In Air Supremacy



Aerial shot of JBLE-Langley

Protection of the natural resources under its stewardship is an integral part of the Air Force mission. This brochure highlights some of the important natural resources found on JBLE-Langley in the hope that it will foster general interest in and awareness of their values.

Did you know...

In 1969, the Air Force National Resources Activity was reassigned from the Office of the Inspector General (Assistant for Natural Resources) to the Office of the Director, Civil Engineering, HQ USAF. An Assistant for Natural Resources position was established for coordinating all Air Force natural resources programs, such as forestry, fish and wildlife conservation, air and water pollution, noise, soil management, solid wastes, pesticide problems, and bird/aircraft strike hazards (BASH). The following year, the Directorate of Civil Engineering was designated the OPR for all Air Force environmental protection matters. Previously, CE shared this responsibility with the Air Force Surgeon General. To increase the effectiveness of the pollution control programs and to upgrade the importance of environmental considerations, the late General Guy H. Goddard (Director of Civil Engineering, 1968-1971) established the Environmental Protection Group in July 1970. This was the forerunner of today's Environmental Division in the Office of The Civil Engineer.

JBLE-Langley

For more information, contact the Civil Engineering, Environmental Element, Natural Resources Section at (757) 764-1090

JBLE—Langley

633CES/CEIE



Natural Resources

In 1916 Langley Airfield was established as a government-sponsored aviation research and development center under an agreement between the Army, Navy, and National Aeronautics and Space Administration (NASA). JBLE-Langley is now the oldest continuously active air base in the United States.

In 1948, the United States Air Force was created and Langley Airfield became Langley Air Force Base. Since that time Langley has become part of . Joint Base Langley Eustis and home to the Air Combat Command Headquarters and the 1st Fighter Wing. About 12,000 active personnel are stationed at JBLE-Langley.

Langley AFB wishes to conserve the soil, water, landscapes, wetlands, wildlife, and outdoor recreational assets as essential elements of the Natural Resources Program. There are many ways to enjoy and appreciate the abundant amount of flora and fauna, including those listed in this brochure. Take time to learn about the many available avenues for enjoying the natural resources at Langley Air Force Base.

Shellbank Area

The Shellbank Area is the southwest area of Langley that also includes the B-52 Memorial. The memorial is located by JBLE-Langley's front gate and is excellent place to watch local wildlife. The B-52 debuted in 1965 and continues to be the backbone in bombing planes for the U.S. Air Force. The Shellbank area is a prime spot to observe the wildlife and the serene environment here on the base.



Native Flora

There are over 100 different species of floral known to occur at JBLE-Langley. The Trumpet flower, shown to the right, is one of the many colorful flowers that are scattered across the base.



Native Fauna

Native wildlife includes a wide variety of game and fur-bearing species, small mammals, raptors, waterfowl, songbirds, amphibians, reptiles, and fish. The Chesapeake Bay attracts a variety of wildlife to the Langley Area. Twelve species of protected, or candidate, birds, vertebrates, invertebrates and plants have been identified to potentially occur within a 50-mile radius of the base.

Osprey (right)
Heron (below)
Birds and airplanes share the air in and around Langley Air Force Base.



A Speckled Turtle
(above) relaxes on a log in the reservoir at Bethel Park.

Indigenous Wildlife

- | | |
|--------------|--------------------------|
| * Eagles | * Terrapin |
| * Deer | * Blue Jays |
| * Cottontail | * Seagulls |
| * Blue Crabs | * Mallards/Ducks |
| * Scallops | * Ospreys |
| * Oysters | * Herons |
| * Fin Fishes | * Red-winged Black-birds |

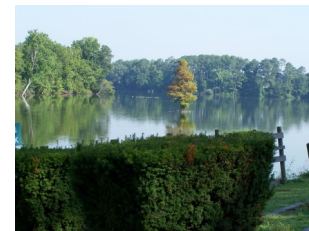
Bethel Park

Bethel Park is a 284-acre park that provides facilities for the public to enjoy. Base



improvements over the years have included upgrading piers, adding picnic shelters, recreational trails, and the FAMCAMP. Fishing, boating, and picnic areas with

stunning views of the reservoir are all entertainment opportunities that are available to the community. At the Dickman Recreational Area, located at Bethel Park, one can take a boat out to admire the native forest and shrub species while observing the indigenous wildlife. In 2004, an estimated 40,000 people utilized the Bethel Park area.



Boardwalk



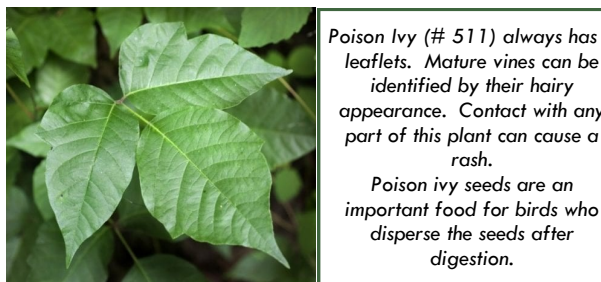
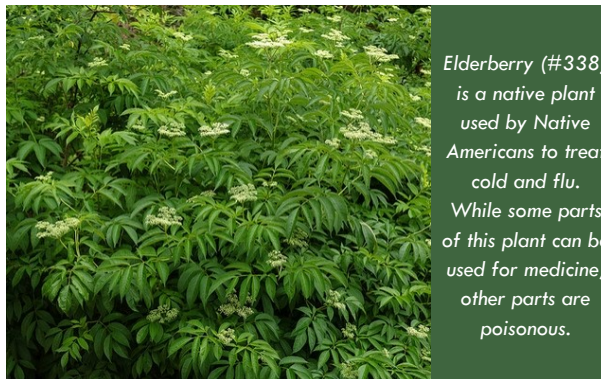
A 1680 foot boardwalk was built in 1992 through one of JBLE-Langley's wetland areas. Local Boy Scouts along with other volunteers donated time and energy to create the boardwalk to be a place

where people can convene to enjoy nature. The 60,000 square foot marsh that surrounds the boardwalk was created in 1987 to replace other wetlands that had been filled at other locations on Langley. The marsh is home to many variations of wildlife including the Blue Heron and the Fiddler Crab. The tidal waters rise twice a day to fill the area.



All species have at least 2 names. The common name is the name used to refer to a plant in everyday conversation. Plants often have more than one common name. One common name may also be used for several different plants. *Nyssa sylvatica*, the black gum tree, is also called sour gum, and tupelo. There are three other different species of tree called tupelo. The sweet gum tree, which is a different species, grows in the same areas as black gum.

The Latin name is an organism's scientific name. This is the name biologists use to refer to an organism in order to prevent misunderstanding. Every unique species only has one Latin name.



Maintenance of the nature trail is carried out during volunteer work days. If you are willing to lend a hand, in please contact the Natural Resources Manager at:

757-764-1090 or alicia.garcia.4@us.af.mil

PLANTS OF THE JBLE-LANGLEY NATURE TRAIL



633 CES Environmental Element



The JBLE-Langley Nature Trail is located off of Worley Rd. across from the horse stables.



Native, Introduced or Invasive?



Winged sumac (# 134) is related to poison sumac but doesn't cause a rash. The winging along the center part of the leaf makes it easy to identify.

The numbered blocks on the trail were once distance markers on the golf course. More than 10 years ago they were moved here. Now they mark different species of plants which can be found here. Many are native and some are introduced. An introduced species is one that has been transported to an area by human activity and begun to thrive in the wild. Some introduced species, like fennel, cause few problems while others, like phragmites, become invasive. An invasive species causes either economic harm or harm to an ecosystem.

Phragmites is an invasive species. It crowds out native plants, increases the risk of wildfire and clogs up drainage channels which leads to an increase in mosquitos. Treatment to remove an acre of this plant can cost \$100,000 and must be repeated for 3-5 years to eliminate an infestation.



Phragmites (plant 397) is the tall grass on the left of this picture. It is an invasive species.

Block #	Latin Name	Common Name	Native?
133	<i>Foeniculum vulgare</i>	Fennel	no
134	<i>Rhus copallinum</i>	Winged sumac	yes
159	<i>Magnolia grandiflora</i>	Southern magnolia	no
162	<i>Campsis radicans</i>	Trumpet creeper	yes
191	<i>Morus alba</i>	White mulberry	no
196	<i>Quercus pagoda</i>	Cherrybark oak	yes
197	<i>Quercus phellos</i>	Willow oak	yes
231	<i>Pinus taeda</i>	Loblolly pine	yes
279	<i>Nyssa sylvatica</i>	Black gum	yes
311	<i>Ulmus americana</i>	American elm	yes
318	<i>Conoclinium coelestinum</i>	Mistflower	yes
321	<i>Ligustrum sinense</i>	Chinese privet	no
338	<i>Sambucus canadensis</i>	Elderberry	yes
357	<i>Juniperus virginiana</i>	Eastern red cedar	yes
361	<i>Liquidambar styraciflua</i>	Sweet gum	yes
370	<i>Mikania scandens</i>	Climbing hempweed	yes
389	<i>Allium canadense</i>	Wild onion	yes
392	<i>Lonicera japonica</i>	Japanese honeysuckle	no
397	<i>Phragmites australis</i>	Common reed	no
410	<i>Quercus nigra</i>	Water oak	yes
415	<i>Prunus serotina</i>	Black cherry	yes

Block #	Latin Name	Common Name	Native?
436	<i>Ilex glabra</i>	Inkberry	yes
438	<i>Viburnum dentatum</i>	Southern arrowwood	yes
446	<i>Morella cerifera</i>	Wax myrtle	yes
449	<i>Smilax spp</i>	Greenbriar	yes
451	<i>Quercus rubra</i>	Northern red oak	yes
482	<i>Ampelopsis arborea</i>	Peppervine	yes
511	<i>Toxicodendron radicans</i>	Poison ivy	yes
512	<i>Baccharis halimifolia</i>	Sea myrtle	yes

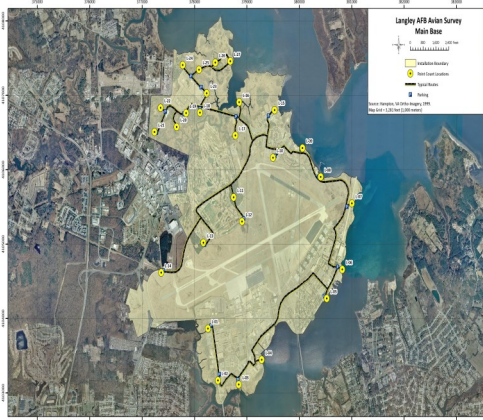
Mistflower (#318) blooms from June to October. This late summer flower is an important food source for migratory butterflies such as monarchs or painted ladies.



Black cherry (plant 415) is a small tree that blooms from May to June. People can't eat the fruit but they can enjoy watching birds dine on it.

AIR FORCE RESOURCE MANAGEMENT

The United States Air Force has the responsibility of managing more than nine million acres of valuable public lands. To ensure success, the Air Force has developed a network of dedicated professionals who work in coordination with local, regional and national authorities. Their challenge is to find a balance in requirements for military mission, security and environmental habitat protection. This effort requires the cooperation and support of the Air Force and its neighbors. The



primary goal is to guarantee the quality of public lands under Air Force stewardship.

Conservation programs on Air Force bases include fish and wild life conservation, forestry, agricultural land lease, habitat management and outdoor recreation. Air Force Resource Managers and nearby communities, working together, have made great strides in fostering environmental awareness through education and cooperation.

The Air force supports partnerships with many resource groups; Neotropical Migratory Bird Conservation, Ducks Unlimited, North American Waterfowl Management Plan, Wetlands Protection and Enhancement and the National Watchable Wildlife program. You are invited to visit Air Force lands. Come see how we are doing with our part of America.

Natural Resources at Langley AFB

JBLE-Langley is the oldest continuously active air base in the United States. In 1916 Langley Airfield was established as a government-sponsored aviation research and development center under an agreement between the Army, Navy, and National Aeronautics and Space Administration (NASA).

In 1948, the United States Air Force was created and Langley Airfield became Langley Air Force Base. The base is now home to HQ ACC and the 1st FW. About 12,000 active personnel are stationed at Langley AFB. NASA's Langley Research Center—the oldest NASA facility—is located next door.

Conservation of the natural resources under its stewardship is an integral part of the Air Force mission. The 633 Air Base Wing makes the maximum effort practicable, consistent with its mission, to conserve the soil, water, landscapes, wetlands, wildlife, and outdoor recreational assets as essential elements of its Natural Resources Program.

While there are many ways to access and enjoy the natural resources at JBLE-Langley, the purpose of this brochure is to highlight and document observed bird species.

For more information concerning the natural resource assets or natural resources program at Langley Air Force Base, please contact:

633d Civil Engineering Squadron (633 CES),
Environmental Management Flight (CEIE),
Natural Resources
at (757) 764-1090

JBLE-Langley Bird Count

633 CES/CEIE



JBLE-Langley Bird Count

Date: _____

Avifauna Species	# Observed	Total
Bittern, American		
Bluebird		
Bluejay		
Bobolink		
Brant		
Bufflehead		
Bunting, Snow		
Canvasback		
Catbird		
Chat		
Coot, American		
Cormorant, Double-crested		
Creeper, Brown		
Crow, American		
Crow, Fish		
Dove, Mourning		
Dove, Pigeon		
Dove, Rock		
Dowitcher, Long-billed		
Duck, Black		
Duck, Long-tailed		
Dunlin		
Eagle, Bald		
Egret, Cattle		
Egret, Great		
Egret, Snowy		
Finch, House		
Gadwall		
Gnatcatcher, Blue-gray		
Gnatcatcher, Bluegrey		
Goldeneye, Common		
Goldfinch		
Goose, Snow		

Avifauna Species	# Observed	Total
Grackle, Common		
Grebe, Horned		
Grebe, Pied-billed		
Grebe, Red-necked		
Gull, Bonaparte's		
Gull, Great Black-backed		
Gull, Herring		
Gull, Laughing		
Gull, Ring-billed		
Harrier, Northern		
Hawk, Coopers		
Hawk, Red-shouldered		
Hawk, Red-tailed		
Hawk, Sharp-shinned		
Heron, Great Blue		
Hummingbird, species		
Ibis, Glossy		
Jay, Blue		
Junco		
Kestrel		
Killdeer		
Kingbird, Eastern		
Kinglet, Golden-crowned		
Kinglet, Ruby-crowned		
Lark, Horned		
Longspur, Lapland		
Loon, Red-throated		
Mallard		
Martin, Purple		
Merganser, Common		
Merganser, Hooded		
Merganser, Red-breasted		
Merlin		
Mockingbird		
Night-heron, Black-crowned		
Nuthatch, Red Breasted		
Oriole, Northern		
Oriole, Orchard		
Osprey		

JBLE-Langley Significant Aspects 2020

ASPECT	IMPACT
Hazardous Waste	Human Health, Fines, Public Perception
Water Quality	Degradation of waterways and aquatic ecosystems
Energy	Cost, Emissions

JBLE-Langley EMS Policy

The 633d Air Base Wing sets the standard in services and support for Team JBLE-Langley. Our ability to conduct our mission requires daily operations in the land, sea and air environments. Protecting these environments is an integral part of accomplishing this mission.

We are committed to sustaining Team Langley missions through a C.L.E.A.N. approach:

- **Comply with requirements**– We will comply with all environmental regulations while reducing compliance cost and liabilities
- **Limit impact**– We will prevent pollution and minimize waste while cleaning up past sites of environmental concern and making efforts to achieve Chesapeake Bay conservation
- **Execute Plans**– We will identify and attain energy, environment, safety and occupational health objectives and targets through planning that is Specific, Measurable, Achievable, Realistic and Timely (SMART)
- **Achieve Improvements**– We will continuously improve programs and processes through the use of effective management and planning
- **Notify**– We will communicate our environmental commitments and performance to all levels of our organizations and local community

It is the responsibility of all military personnel, civilian employees and support contractors to perform their duties in a manner that prevents pollution, protects the environment and conserves natural resources.

By making these commitments, we will ensure the continual improvement of our environmental systems and the overall accomplishment of our core mission

JBLE-Langley Air Force Base

633 CES/CEIE



ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

*Contact: Ronald Holcomb
EMS Coordinator 764-1133,
ronald.holcomb.1@us.af.mil*

EMS Manual located:

<https://cs1.eis.af.mil/sites/edash-ins1/jble/SitePages/Home.aspx>

WHAT IS EMS?

ENVIRONMENTAL

- Weaves existing environmental programs and mission management processes into a coherent system
- Enables an installation to control the environmental impact of its activities, products, and services
- Uses the Plan-Do-Check-Act methodology
- Provides a systematic framework for environmental mission sustainment

MANAGEMENT

- Ensures commitment by top leaders
- Improves mission performance
- Evaluates all aspects of environmental programs

SYSTEM

- Requires formal infrastructure
- Integrates distinct programs
- Strives for continual improvement through self assessment

What an EMS can do

- Reduce operational impact, better environmental and overall organizational performance and mission sustainability
- An EMS provides an opportunity to assess how your unit manages environmental risks and to find better and more cost effective solutions
- It unites existing environmental programs in a single framework

WHY HAVE AN EMS?

EMS is mandated at the Executive, DoD and AF levels

-2015, EO 13693, *Planning for Federal Sustainability in the Next Decade*. The main focus of this EO is to reduce greenhouse gas emissions. Utilizing an EMS to accomplish the goals of EO 13693 is supported.

- DoDI 4715.17, *Environmental Management System*; Establishes policy, assigns responsibilities, and prescribes procedures for achieving conformance with Environmental Management Systems (EMS).

-AFI 32-7001, *Environmental Quality Program*; establishes the framework for an Environmental Management System (EMS).

THE EMS CYCLE

Begins with formulation of an EMS Policy Statement that includes commitments to continual improvement, pollution prevention and environmental compliance

Based on ISO 14001, 2015 framework

PLAN

Planning

- Environmental Aspects & Impacts
- Legal & Other Requirements
- Objectives & Targets
- Environmental Management Plans

DO

Implementation & Operation

- Structure & Responsibility
- Training, Awareness & Competence
- EMS Documentation
- Operational Control
- Emergency Preparedness & Response

CHECK

Checking & Corrective Action

- Monitoring & Measurement
- Nonconformance, Corrective & Preventive Action

ACT

- Management Review



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

OFFICE OF THE COMMANDER

24 Oct 19

MEMORANDUM FOR ALL JOINT BASE LANGLEY-EUSTIS PERSONNEL

SUBJECT: Environmental Policy Statement

1. Our ability as Joint Base Langley-Eustis (JBLE) to conduct our mission requires daily operations in the land, sea and air environments. Protecting each is an integral and mandatory part of accomplishing our mission.
2. We are committed to sustaining JBLE through a C.L.E.A.N. approach:
 - Comply.....We will comply with all environmental regulations and all other requirements while reducing compliance costs and liabilities.
 - Limit impact.....We will prevent pollution and minimize waste while cleaning up past sites of environmental concern and making efforts to achieve Chesapeake Bay conservation.
 - Execute plans.....We will identify and attain energy, environment, safety and occupational health objectives and targets through planning that is Specific, Measurable, Achievable, Realistic, and Timely (SMART).
 - Achieve improvements.....We will continuously improve our programs and processes through the use of effective management and planning.
 - Notify.....We will communicate our environmental commitments and performance to all levels of our organization and local community.
3. It is the responsibility of all military personnel, civilian employees and support contractors to perform their duties in a manner that prevents pollution, protects the environment and conserves natural resources.
4. We will ensure the continual improvement of our environmental systems and the overall accomplishment of our core mission by following these commitments. Please address any questions or concerns to JBLE-Langley at 764-3906 or JBLE-Eustis at 878-7378.

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Date: 2019.10.25 14:58:52 -0400

CLINTON A. ROSS, Colonel, USAF
Commander

Global Power For America

Attachment 3: Public Involvement/Participation Documentation

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From: 633 ABW/PA Org <633abw.paedit@us.af.mil>
Sent: Tuesday, April 21, 2020 3:11 PM
To: Team Langley All <Team.Langley.All@us.af.mil>
Subject: COVID 19 Update April 21

Team JBLE,

Here is the news, information and some resources you need to stay up-to-date on COVID-19 response efforts from the DoD and here at JBLE:

1. DoD Travel restrictions extended

The DOD has announced an extension to force-wide travel restrictions through 30 June 2020. Per DoD guidance, travel restrictions halt all travel for all DOD uniformed personnel, and civilian personnel, including family members traveling for government-funded travel. This includes all forms of foreign and domestic travel, permanent change of station moves, temporary duty and personal leave outside the local area, and exercises.

Exceptions apply, see attached order for more details. Questions regarding PCS should be directed to TMO and all those with questions relating to deployment should contact their UDM.

2. Construction on Armistead Ave and LaSalle Ave

April 27-May 18, the City of Hampton Public Works will be resurfacing Armistead Ave, at the La Salle Ave intersection, between the I-64 overpass and the M. Scott Carpenter Bridge. Most work will take place between the hours of 1900-0500, but some daily traffic delays are expected. Please plan your travel accordingly.

3. Common Access Card (CAC) Self-Service PKI Certificate Extension Site

To encourage COVID-19 physical distancing recommendations, The Defense Manpower Data Center recently launched a temporary on-line self-service CAC certificate extension site. This site will be available through 30 Sep 2020 and will enable members with unexpired CACs to extend their PKI certificates up to 90-days via self-service tool at the milConnect website for RAPIDS Self-Service, ID Card Office Online: https://www.dmdc.osd.mil/self_service

Additional information can be found at the following myPers link:
https://mypers.af.mil/app/answers/detail/a_id/46624

4. 633d Comms Squadron Resources

This month's "News You Can Use" from the 633 CS contains information regarding the McAfee Antivirus Home Use Program and the 1-year free subscription. The bulletin also includes details regarding the Information Technology Asset Management (ITAM) Office. The ITEM Office is the base control and distribution office for IT assets.

5. Litter Free Langley

In order to promote a litter free environment at JBLE-Langley, the 633 CES and 633 MSG created a base wide litter collection contest, Litter Free Langley. The contest will run from 20 Apr thru 26 Jun and you're encouraged to take part if you're already on base exercising or walking. To participate, Airmen and civilians are asked to take a photo showing how they are helping keep a Litter Free Langley. Entries should be submitted each Friday and sent to the 633 CES Environmental Element at 633CES.CEI.Flight@us.af.mil. Two winners will be randomly selected each week and will be awarded a prize. Winners will be contacted by the 633 CES Environmental Element on how to retrieve their prize.

Participants should still use proper PPE and social distancing strategies while taking part in Litter Free Langley.

6. USO Virtual Programming

If you are looking for ways to engage yourself or family, our USO has started a few new virtual programs: Trivia (you can find more info on our social media pages @USOHRCV), [Little Patriots Kids Korner](#), the [Pen Pal Program](#) and the [Activity Card Challenge](#). Visit hrcv.uso.org or www.facebook.com/USOHRCV for more information.

Stay safe, stay healthy and stay home.

Thank you,

Respectfully,
//SIGNED//

633rd Air Base Wing Public Affairs
Joint Base Langley-Eustis, Va.

COMM: (757) 764-5701 | DSN: 574-5701

www.jble.af.mil | www.facebook.com/JointBaseLangleyEustis | www.twitter.com/JBLEnews

From: [CHRISTIAN, DAWN S GS-12 USAF ACC 633 CES/CEIE](#)
To: [GERBER, BONNIE L CIV USAF ACC 633 CES/CEI](#)
Subject: FW: INFO//1 Thing You Can Recycle - Oil and Antifreeze
Date: Thursday, September 24, 2020 9:44:00 AM
Attachments: [Tab 1 - 1 Thing You Can Recycle - OIL and ANTIFREEZE.pdf](#)
[Tab 2 - JBLE-Langley Recycling Program Brochure.pdf](#)
[Tab 3 - Car Maintenance Brochure.pdf](#)

From: COOK, BRENDA W GS-14 USAF ACC 633 CES/CD <brenda.cook@us.af.mil>

Sent: Tuesday, May 5, 2020 2:01 PM

To: 633 ABW Command Sections <633.ABW.Command.Sections@us.af.mil>; 633 ABW Executive Officers <633.ABW.Executive.Officers@us.af.mil>; 633 ABW Group Commanders <633ABWGroupCommanders@us.af.mil>; 633 ABW Squadron Commanders <633.ABW.Squadron.Commanders@us.af.mil>; 633 ABW Squadron Secretaries <633.ABW.Squadron.Secretaries@us.af.mil>; 633 ABW Mission Partners <633.ABW.Tenant.Unit.Commanders@us.af.mil>; 1 FW Squadron Commanders <1fwall.sqdncomdrs@us.af.mil>; 1 FW Group Commanders <1.fw.grpcc@us.af.mil>; 1 FW Execs <1fw.execs@us.af.mil>; 1 FW/CCE Executive Officer <1fw.cce@us.af.mil>

Cc: OLDHAM, JEREMY V Lt Col USAF ACC 633 CES/CC <jeremy.oldham.1@us.af.mil>; COOK, BRENDA W GS-14 USAF ACC 633 CES/CD <brenda.cook@us.af.mil>; ALBAN, AUSTIN K 1st Lt USAF ACC 633 CES/CEI <austin.alban.1@us.af.mil>; HARVISON, NATEISHA D GS-13 USAF ACC 633 CES/CEI <nateisha.harvison.2@us.af.mil>

Subject: INFO//1 Thing You Can Recycle - Oil and Antifreeze

633 ABW and JBLE-Langley Mission Partners,

In an effort to bring more attention to the recycling program at JBLE-Langley, we are publicizing a monthly flyer, *1 Thing You Can Recycle*. The flyer will showcase one item each month that can be recycled at JBLE-Langley. This information is meant to be disseminated to all Airmen and civilians to encourage further support. Your Facility Managers are responsible for this program for your respective facilities.

For a full list of items, please consult the Recycling Program Brochure. For more information about the JBLE-Langley Qualified Recycling Program, contact your Facility Manager. If you need further assistance, contact Ms. Sherry Johnson at 764-1130 or by email at sherry.johnson.4@us.af.mil.

v/r,
Brenda

BRENDA W. COOK
Deputy Base Civil Engineer

3 Tabs

1. 1 Thing You Can Recycle
2. Recycling Program Brochure

3. Car Maintenance Brochure



thing you can



OIL and ANTIFREEZE:

1. Engine Oil - can be re-refined, processed into fuel oils and reused as raw materials
 - A. No fee to recycle at JBLE-Langley facilities
 - B. Precision Tune Auto Care (757) 709-7822
 - C. Auto Skills Shop (757) 764-4607

***If you perform engine maintenance at home, stay clear of storm drains and take precautions to avoid any spills.**



2. Antifreeze - recycled by filtering any metals or oil and adding additional chemicals
 - A. No fee to recycling at JBLE-Langley facilities
 - B. Precision Tune Auto Care (757) 709-7822

*For more information, contact Ms. Sherry M. Johnson at 764-1130 or by email at sherry.johnson.4@us.af.mil

Furniture

Furniture issued by the government and in serviceable condition must be turned into DLA in Norfolk, VA.

Damaged furniture can be recycled but metal, wood, and plastic must be separated from any other materials before it is turned into the scrap yard.

DO NOT place in dumpster!

Batteries

Lead acid-batteries should not be placed in dumpsters or containers. They can be recycled at facilities or stores that sell them (i.e. auto parts store; Battery Plus at 3412 W. Mercury in Hampton). Alkaline batteries can be disposed of as regular trash. Lithium, nickel-cadmium, and mercury batteries are to be treated as *universal waste*. Separate them into different containers and place a Universal Waste label on the container (obtained through the 633 CES). These can also be recycled at Battery Plus.

Fire Extinguishers

Take expired fire extinguishers to the Virginia Industries for the Blind Store (Bldg 330). Recertified extinguishers can be purchased here.



Material	Where does it go?
Paper Products	
Office White Paper	Specified "White Paper" bin
Colored Paper, Mag's, Newspaper, etc.	Specified "commingles" bin
Cardboard	Specified cardboard only container
Wood	
Pallets	Scrap Yard
Furniture	
Serviceable/Old Furniture	DLA in Norfolk, VA POC: 445-2412/2398
Damaged Furniture	Specified roll-off bins; POC: Contract Services 764-1419
Liquids	
Oil and Antifreeze	Hobby Shop/auto shop
Batteries	
Lead-Acid	Battery Plus/auto parts store
Lithium, Nickel cadmium, mercury	Collect as Universal Waste in separate containers; Label info: 764-1133/1130 Schedule Pick Up: 225-5808
E-Waste	
Electronics (TVs, computers, cords, etc)	1) 633 CS: 764-7936 2) DLA: 445-2412/2398
Other	
#1 and #2 Plastics	Specified "commingles" bin
Bulbs	Collect as Universal Waste; Label info: 764-1133/1130 Schedule Pick Up: 225-5808
Glass (green, brown, or clear	Specified "commingles" bin
Plastic shopping Bags	Inside Commissary
Fire Extinguishers	VA Industries for the Blind

JBLE- Langley

633 CES



Recycling Program

QRP Manager: Sherry M. Johnson
Comm: 764-1130
DSN: 574-1130
sherry.johnson.4@us.af.mil

"JBLE-Langley supports a strong pollution prevention program which emphasizes the importance of source reduction, reuse, and recycling. "

Recycling Program

Overview

In order to promote pollution prevention, JBLE-Langley utilizes a program that incorporates reuse, reduction, recycling, energy recovery (incineration), and land filling. Recycling is a program encouraged base wide with a specific area at each facility meant as a collection area for most recyclables. Other facilities such as the scrap yard and Defense Logistics Agency- Disposition Services (DLA) are available to aid in the recycling of materials that cannot be put into the collection bins. If you need to dispose of an item not mentioned in this brochure, please contact the QRP Manager for assistance.



Commingled Materials

Materials such as **newspapers, colored paper, magazines, #1 and #2 plastics, cans and glass (clear, brown, and green)** should be placed into the same container. A bin for these mixed items is located in the facility's recycling area.

White Office Paper

Specific containers for white office paper only are placed in each facility's recycling areas. Shredded office paper must be put in a clear plastic bag and tied. Loose sheets of paper are also allowed in the bin.

Cardboard

Cardboard has its own separate beige bins. Breakdown the boxes before placing them in the bin and **do not place cardboard contaminated with food** (i.e. pizza boxes) in the container.

Ink Cartridges

1-3 toner cartridges are to be placed in a **clear plastic bag**, tied off, and placed next to (not inside) the white office paper bin. ***Quantities larger than 3*** should be taken to the scrap yard.

Plastic Shopping Bags

Recycling bins are located inside the Commissary at the entrance and exit. ***DO NOT place in commingled bin.***

Oil & Antifreeze

Motor oil and antifreeze must be taken to the Hobby Shop or an auto shop in order to be disposed of and recycled.

Metal

All types of metal are accepted for recycling at the scrap yard located behind Bldg 331 (M, W, F 1300-1500). Any liquids such as oils or refrigerants and other material such as plastic must be removed prior to turning in.

Pallets/Wood

Serviceable or broken pallets should be taken to the scrap yard to be recycled. ***DO NOT place by solid waste dumpster. Abandoned pallets will not be collected.***

E-Waste

Contact 633 CS Asset Management to verify items are clear for disposal. Then, contact DLA to dispose of all governmental electronics. ***DO NOT place any electronics in solid waste dumpsters or recycling bins.*** If the screens to these devices are broken, contact your Facility Manager for proper procedures to dispose of hazardous waste. Non-governmental appliances in good working condition may be donated to organizations such as Goodwill or the Salvation Army.

C & D Debris

These are materials resulting from construction and demolition including: wood, drywall, plastics, roofing, rubble, brick and glass. The contractors are responsible for the management and removal of these materials. Non-recyclable materials will be disposed of at the Bethel Sanitary Landfill.

Why is Pollution Prevention so Important?

Leaks and Drips

A small leak from your vehicle may not seem like a big deal, but when each car in a large parking lot drips just one drop of fluid, the cumulative negative effects on water quality can be enormous.

Fluid spills and improper disposal of materials result in pollutants, heavy metals and toxic materials that are picked up by stormwater and carried to the nearest storm drain. Anything that enters the storm drain system flows untreated into our streams and creeks and ends up in our lakes and rivers. By following the guidelines in this brochure, you can help prevent stormwater pollution.



Our unique location impacts
the Chesapeake Bay
Watershed



Federal and State Laws

- * Clean Water Act
- * Virginia Pollutant Discharge Elimination System (VPDES) regulations
- * Municipal Separate Storm Sewer System (MS4) regulations

For more information, contact the
Stormwater Program Manager at
(757) 764-1141
or the
Pollution Prevention Program
Manager at (757) 764-1130

Joint Base Langley Eustis - Langley 633 CES



Car Maintenance and Pollution Prevention

Small amounts of contaminants
add up and cause pollution in
our water.

Yes, even the little things
matter.

YOU will make a difference, no
matter how small.

Care and Maintenance

Care and maintenance of vehicles is important in keeping them in good working order.



How You Can Help

Your part might seem small, but every little bit adds up to make a big difference:

- * Repair leaks on your vehicles
- * Use funnels when pouring liquids
- * Use pans to catch drips/spills
- * Use the facilities available on base for maintenance needs
- * Recycle used oil & oil filters
- * Recycle used/unused antifreeze
- * Recycle automobile batteries



You have a choice!

Take your car to Precision Tune or, if you prefer to do it yourself, the Auto Skills Shop has you covered.

Antifreeze & Batteries

Recycle old batteries and antifreeze at Precision Tune Auto Care.

Used Oil & Filters

Take filled containers and used oil filters to Precision Tune Auto Care or the Auto Skills Shop or for recycling.



If you have a spill or see one, please report it.

**Report spills to the Fire Department at
(757) 764-4222**

Locations

Auto Skills Shop
35 Ash Ave, Bldg. 224 Hours:
Mon-Fri, 0800-1700;
Sat-Sun, 1000-1500
(757) 764-4607



Precision Tune Auto Care
61 Tuskegee Airman Blvd., Bldg. 245
Hours: Mon-Fri, 0630-1800;
Sat 0800-1600
(757) 709-7822



From: 633 CES/CC Commander <633ces.cc@us.af.mil>
Sent: Thursday, October 10, 2019 3:22 PM
To: 633 CES ALL Civilians <633cescivilians@us.af.mil>; 633 CES All Military <633CES.All.Military@us.af.mil>
Subject: INFO//America Recycles Day - Fri 15 Nov 19

Engineers!

Please see the below information on America Recycles Day. Let's be number one with the most aluminum cans! I know you guys drink all those energy drinks so let's put the cans to good use and get (that "W") a win for our squadron!

Very Respectfully,

ASHLEY R. WALLAGE, 2d Lt, USAF
Section Commander, 633d Civil Engineer Squadron
Joint Base Langley-Eustis, VA 23665
DSN: 574-1487
COMM: 757-764-1487

+++++

America Recycles Day, a Keep America Beautiful national initiative, is an annual event dedicated to promoting and encouraging recycling and reducing waste in the United States. Although recycling has been a strategy in society long before Roman times, it is an easy task that is often overlooked or leads to confusion from concerned citizens who are overzealous to recycle everything. The more the public is educated on how to recycle, the more effective recycling programs will become.

JBLE-Langley will be celebrating America Recycles Day by holding an aluminum can recycling competition. The competition will begin on 14 Oct 19 and end on 14 Nov 19 at noon. The squadron with the most aluminum cans by weight will win a reward package. The following rules apply: 1) cans must be rinsed out and ready to be recycled, 2) collection may be either loose in a container or in a clear plastic bag, 3) cans must be weighed by the Qualified Recycling Program Manager in order to be counted for the competition, 4) cans can be turned in at any time during the competition to be weighed if the squadron does not have room, and 5) all requests for weighing cans must be in before noon on 14 Nov 19 when the competition will abruptly end. The winner of the aluminum can competition will be announced after the environmental film viewing at the Bayview Commonwealth Center on Fri, 15 Nov 19, at 1300.

JBLE-Langley will culminate America Recycles Day by showing the environmental film, Trashed - No Place For Waste (2012), at 1300 on Fri, 15 Nov 19 at the Bayview Commonwealth Center. The film illustrates the extent of the global waste problem and how it effects our health, community and global environment. Viewers are asked to bring a non-perishable canned good that will be donated to the local food banks in time for the holidays.

Details are provided in the attachment. You are invited to participate in this event and are encouraged to disseminate the information to others for their participation.

Please contact Ms. Sherry M. Johnson at 764-1130 or at sherry.johnson.4@us.af.mil for more information.

v/r,
Brenda

BRENDA W. COOK
Deputy Base Civil Engineer

Tab
America Recycles Day Flyer

America Recycles Day



An aluminum can recycling competition begins on 14 Oct 19 and ends on 14 Nov 19.

The Squadron with the largest amount of cans by weight wins a reward package.

Cans must be turned in to CE Environmental to be weighed. The winner will be announced after the film viewing.

Environmental film viewing:

TRASHED: No Place For Waste (2012) - illustrates the extent and effects of the global waste problem upon our health and our environment

**Bayview Commonwealth Center
(Bldg. 926)**

Date: 15 Nov 19

Time: 1300 (1hr 38mins)

Please bring a canned food donation to support local food banks.

For additional information or to schedule a weigh in, contact the QRP Manager, Sherry Johnson, at sherry.johnson.4@us.af.mil or at 764-1130.

From: [COOK, BRENDA W GS-14 USAF ACC 633 CES/CD](#)
To: [PATTON, CARMICHAEL T GS-13 USAF ACC 633 CES/CEIE](#); [CHRISTIAN, DAWN S GS-12 USAF ACC 633 CES/CEIE](#)
Subject: FW: INFO//Household Chemical Collection and Computer Recycling Days - 9 and 16 May 20
Date: Thursday, September 24, 2020 1:54:02 PM

-----Original Message-----

From: COOK, BRENDA W GS-14 USAF ACC 633 CES/CD
Sent: Monday, May 4, 2020 2:36 PM
To: 633 ABW Command Sections <633.ABW.Command.Sections@us.af.mil>; 633 ABW Executive Officers <633.ABW.Executive.Officers@us.af.mil>; 633 ABW Group Commanders <633ABWGroupCommanders@us.af.mil>; 633 ABW Squadron Commanders <633.ABW.Squadron.Commanders@us.af.mil>; 633 ABW Squadron Secretaries <633.ABW.Squadron.Secretaries@us.af.mil>; 633 ABW Mission Partners <633.ABW.Tenant.Unit.Commanders@us.af.mil>; 1 FW Group Commanders <1.fw.grpcc@us.af.mil>; 1 FW Execs <1fw.execs@us.af.mil>; 1 FW/CCE Executive Officer <1fw.cce@us.af.mil>; Kevin Cline <kevin.cline@huntcompanies.com>
Cc: OLDHAM, JEREMY V Lt Col USAF ACC 633 CES/CC <jeremy.oldham.1@us.af.mil>; COOK, BRENDA W GS-14 USAF ACC 633 CES/CD <brenda.cook@us.af.mil>; ALBAN, AUSTIN K 1st Lt USAF ACC 633 CES/CEI <austin.alban.1@us.af.mil>; HARVISON, NATEISHA D GS-13 USAF ACC 633 CES/CEI <nateisha.harvison.2@us.af.mil>
Subject: INFO//Household Chemical Collection and Computer Recycling Days - 9 and 16 May 20

633 ABW and JBLE Mission Partners,

York County and Hampton are hosting Household Chemical Collection and Computer Recycling events in May. This is the perfect opportunity for personnel living in base housing and anybody off base living in Williamsburg/James City County, York County, Hampton, or Poquoson to turn in any chemicals and computer related items without charge. This does not apply to personnel that live in Newport News or on Ft Eustis.

NOTE: The drop-off location in Hampton for this particular event is at the parking lot of the Coliseum on Coliseum Drive.

If you have any questions, you can call the Virginia Peninsula Public Service Authority at (757) 259-9850 or visit their website at www.vppsa.org/hhc.htm. Full details are below.

v/r,
Brenda

BRENDA W. COOK
Deputy Base Civil Engineer

Household Chemical Collection and Computer Recycling Day

On Sat, 9 May 20, York County will have its Household Chemical Collection Day and Computer Recycling Day from 0800-1200. The drop-off location is on County Drive in Yorktown off of Goodwin Neck Road. If going north on Hwy 17, turn right onto Goodwin Neck Rd and go about 3/4 mile and it will be on your left. Direction signs are normally posted along the road on turn-in day.

On Sat, 16 May 20, Hampton will have its Household Chemical Collection Day and Computer Recycling Day from 0800-1200. The drop-off location will be in the parking lot of the Coliseum on Coliseum Drive.

NOTE: If you live in base housing on JBLE-Langley or in Bethel Manor, you can use these locations to drop off your items at no cost. Whether you live in Poquoson, York County, Hampton, or Williamsburg/James City County, you can use either of these locations to drop off your items. This does not apply to personnel that live in Newport News or on Ft Eustis.

Ensure you take some type of identification such as a driver's license, military ID, or an ID with a photo and a utility bill with your address that shows where you live or you may be charged to drop off your items.

The following are some examples of chemicals that are accepted: oil paints, latex paints, stains, wood sealers, thinners, solvents, adhesive, glue, gasoline and other fuels, batteries, waxes, brake fluid, engine cleaner, oil and gasoline mixtures, insecticides, weed killers, pesticides, fertilizers, swimming pool chemicals, oven cleaners, toilet cleaners, bleach, degreasers, drain cleaners, floor waxes, metal polishes or jewelry cleaners, fluorescent light bulbs (including CFL's), rechargeable batteries, photo-finishing supplies, charcoal fluids, chemistry sets, and kerosene. Motor oil and antifreeze are NOT accepted at all events. Please go to their website for more information.

You CANNOT drop off TVs, alkaline batteries, medications, business or medical waste, compressed gas cylinders, shock sensitive materials, radioactive products, large quantities of unknown materials, ammunition, gun powder, asbestos containing materials, explosives, flares, propane cylinders, or household trash. This collection program is for HOUSEHOLDS ONLY and not business offices, shops or retail services on Langley.

The following are examples of electronics they will accept: cell phones, desktop and laptop computers, servers, LCD and CRT monitors, computer wiring, desktop printers including multi-function printers or "all in ones", fax machines, desktop photocopiers and scanners. Note that VPPSA will no longer take several items that they once took. For all other items to include old household type phones, check to see if Best Buy will accept them.

No TVs are accepted at these drop off sites. If you visit VPPSA's website at www.vppsa.org, click on the "Helpful Links" tab on the left side of the screen. You will see a link to the Best Buy recycling program. They take many electronic items. Visit the site or contact the local Best Buy for specific questions.

To get more information on the Household Chemical Collection and Computer Recycling events, visit VPPSA's website at www.vppsa.org, click on "Services" and click on "Household Chemical Collection" or "Computer Recycling". The website provides a 2020 schedule for collection and recycling events.

If you have any questions, you can call the Virginia Peninsula Public Service Authority at (757) 259-9850 or visit their website at www.vppsa.org.

From: [COOK, BRENDA W GS-14 USAF ACC 633 CES/CD](#)
To: [PATTON, CARMICHAEL T GS-13 USAF ACC 633 CES/CEIE](#); [CHRISTIAN, DAWN S GS-12 USAF ACC 633 CES/CEIE](#)
Subject: FW: INFO//Household Chemical Collection and Computer Recycling Days - 13 and 20 Jul 19
Date: Thursday, September 24, 2020 1:56:26 PM

-----Original Message-----

From: COOK, BRENDA W GS-14 USAF ACC 633 CES/CD
Sent: Tuesday, July 9, 2019 3:21 PM
To: 633 ABW Command Sections <633.ABW.Command.Sections@us.af.mil>; 633 ABW Executive Officers <633.ABW.Executive.Officers@us.af.mil>; 633 ABW Group Commanders <633ABWGroupCommanders@us.af.mil>; 633 ABW Squadron Commanders <633.ABW.Squadron.Commanders@us.af.mil>; 633 ABW Squadron Secretaries <633.ABW.Squadron.Secretaries@us.af.mil>; 633 ABW Mission Partners <633.ABW.Tenant.Unit.Commanders@us.af.mil>; 1 FW Group Commanders <1.fw.grpcc@us.af.mil>; 1 FW Execs <1.fw.execs@us.af.mil>; 1 FW/CCE Executive Officer <1.fw.cce@us.af.mil>; Kevin Cline <kevin.cline@huntcompanies.com>; 633 ABW/PA Org <633abw.paedit@us.af.mil>
Cc: OLDHAM, JEREMY V Lt Col USAF ACC 633 CES/CC <jeremy.oldham.1@us.af.mil>; JACKSON, YVONNE D GS-13 USAF ACC 633 CES/CEI <yvonne.jackson.1@us.af.mil>; COOK, BRENDA W GS-14 USAF ACC 633 CES/CD <brenda.cook@us.af.mil>
Subject: INFO//Household Chemical Collection and Computer Recycling Days - 13 and 20 Jul 19

633 ABW and JBLE Mission Partners,

York County and Hampton are hosting Household Chemical Collection and Computer Recycling events in July. This is the perfect opportunity for personnel living in base housing and anybody off base living in Williamsburg/James City County, York County, Hampton, or Poquoson to turn in any chemicals and computer related items without charge. This does not apply to personnel that live in Newport News or on Ft Eustis.

NOTE: The drop-off location in Hampton for this particular event is at the parking lot of the Coliseum on Coliseum Drive.

If you have any questions, you can call the Virginia Peninsula Public Service Authority at (757) 259-9850 or visit their website at www.vppsa.org/hhc.htm. Full details are below.

v/r,
Brenda

BRENDA W. COOK
Deputy Base Civil Engineer

Household Chemical Collection and Computer Recycling Day

On Sat, 13 Jul 19, York County will have its Household Chemical Collection Day and Computer Recycling Day from 0800-1200. The drop-off location is on County Drive in Yorktown off of Goodwin Neck Road. If going north on Hwy 17, turn right onto Goodwin Neck Rd and go about 3/4 mile and it will be on your left. Direction signs are normally posted along the road on turn-in day.

On Sat, 20 Jul 19, Hampton will have its Household Chemical Collection Day and Computer Recycling Day from 0800-1200. The drop-off location will be in the parking lot of the Coliseum on Coliseum Drive.

NOTE: If you live in base housing on JBLE-Langley or in Bethel Manor, you can use these locations to drop off

your items at no cost. Whether you live in Poquoson, York County, Hampton, or Williamsburg/James City County, you can use either of these locations to drop off your items. This does not apply to personnel that live in Newport News or on Ft Eustis.

Ensure you take some type of identification such as a driver's license, military ID, or an ID with a photo and a utility bill with your address that shows where you live or you may be charged to drop off your items.

The following are some examples of chemicals that are accepted: oil paints, latex paints, stains, wood sealers, thinners, solvents, adhesive, glue, gasoline and other fuels, batteries, waxes, brake fluid, engine cleaner, oil and gasoline mixtures, insecticides, weed killers, pesticides, fertilizers, swimming pool chemicals, oven cleaners, toilet cleaners, bleach, degreasers, drain cleaners, floor waxes, metal polishes or jewelry cleaners, fluorescent light bulbs (including CFL's), rechargeable batteries, photo-finishing supplies, charcoal fluids, chemistry sets, and kerosene. Motor oil and antifreeze are NOT accepted at all events. Please go to their website for more information.

You CANNOT drop off TVs, alkaline batteries, medications, business or medical waste, compressed gas cylinders, shock sensitive materials, radioactive products, large quantities of unknown materials, ammunition, gun powder, asbestos containing materials, explosives, flares, propane cylinders, or household trash. This collection program is for HOUSEHOLDS ONLY and not business offices, shops or retail services on Langley.

The following are examples of electronics they will accept: cell phones, desktop and laptop computers, servers, LCD and CRT monitors, computer wiring, desktop printers including multi-function printers or "all in ones", fax machines, desktop photocopiers and scanners. Note that VPPSA no longer take several items that they once took. For all other items to include old household type phones, check to see if Best Buy will accept them.

No TVs are accepted at these drop off sites. If you visit VPPSA's website at www.vppsa.org, click on the "Helpful Links" tab on the left side of the screen. You will see a link to Best Buy recycling program. They take many electronic items. Visit the site or contact the local Best Buy for specific questions.

To get more information on the Household Chemical Collection and Computer Recycling events, visit VPPSA's website at www.vppsa.org, click on "Services" and click on "Household Chemical Collection" or "Computer Recycling".

If you have any questions, you can call the Virginia Peninsula Public Service Authority at (757) 259-9850 or visit their website at www.vppsa.org.

From: [COOK, BRENDA W GS-14 USAF ACC 633 CES/CD](#)
To: [PATTON, CARMICHAEL T GS-13 USAF ACC 633 CES/CEIE](#); [CHRISTIAN, DAWN S GS-12 USAF ACC 633 CES/CEIE](#)
Subject: FW: INFO//Household Chemical Collection and Computer Recycling Days - 14 and 21 Sep 19
Date: Thursday, September 24, 2020 2:02:58 PM

-----Original Message-----

From: COOK, BRENDA W GS-14 USAF ACC 633 CES/CD
Sent: Tuesday, September 10, 2019 1:43 PM
To: 633 ABW Command Sections <633.ABW.Command.Sections@us.af.mil>; 633 ABW Executive Officers <633.ABW.Executive.Officers@us.af.mil>; 633 ABW Group Commanders <633ABWGroupCommanders@us.af.mil>; 633 ABW Squadron Commanders <633.ABW.Squadron.Commanders@us.af.mil>; 633 ABW Squadron Secretaries <633.ABW.Squadron.Secretaries@us.af.mil>; 633 ABW Mission Partners <633.ABW.Tenant.Unit.Commanders@us.af.mil>; 1 FW Group Commanders <1.fw.grpcc@us.af.mil>; 1 FW Execs <1fw.execs@us.af.mil>; 1 FW/CCE Executive Officer <1fw.cce@us.af.mil>; Kevin Cline <kevin.cline@huntcompanies.com>; 633 ABW/PA Message Traffic <633abwpa.mt@us.af.mil>
Cc: JACKSON, YVONNE D GS-13 USAF ACC 633 CES/CEI <yvonne.jackson.1@us.af.mil>; OLDHAM, JEREMY V Lt Col USAF ACC 633 CES/CC <jeremy.oldham.1@us.af.mil>; COOK, BRENDA W GS-14 USAF ACC 633 CES/CD <brenda.cook@us.af.mil>
Subject: INFO//Household Chemical Collection and Computer Recycling Days - 14 and 21 Sep 19

633 ABW and JBLE Mission Partners,

York County and Hampton are hosting Household Chemical Collection and Computer Recycling events in September. This is the perfect opportunity for personnel living in base housing and anybody off base living in Williamsburg/James City County, York County, Hampton, or Poquoson to turn in any chemicals and computer related items without charge. This does not apply to personnel that live in Newport News or on Ft Eustis.

NOTE: The drop-off location in Hampton for this particular event is at the parking lot of the Coliseum on Coliseum Drive.

If you have any questions, you can call the Virginia Peninsula Public Service Authority at (757) 259-9850 or visit their website at www.vppsa.org/hhc.htm. Full details are below.

v/r,
Brenda

BRENDA W. COOK
Deputy Base Civil Engineer

Household Chemical Collection and Computer Recycling Day

On Sat, 14 Sep 19, York County will have its Household Chemical Collection Day and Computer Recycling Day from 0800-1200. The drop-off location is on County Drive in Yorktown off of Goodwin Neck Road. If going north on Hwy 17, turn right onto Goodwin Neck Rd and go about 3/4 mile and it will be on your left. Direction signs are normally posted along the road on turn-in day.

On Sat, 21 Sep 19, Hampton will have its Household Chemical Collection Day and Computer Recycling Day from 0800-1200. The drop-off location will be in the parking lot of the Coliseum on Coliseum Drive.

NOTE: If you live in base housing on JBLE-Langley or in Bethel Manor, you can use these locations to drop off

your items at no cost. Whether you live in Poquoson, York County, Hampton, or Williamsburg/James City County, you can use either of these locations to drop off your items. This does not apply to personnel that live in Newport News or on Ft Eustis.

Ensure you take some type of identification such as a driver's license, military ID, or an ID with a photo and a utility bill with your address that shows where you live or you may be charged to drop off your items.

The following are some examples of chemicals that are accepted: oil paints, latex paints, stains, wood sealers, thinners, solvents, adhesive, glue, gasoline and other fuels, batteries, waxes, brake fluid, engine cleaner, oil and gasoline mixtures, insecticides, weed killers, pesticides, fertilizers, swimming pool chemicals, oven cleaners, toilet cleaners, bleach, degreasers, drain cleaners, floor waxes, metal polishes or jewelry cleaners, fluorescent light bulbs (including CFL's), rechargeable batteries, photo-finishing supplies, charcoal fluids, chemistry sets, and kerosene. Motor oil and antifreeze are NOT accepted at all events. Please go to their website for more information.

You CANNOT drop off TVs, alkaline batteries, medications, business or medical waste, compressed gas cylinders, shock sensitive materials, radioactive products, large quantities of unknown materials, ammunition, gun powder, asbestos containing materials, explosives, flares, propane cylinders, or household trash. This collection program is for HOUSEHOLDS ONLY and not business offices, shops or retail services on Langley.

The following are examples of electronics they will accept: cell phones, desktop and laptop computers, servers, LCD and CRT monitors, computer wiring, desktop printers including multi-function printers or "all in ones", fax machines, desktop photocopiers and scanners. Note that VPPSA no longer take several items that they once took. For all other items to include old household type phones, check to see if Best Buy will accept them.

No TVs are accepted at these drop off sites. If you visit VPPSA's website at www.vppsa.org, click on the "Helpful Links" tab on the left side of the screen. You will see a link to Best Buy recycling program. They take many electronic items. Visit the site or contact the local Best Buy for specific questions.

To get more information on the Household Chemical Collection and Computer Recycling events, visit VPPSA's website at www.vppsa.org, click on "Services" and click on "Household Chemical Collection" or "Computer Recycling".

If you have any questions, you can call the Virginia Peninsula Public Service Authority at (757) 259-9850 or visit their website at www.vppsa.org.

-----Original Message-----

From: COOK, BRENDA W GS-14 USAF ACC 633 CES/CD <brenda.cook@us.af.mil>
Sent: Thursday, March 19, 2020 8:25 AM
To: 633 ABW Command Sections <633.ABW.Command.Sections@us.af.mil>; 633 ABW Executive Officers <633.ABW.Executive.Officers@us.af.mil>; 633 ABW Group Commanders <633ABWGroupCommanders@us.af.mil>; 633 ABW Squadron Commanders <633.ABW.Squadron.Commanders@us.af.mil>; 633 ABW Squadron Secretaries <633.ABW.Squadron.Secretaries@us.af.mil>; 633 ABW Mission Partners <633.ABW.Tenant.Unit.Commanders@us.af.mil>; 1 FW Group Commanders <1.fw.grpcc@us.af.mil>; 1 FW Execs <1fw.execs@us.af.mil>; kevin.cline@huntcompanies.com; 633 ABW/PA Org <633abw.paedit@us.af.mil>
Cc: OLDHAM, JEREMY V Lt Col USAF ACC 633 CES/CC <jeremy.oldham.1@us.af.mil>; ALBAN, AUSTIN K 1st Lt USAF ACC 633 CES/CEI <austin.alban.1@us.af.mil>; HARVISON, NATEISHA D 1st Lt USAF ACC 633 CES/CEI <nateisha.harvison@us.af.mil>; PATTON, CARMICHAEL T GS-12 USAF ACC 633 CES/CEIE <carmichael.patton.1@us.af.mil>; CHRISTIAN, DAWN S GS-12 USAF ACC 633 CES/CEIE <dawn.christian@us.af.mil>; SPRIGGS, SHERRY V GS-11 USAF ACC 633 CES/CEIEC <sherry.spriggs.3@us.af.mil>; BROWN, DEBORAH A GS-05 USAF ACC 633 CES/CEI <deborah.brown.15@us.af.mil>; SPRIGGS, PAMELA A GS-06 USAF ACC 633 CES/CCS <pamela.spriggs@us.af.mil>
Subject: UPDATE//World Water Day Event 20 Mar 20 - POSTPONED

633 ABW and JBLE Mission Partners,

Due to the current world situation, JBLE-Langley is postponing its World Water Day celebration until further notice. Thank you for your support and please review and disseminate the attached brochure on vehicle washing, pollution prevention and water conservation.

v/r,
Brenda

BRENDA W. COOK
Deputy Base Civil Engineer

-----Original Message-----

From: COOK, BRENDA W GS-14 USAF ACC 633 CES/CD <brenda.cook@us.af.mil>
Sent: Wednesday, March 11, 2020 10:03 AM
To: 633 ABW Command Sections <633.ABW.Command.Sections@us.af.mil>; 633 ABW Executive Officers <633.ABW.Executive.Officers@us.af.mil>; 633 ABW Group Commanders <633ABWGroupCommanders@us.af.mil>; 633 ABW Squadron Commanders <633.ABW.Squadron.Commanders@us.af.mil>; 633 ABW Squadron Secretaries <633.ABW.Squadron.Secretaries@us.af.mil>; 633 ABW Mission Partners <633.ABW.Tenant.Unit.Commanders@us.af.mil>; 1 FW Group Commanders <1.fw.grpcc@us.af.mil>; 1 FW Execs <1fw.execs@us.af.mil>; Kevin Cline <kevin.cline@huntcompanies.com>; 633 ABW/PA Org <633abw.paedit@us.af.mil>
Cc: OLDHAM, JEREMY V Lt Col USAF ACC 633 CES/CC <jeremy.oldham.1@us.af.mil>; COOK, BRENDA W GS-14 USAF ACC 633 CES/CD <brenda.cook@us.af.mil>; ALBAN, AUSTIN K 1st Lt USAF ACC 633 CES/CEI <austin.alban.1@us.af.mil>

Subject: INFO//World Water Day Event 20 Mar 20

633 ABW and JBLE Mission Partners,

JBLE-Langley is celebrating World Water Day by promoting awareness for conserving water with a free car wash day at Langley Express or Bethel Manor Express between 1000-1400 on Fri, 20 Mar 20. Details are provided below and a flyer is attached for further information.

Additionally, CEIE is looking for volunteers to help with the event. Our POC is Dawn Christian, 757-764-1141, at dawn.christian@us.af.mil to sign up.

v/r,
Brenda

BRENDA W. COOK
Deputy Base Civil Engineer

=====

World Water Day Event 2020

BLUF: JBLE-Langley is celebrating World Water Day by promoting awareness for conserving water with a free car wash day at Langley Express or Bethel Manor Express between 1000-1400 on Fri, 20 Mar 20.

DISCUSSION: World Water Day was declared in 1992 by the United Nations General assembly to provide education on water conservation, impacts of water-related disasters and to promote opportunities to take action regarding water inequality. World Water Day 2020 is about water and climate change and how the two are inextricably linked. As the climate changes, the water cycle undergoes significant change. We have seen record changes with our climate becoming warmer, which causes more water to evaporate from both land and oceans. The evaporation of water instead of allowing water to infiltrate and recharge the aquifers has resulted in excessive droughts in many states. Conserving and protecting water is even more important in today's times.

JBLE-Langley is promoting awareness for conserving water with a FREE CAR WASH day. This event will highlight the importance of using commercial car washes rather than washing cars at home where soapy, oily water can enter storm drains that lead to waterways. The benefits of using these car washes will conserve water and prevent pollution into our waterways.

Please join us in celebrating World Water Day 2020 on Fri, 20 Mar 20 at either the Langley Express or Bethel Manor Express between 1000-1400.

For Langley Express, please go to the Base Theatre parking area first. You will be given a code and then directed to the car wash in order to avoid blocking the streets and parking lot.

Once you arrive at the Bethel Manor Express, please follow the orange cones.

For more information or questions, please contact Dawn Christian, 633d CES/CEIE Water Program Manager at 757-764-1141.

World Water Day

20 Mar 20

1000 - 1400

AAFES LANGLEY EXPRESS

Meet at Base Theater parking lot for further directions

BETHEL MANOR EXPRESS

Follow the orange cones

Other ways to reduce water consumption

Wash full loads of clothes only

Turn off the tap while washing dishes and brushing teeth

Use Rain Barrels to water plants

Commercial car washes use less water

For more information, contact Dawn Christian at (757) 764-1141



FREE
CAR WASH

POSTPONED

Good Morning!

Please see the email below for sent confirmation of stormwater outreach efforts to JBLE-Langley housing residents.

Thanks,

Sherry

From: HARVISON, NATEISHA D GS-13 USAF ACC 633 CES/CEI <nateisha.harvison.2@us.af.mil>
Sent: Thursday, April 16, 2020 9:26 AM
To: PATTON, CARMICHAEL T GS-12 USAF ACC 633 CES/CEIE <carmichael.patton.1@us.af.mil>; CHRISTIAN, DAWN S GS-12 USAF ACC 633 CES/CEIE <dawn.christian@us.af.mil>; SPRIGGS, SHERRY V GS-11 USAF ACC 633 CES/CEIEC <sherry.spriggs.3@us.af.mil>
Cc: ALBAN, AUSTIN K 1st Lt USAF ACC 633 CES/CEI <austin.alban.1@us.af.mil>
Subject: FW: Weekly Resident Update

Team,

See attached for confirmation of requested stormwater email being sent by housing.

-Teisha

From: Teresita Akers <teresita.akers@huntcompanies.com>
Sent: Thursday, April 16, 2020 8:14 AM
To: HARVISON, NATEISHA D GS-13 USAF ACC 633 CES/CEI <nateisha.harvison.2@us.af.mil>
Cc: CAGLE, RANDALL D CIV USAF ACC 633 CES/CEIH <randall.cagle@us.af.mil>; Kevin Cline <kevin.cline@huntcompanies.com>; Jessica Herrada <jessica.herrada@huntcompanies.com>; Jonathan Oliveras <jonathan.oliveras@huntcompanies.com>; Lori Gutzwiller <lori.gutzwiller@huntcompanies.com>; Marcella Mitchell <marcella.Mitchell@huntcompanies.com>; Melynda Lucky <melynda.lucky@huntcompanies.com>; Monica Church <monica.church@huntcompanies.com>; Nicole Whitaker <nicole.whitaker@huntcompanies.com>; Teniesha Wilson <teniesha.wilson@huntcompanies.com>; Teresita Akers <teresita.akers@huntcompanies.com>; Victoria Wenzel <victoria.wenzel@huntcompanies.com>; Yvette Witt <yvette.witt@huntcompanies.com>
Subject: [Non-DoD Source] FW: Weekly Resident Update

ALCON,

This was blasted to all residents today.

Happy Thursday! We are almost there.

Teresita Marti Akers | Community Manager | Langley Family Housing
Office: 757.766.1336 | Desk: 757.690.2247
11 Burrell Loop | Langley Air Force Base, Va | 23665
Hunt Military Communities | teresita.akers@huntcompanies.com
www.langlefamilyhousing.com
www.huntsafetyzone.com
ONE MISSION. ONE COMMUNITY



From: Teresita Akers <teresita.akers@huntcompanies.com>
Sent: Thursday, April 16, 2020 8:06 AM
To: Teresita Akers <teresita.akers@huntcompanies.com>
Subject: Weekly Resident Update

Good Morning,

Please take a moment to review that attached Resident Weekly Update from Langley Family Housing. We are taking every effort to keep our onsite team safe and healthy. Has someone on our team gone above and beyond for you this week? Take a moment to reply to this email and let me know how. We love to recognize outstanding performance. During difficult times like this, I am sure that your kind words will go a long way.

JBLE also has some important information as well as two fun activities which are attached.

While schools are closed and parents telework to prevent the spread of the new coronavirus, parents everywhere are struggling to keep children healthy and occupied. The 633 CES/CEIE Water Program is here (virtually) to help. Get your child's creativity flowing by giving them art supplies such as crayons, colored pencils and markers to complete these two fun stay at home storm water activities from the Tip of the Mitt Watershed Council. Once complete, put the artwork on your fridge, hang them around your house or share your artwork on our Community Facebook page. You're never too young to prevent pollution and protect our water resources.

Still thirsty for water knowledge? Then check out more storm water activities for kids on the Tip of the Mitt Watershed Council website at <https://www.watershedcouncil.org/stormwater-for-kids.html>. Or the EPA's WaterSense for Kids webpage at <https://www.epa.gov/watersense/watersense-kids>.

If you are a "super kid" and think you know everything there is to know about water, then play EPA's "WaterSense Game". Move the water-efficiency hero Flo through water pipes and answer water-efficiency questions while avoiding water-wasting monsters. The game can be found on the EPA's Water Sense for Kids website at: https://www3.epa.gov/watersense/quiz/game_kids.html

JBLE-Langley is promoting awareness of storm water with these stay-at-home activities for kids. These activities are specifically designed to help young people understand the importance of preventing polluted storm water runoff.

For more information or questions, please contact Dawn Christian, 633 CES/CEIE Water Program Manager, at 757-846-3700.

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 : *Please consider the environment before printing this e-mail*

This e-mail, including all information contained therein and any attachments, is intended solely for the person or entity to which it is addressed and may contain confidential and/or privileged material. If you are not an intended recipient, or an agent responsible for delivering it to an intended recipient, you have received this email in error. In such event, please immediately (i) notify the sender by reply email, (ii) do not review, copy, save, forward or print this email or any of its attachments, and (iii) delete and/or destroy this email and its attachments and all copies thereof. Any review, retransmission, dissemination or other use of, or taking of any action in reliance upon, any e-mail sent in error, including all information contained therein and any attachments, by persons or entities other than the intended recipient is prohibited. Please visit our website at www.huntcompanies.com for important information about our privacy policies. For your protection, please do not transmit account information or instructions by e-mail or include account numbers, Social Security numbers, credit card numbers, passwords or other personal information.

Community Updates 10 April, 2020

TO OUR VALUED RESIDENTS:

While most of our residents are “sheltering in place”, working with children who may require homeschooling, and figuring out how to navigate this new way of life, we remain optimistic. Adherence to guidelines is working, and we will soon be able to return to a new normal.

In the meantime, we thought it would be fun to update you on a few things we are working on, and share some ideas you can easily do with your family.

MONTH OF THE MILITARY CHILD

April is designated as the Month of the Military Child, underscoring the important role military children play in the armed forces community. Sponsored by the Department of Defense Military Community and Family Policy, the Month of the Military Child is a time to applaud military families and their children for the daily sacrifices they make and the challenges they overcome.

Throughout the month, Hunt Military Communities will encourage special virtual events to honor military children. These efforts and special events will stress the importance of providing children with quality services and support to help them succeed in the ever-changing military lifestyle. Look for our maintenance team wearing purple pins celebrating Month of the Military Child and be sure to check email or Facebook for contests throughout the month.



Honoring Children of Military Families

Now through April 20, 2020, we are accepting applications from children between the ages of 4-15 who want to be considered as a Hunt Little Hero. Many military children do extraordinary projects and acts of service in their communities. We want to hear about those children and their work.

Go to huntlittleheroes.org for more information or to have your child apply. Submissions must include either a 300-word essay, a drawing or a video showcasing their acts of service or how they are a leader in their community.

All children who apply will receive a hero cape and mask.

This is open to ALL dependent children of active service members regardless if they live in a Hunt Community or somewhere else. On or around May 1, 2020 we will announce the top three “Little Heroes” who will be honored in their local community with a celebration, coining and a cash prize. The three prize levels include \$1,000, \$500 and \$300. Winners will receive 50% of their cash prize and the other 50% will go to the charity of their choice.

But hurry, the deadline is April 20, 2020.



GET SOCIAL

Just because you are housebound does not mean you have to stay disconnected. There are a lot of fun things to do both for adults and children. If you have not already done so, check out and follow your community Facebook page and Instagram.

Here are just a few fun social events happening weekly:

Monday Mash:

Facebook Bingo.

Tuesday Trivia:

Test your wits and see how much you know!

Wacky Wednesday:

A different contest each week.

Thankful Thursday:

Each Thursday we will highlight and encourage positivity.

Field Trip Friday:

Virtual tours of museums, theme parks, national geographic and zoos.

Sanity Saturday:

Posts of information centered on wellness, exercise, health and more.

Soulful Sunday:

Posts of inspiring stories or quotes to create positive vibes and well-being for residents.

In addition to these themes, there is a myriad of inexpensive but fun activities children can do at home while social distancing. Challenge them to a sidewalk chalk contest, write poems, start a garden, create a reading marathon, create an indoor fort using blankets and towels, play board games, put together a puzzle, create a scavenger hunt or encourage your children to take photos. After all, this is likely going to be one of the most significant and historic events in their lifetime.

Something fun for adults is to host a virtual cocktail/social hour. Invite your neighbors using Zoom (or any video conference app) to dial-in at the same time and catch-up. You can also host a book club the same way. By using technology the possibilities are endless!

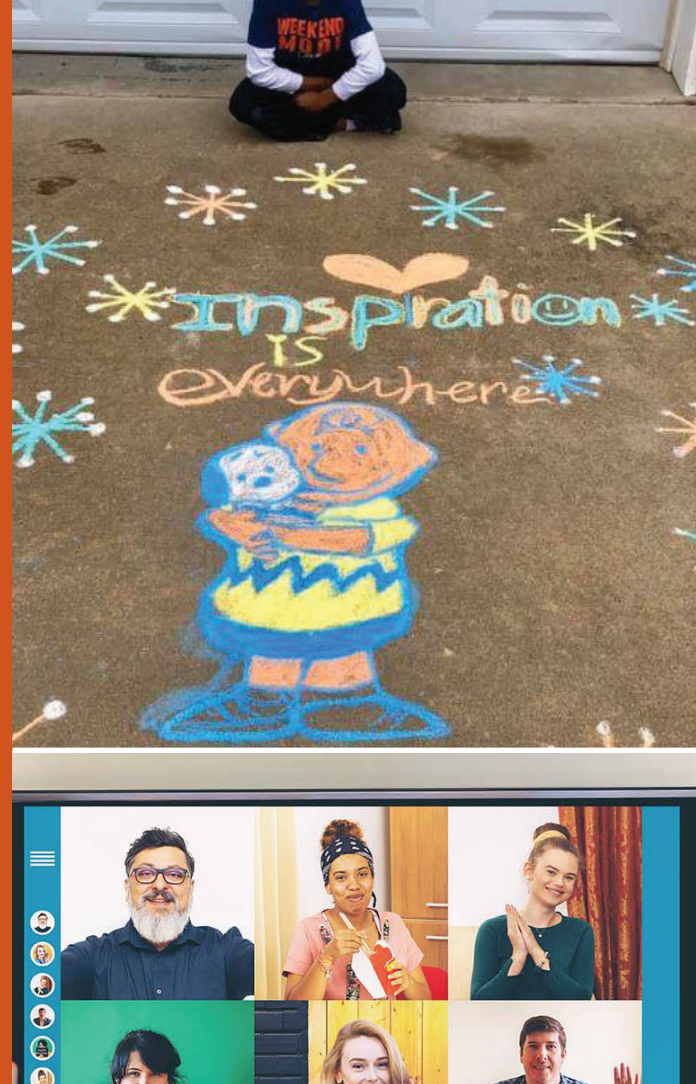
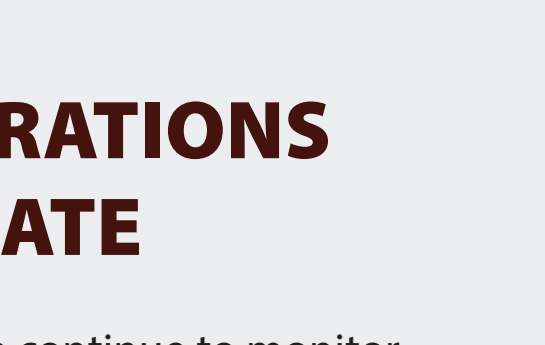


PHOTO CONTEST

Seeking lifestyle photos! Please share what you are doing for fun by capturing the moments in photos. It is really easy. Take your photos, post to your community Facebook page using the hashtag #HMCINSPIRE.

We will be choosing one photo weekly to use in our communications throughout the country. So start clicking away and capture all of the fantastic things you are doing. Inspire others to make memories and capture their events in photos.



OPERATIONS UPDATE

While we continue to monitor COVID-19, our operations are open with adjusted schedules and remote working. Our service technicians remain on-site to assist residents with urgent and emergency needs. Community centers and amenities remain closed until it is safe to re-open. This decision was made by following the recommended CDC and WHO guidance to reduce the risk of exposure for our residents and team members. If your PCS move has been delayed or changed, please contact the leasing office via phone or email so we can adjust any notices to vacate.

Work Orders & Your RENTCafé App?

All work orders should be submitted through the RENTCafé App. While our service technicians are only responding to urgent and emergency needs, you are still encouraged to submit routine work orders so they can be worked on as soon as we have been given the go-ahead to proceed.

Needing to download the RENTCafé App? It is really easy! Download either using the Apple or Android Store. Simply search for RENTCafé, download the application and enter the email associated with your Hunt Military Communities account and the password provided to you via email. If you do not have the email any longer, please contact your community leasing office and one of our team members will be happy to assist you.



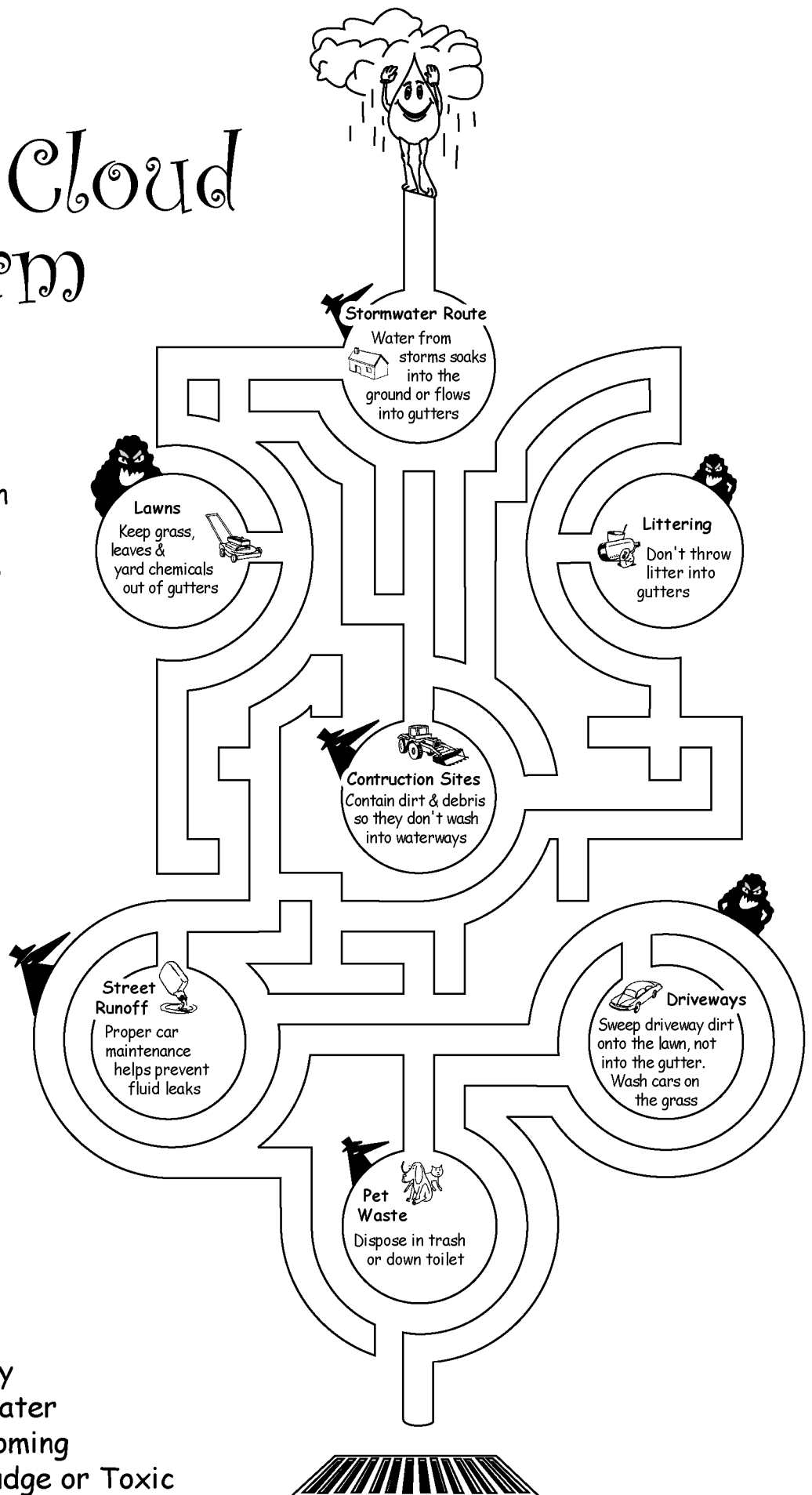
REMOTE LEASING

We can help! Whether you are extending your move-out date, know someone in need of an interim place to call home, or looking to move to a new location, Hunt Military Communities is here to assist.

Our teams have been busy creating virtual tours and offering online leasing. Please reach out to us via phone, email or the RENTCafé application. We will do our best to provide you the information needed so you can have one less thing to worry about.

From Storm Cloud to Storm Drain

The Stormwater system channels rain and snowmelt into gutters, which drain into streams and rivers. When people pollute stormwater, they also pollute our natural waterways.

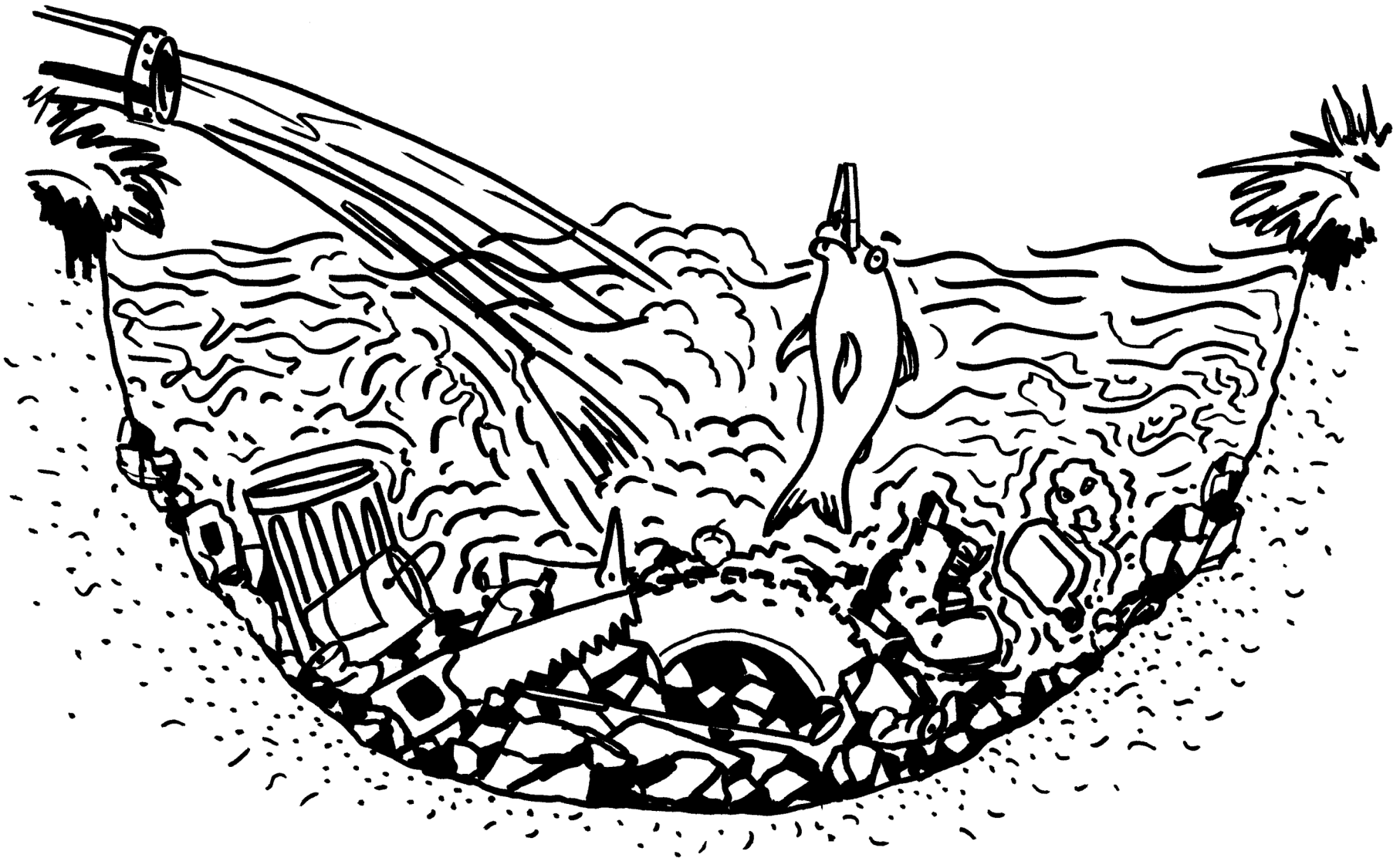
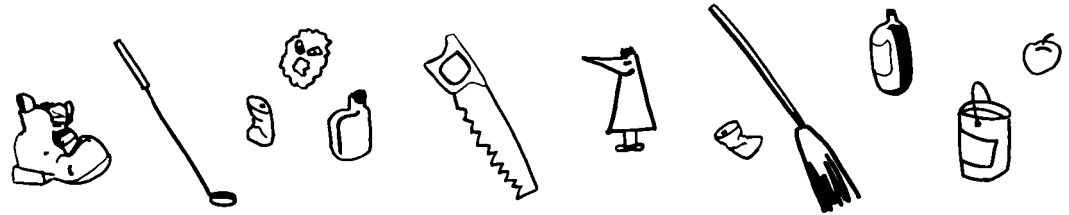


Help Droplet journey through the stormwater system without becoming contaminated by Sludge or Toxic

Eliminating Trash From Our Streams

Help Droplet clean this stream.

What doesn't belong? Can you find
all of the hidden trash pictured here? →
Circle or color the trash.



From: WASHINGTON, BYRON C JR MSgt USAF ACC 633 CES/CEIH <byron.washington@us.af.mil>

Sent: Monday, December 9, 2019 4:36 PM

To: Dorm 39 (Langley) <dorm39.sgsap@us.af.mil>; Dorm 40 (Langley) <dorm40.sgsap@us.af.mil>; Dorm 44 (Langley) <dorm44.langley@us.af.mil>; Dorm 121 (Langley) <dorm121.sgsap@us.af.mil>; Dorm 122 (Langley) <dorm122.sgsap@us.af.mil>; Dorm 123 (Langley) <dorm123.sgsap@us.af.mil>; Dorm 130 (Langley) <dorm130.sgsap@us.af.mil>; Dorm 131 (Langley) <dorm131.sgsap@us.af.mil>

Cc: ALBAN, JENNIFER L SMSgt USAF ACC 63 IS/CCF <jennifer.alban@us.af.mil>; ANDREWS, BRITTANY M SSgt USAF ACC 633 DS/SGDD <brittany.andrews.1@us.af.mil>; ARLEQUIN, KENNETH MSgt USAF AFMAA 2 MRS/MRL <kenneth.arlequin@us.af.mil>; BARANSKI, BRYON T MSgt USAF ACC 1 AMXS/CCF <bryon.baranski@us.af.mil>; BELGRAVE, CHRISTOPHER M MSgt USAF ACC 633 SFS/S3O <christopher.belgrave@us.af.mil>; BEST, JARROD L MSgt USAF

<neel.hale@us.af.mil>; KERRY, KRISTA L SSgt USAF ACC 633 CES/CEIH <krista.kerry@us.af.mil>; WALACH, CODI J SSgt USAF AFMC 438 SCOS/GWMF <codi.walach@us.af.mil>; CAGLE, RANDALL D CIV USAF ACC 633 CES/CEIH <randall.cagle@us.af.mil>

Subject: URGENT// Why is Pollution Prevention so Important?

Importance: High

Residents,

Let's take care of our environment together! Just a friendly reminder, that if you're performing car maintenance, such as serving your engine or oil changes to utilize the base service station or auto hobby shop. We must do our best to prevent our Installation from receiving any fines... I have attached some educational material as to why this is important!

If you have any questions or concerns please contact your Unaccompanied Housing Team.

Very Respectfully,

Byron C. Washington Jr., MSgt, USAF
Superintendent, Unaccompanied Housing

633d Civil Engineer Squadron

Joint Base Langley-Eustis, VA 23665

DSN: 574-1433 Comm: (757) 764-1433

Dorm SharePoint: https://langley.eim.acc.hedc.af.mil/org/633abw/633_msg/633ces/ceih/default.aspx

"Taking care of the Airman one day at a time"



Why is Pollution Prevention so Important?

Leaks and Drips

A small leak from your vehicle may not seem like a big deal, but when each car in a large parking lot drips just one drop of fluid, the cumulative negative effects on water quality can be enormous.

Fluid spills and improper disposal of materials result in pollutants, heavy metals and toxic materials that are picked up by stormwater and carried to the nearest storm drain. Anything that enters the storm drain system flows untreated into our streams and creeks and ends up in our lakes and rivers. By following the guidelines in this brochure, you can help prevent stormwater pollution.



Our unique location impacts
the Chesapeake Bay
Watershed



Federal and State Laws

- * Clean Water Act
- * Virginia Pollutant Discharge Elimination System (VPDES) regulations
- * Municipal Separate Storm Sewer System (MS4) regulations

For more information, contact the
Stormwater Program Manager at
(757) 764-1141

or

Pollution Prevention Program at
Manager (757) 764-1130

Joint Base Langley Eustis - Langley 633 CES



Car Maintenance and Pollution Prevention

Small amounts of contaminants
add up and cause pollution in
our water.

Yes, even the little things
matter.

YOU will make a difference, no
matter how small.

Care and Maintenance

Care and maintenance of vehicles is important in keeping them in good working order.



How You Can Help

Your part might seem small, but every little bit adds up to make a big difference:

- * Repair leaks on your vehicles
- * Use funnels when pouring liquids
- * Use pans to catch drips/spills
- * Use the facilities available on base for maintenance needs
- * Recycle used oil & oil filters
- * Recycle used/unused antifreeze
- * Recycle automobile batteries



You have a choice!

Take your car to Precision Tune or, if you prefer to do it yourself, Auto Skills Shop has you covered.

Antifreeze & Batteries

Recycle old batteries and antifreeze at Precision Tune Auto Care.

Used Oil & Filters

Take filled containers and used oil filters to the Auto Skills Shop for recycling.



If you have a spill or see one, please report it.

**Report spills to the Fire Department at
(757) 764-4222**

Locations

Auto Skills Shop
35 Ash Ave, Bldg. 224
Hours: Mon-Fri, 0800-1700;
Sat-Sun, 1000-1500.



Precision Tune Auto Care
61 Tuskegee Airman Blvd., Bldg. 245.
Hours: Mon-Fri, 0630-1800;
Sat 0800-1600.



From: CLAWSON, RICH S SMSgt USAF ACC 633 CES/CCF <rich.clawson@us.af.mil>
Sent: Monday, June 15, 2020 9:13 AM
To: 633 CES All Military <633CES.All.Military@us.af.mil>; 633 CES ALL Civilians <633cescivilians@us.af.mil>
Subject: REMINDER: Virtual Newcomer Orientation via Zoom - Tuesday, 16 June 20, 0800 EST (TOMORROW)

Aloha, Engineers,

Please see below A&FRC Virtual Newcomer Orientation message.

Target Audience: all newly arriving service members, civilians, contractors and families assigned to JBLE-Langley.

V/R
Shirt

Greetings,

TOMORROW, the Airman & Family Readiness Center (A&FRC) will be hosting a Virtual Newcomer Orientation via live Zoom, Tuesday, 16 June 20, 0800 EST for all newly arriving service members, civilians, contractors and families assigned to JBLE-Langley. We appreciate your assistance in providing widest dissemination. Information also available via JBLE Langley FSS & A&FRC Facebook pages.

Login Instructions:

Registration link.

1. <https://www.zoomgov.com/meeting/register/vJIsuypqjItHARcigF24gD6VYqxnuSbVVU>
2. Meeting ID: 1615514976

If you have any questions please contact our host: Ms. Tanya Jernigan, (Tanya.Jernigan@us.af.mil) or Ms. Ursula Santiago (Ursula.Santiago@us.af.mil) (757) 764-3990.

V/r

Gwen

Glendeline "Gwen" Lee
Chief, Airman & Family Readiness Center
Langley Air Force Base (LAFB)
DSN 📞 4-3990; Comm 📞 7-764-3990

Attachment 4: NASA Interconnectivity Notification

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From: Van Dyke, Peter R. (LARC-D406) <peter.vandyke@nasa.gov>
Sent: Friday, February 15, 2019 10:10 AM
To: CHRISTIAN, DAWN S GS-12 USAF ACC 633 CES/CEIE <dawn.christian@us.af.mil>
Cc: Salcedo-Bauza, Alexandra (LARC-D406)[Herndon Solutions Group] <alexandra.salcedo-bauza@nasa.gov>
Subject: [Non-DoD Source] JBLE MS4 Interconnection Notice

Hello Dawn,

I hope all is well. NASA's MS4 permit requires that we provide notification to any downstream MS4 of known physical interconnection. This email serves as a notification that NASA Langley has known interconnections to JBLE's MS4. The primary connection points are the ditch by the Durand gate and the ditch running parallel to our taxiway onto JBLE. I know this is not new news to you, but this is a procedural requirement for us. If you have any questions please let me know.

Also, Ande Remington has moved on to another position. I want to introduce you to Alexandra Salcedo-Bauza (CC'd) who is now supporting the water program.

Thanks,
Peter Van Dyke
National Aeronautics and Space Administration, Langley Research Center
Standard Practice and Environmental Engineering Branch
B1195, Room 2030
office: (757) 864-7517
cell: (757) 751-4308
email: peter.vandyke@nasa.gov

Customer satisfaction survey: <https://codnet.ndc.nasa.gov/TinyUrl.cfm?ID=8>
Directorate Website: <http://cod.larc.nasa.gov/>

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Attachment 5: Illicit Discharge Investigation Details

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Illicit Discharge Tracking Record, JBLE - Langley

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Attachment 6: Stormwater Management Facility Inventory Tracking Spreadsheet

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Year_Installed	Practice_Name	Practice_Description	Total_Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 1	7.92	2.08	0.166	Systems	1	37.098044	-76.355630	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2007	\$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 2	0.38	0.36	0.029	Systems	1	37.095267	-76.358796	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2007	\$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 3	0.26	0.25	0.020	Systems	1	37.095243	-76.358593	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2007	\$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 4	0.26	0.24	0.019	Systems	1	37.095218	-76.358388	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2007	\$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 5	0.26	0.23	0.018	Systems	1	37.095197	-76.358187	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2007	\$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 6	0.23	0.21	0.017	Systems	1	37.095174	-76.357982	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2007	\$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 7	0.23	0.20	0.016	Systems	1	37.095154	-76.357777	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2007	\$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 8	0.19	0.11	0.009	Systems	1	37.095134	-76.357578	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2007	\$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 9	3.48	0.64	0.051	Systems	1	37.095992	-76.359729	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2007	\$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 10	0.45	0.27	0.022	Systems	1	37.094149	-76.361885	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$337.87

Year_Installed	Practice_Name	Practice_Description	Total_Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 11	0.41	0.22	0.018	Systems	1	37.094116	-76.361686	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 12	0.17	0.14	0.011	Systems	1	37.093990	-76.361925	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 13	0.15	0.14	0.011	Systems	1	37.093955	-76.361728	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 14	0.23	0.16	0.013	Systems	1	37.093831	-76.361970	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 15	0.16	0.10	0.008	Systems	1	37.093797	-76.361769	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 16	0.21	0.18	0.015	Systems	1	37.096668	-76.361608	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 17	0.19	0.17	0.014	Systems	1	37.096578	-76.361971	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 18	0.30	0.27	0.022	Systems	1	37.096465	-76.362363	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 19	0.24	0.23	0.018	Systems	1	37.096342	-76.362799	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 20	0.99	0.72	0.058	Systems	1	37.096375	-76.361974	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$337.87

Year_Installed	Practice_Name	Practice_Description	Total_Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 21	0.45	0.36	0.029	Systems	1	37.096008	-76.362506	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 22	0.60	0.49	0.039	Systems	1	37.096216	-76.361782	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$337.87
2008	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 23	2.51	1.39	0.111	Systems	1	37.095545	-76.362447	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$364.45
2008	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 24	4.38	1.78	0.142	Systems	1	37.094784	-76.362808	020801080102	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2008	\$364.45
2008	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 25	1.57	0.70	0.056	Systems	1	37.100139	-76.378244	020801080102	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2008	\$502.48
1977	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 26	9.27	0.13	0.010	Systems	1	37.094030	-76.367133	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	1977	\$45.55
1977	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 27	17.65	0.90	0.072	Systems	1	37.093374	-76.368813	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	1977	\$318.89
1977	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 28	14.31	0.87	0.070	Systems	1	37.090823	-76.369517	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	1977	\$318.89
1977	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 29	13.11	1.40	0.112	Systems	1	37.088444	-76.368606	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	1977	\$510.23
1977	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 30	8.26	0.10	0.008	Systems	1	37.086498	-76.365593	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	1977	\$45.55

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1977	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 31	7.24	0.05	0.004	Systems	1	37.086428	-76.363477	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	1977	\$18.22
2016	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 32	2.42	0.20	0.016	Systems	1	37.075067	-76.381627	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2016	\$502.48
2016	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 33	5.95	0.62	0.049	Systems	1	37.074495	-76.380903	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2016	\$848.00
2016	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 34	1.24	0.44	0.035	Systems	1	37.075376	-76.381025	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2016	\$502.48
2016	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 35	0.64	0.19	0.016	Systems	1	37.074460	-76.378894	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2016	\$502.48
2016	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 36	5.16	0.22	0.017	Systems	1	37.075170	-76.380560	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2016	\$502.48
2016	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 37	3.54	0.73	0.059	Systems	1	37.077942	-76.382171	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2016	\$502.48
2000	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 38	3.14	1.05	0.084	Systems	1	37.082615	-76.374694	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2000	\$565.29
2012	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 39	2.71	2.16	0.173	Systems	1	37.074474	-76.366869	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2012	\$848.00
2005	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 40	1.12	0.68	0.054	Systems	1	37.068056	-76.360048	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2005	\$337.87
2005	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 41	0.37	0.11	0.009	Systems	1	37.067781	-76.359545	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2005	\$502.48
2005	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 42	0.19	0.06	0.005	Systems	1	37.067830	-76.360984	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2005	\$848.00
2005	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 43	1.13	0.44	0.035	Systems	1	37.067149	-76.359943	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2005	\$502.48
2011	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 44	31.51	22.40	1.792	Systems	1	37.071135	-76.358055	020801080103	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2011	\$502.18

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2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 45	2.16	1.45	0.116	Systems	1	37.070600	-76.360535	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2007	\$337.87
2013	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 46	3.70	1.54	0.123	Systems	1	37.066793	-76.366190	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2013	\$337.87
2013	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 47	3.30	1.40	0.112	Systems	1	37.067739	-76.365255	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2013	\$464.57
2013	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 48	3.48	1.14	0.091	Systems	1	37.068257	-76.364621	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2013	\$848.00
2000	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 49	1.26	0.72	0.058	Systems	1	37.072550	-76.363403	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2000	\$337.87
2000	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 50	1.35	0.68	0.054	Systems	1	37.072432	-76.364202	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2000	\$337.87
2015	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 51	1.56	0.07	0.006	Systems	1	37.074457	-76.375603	020801080103	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2015	\$62.81
2009	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 52	0.95	0.09	0.008	Systems	1	37.099548	-76.355627	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2009	\$45.55
2010	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 53	0.67	0.27	0.022	Systems	1	37.097720	-76.356485	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2010	\$848.00
2013	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 55	1.92	1.43	0.114	Systems	1	37.075794	-76.357982	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2013	\$690.91
2013	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 56	0.51	0.23	0.018	Systems	1	37.065987	-76.366677	020801080103	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2013	\$212.00
2006	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 57	1.76	1.16	0.093	Systems	1	37.094402	-76.424570	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2006	\$410.00

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2010	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 58	8.64	4.35	0.348	Systems	1	37.097141	-76.422678	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2010	\$3,710.00
2010	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 59	7.51	2.67	0.213	Systems	1	37.099519	-76.423363	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2010	\$2,226.00
2009	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 60	2.00	0.07	0.006	Systems	1	37.073553	-76.384703	020801080103	JBLE-Langley	2/5/2019	-	Dawn Christian	Dept of Defense	2007	\$800.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 61	0.25	0.11	0.008	Systems	1	37.065989	-76.366401	020801080103	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2013	\$500.00
2010	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 62	0.17	0.02	0.002	Systems	1	37.065807	-76.366288	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2013	\$500.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 63	0.36	0.13	0.010	Systems	1	37.065539	-76.366573	020801080103	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2013	\$500.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 64	0.36	0.10	0.008	Systems	1	37.065280	-76.366189	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2013	\$500.00
2010	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 65	0.18	0.14	0.011	Systems	1	37.065169	-76.366164	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2013	\$600.00
2010	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 66	0.18	0.14	0.011	Systems	1	37.064939	-76.366112	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2013	\$600.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 67	0.32	0.09	0.007	Systems	1	37.064781	-76.366055	020801080103	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2013	\$500.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 68	0.30	0.07	0.005	Systems	1	37.064861	-76.366419	020801080103	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2013	\$500.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 69	0.16	0.002	0.000	Systems	1	37.064842	-76.366405	020801080103	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2013	\$400.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 70	0.15	0.004	0.000	Systems	1	37.064530	-76.366520	020801080103	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2013	\$300.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 71	0.06	0.01	0.000	Systems	1	37.064504	-76.366493	020801080103	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2013	\$200.00
2010	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 72	0.56	0.16	0.013	Systems	1	37.064860	-76.366344	020801080103	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2013	\$800.00
2010	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 73	0.36	0.10	0.008	Systems	1	37.065333	-76.366227	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2013	\$600.00
2010	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 74	0.32	0.09	0.007	Systems	1	37.064723	-76.366030	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2013	\$650.00
2009	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 75	2.30	0.61	0.049	Systems	1	37.076005	-76.356640	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2007	\$500.00
2005	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 76	1.09	0.57	0.046	Systems	1	37.068155	-76.361436	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2007	\$800.00

Year_Installed	Practice_Name	Practice_Description	Total Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2004	HydroDynStruc	Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: 77	0.19	0.15	0.012	Systems	1	37.074325	-76.367334	020801080103	JBLE-Langley	2/7/2019	-	Dawn Christian	Dept of Defense	2001	\$400.00
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 78	2.79	1.81	0.145	Systems	1	37.094874	-76.358337	020801080102	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2007	\$337.87
2010	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 79	1.84	0.68	0.054	Systems	1	37.074284	-76.377328	020801080103	JBLE-Langley	2/6/2019	-	Dawn Christian	Dept of Defense	2007	\$337.87
2002	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 80	2.31	0.72	0.058	Systems	1	37.070457	-76.367073	020801080103	JBLE-Langley	6/6/2019	-	Dawn Christian	Dept of Defense	2002	\$500.00
2009	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 81	0.08	0.01	0.001	Systems	1	37.073480	-76.383011	020801080103	JBLE-Langley	6/7/2019	-	Dawn Christian	Dept of Defense	2007	\$400.00

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Attachment 7: Chesapeake Bay TMDL Action Plan Implementation Status Memo

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Date: 17 September 2020

Subject: **Chesapeake Bay Phase II Total Maximum Daily Load (TMDL) Action Plan
Implementation Progress for JBLE–Langley**

1.0 INTRODUCTION

In 2010 the United States Environmental Protection Agency (EPA) established the Chesapeake Bay Total Maximum Daily Load (TMDL) to address excess nitrogen, phosphorus and total suspended solids (pollutants of concern or POCs) in the bay (EPA, 2010). A TMDL is the maximum amount of a pollutant that a waterbody can assimilate and still support its designated use. The Chesapeake Bay watershed encompasses over 64,000 square miles across the District of Columbia and large sections of Delaware, Maryland, New York, Pennsylvania, West Virginia and Virginia.

In the Phase I and Phase II Chesapeake Bay Watershed Implementation Plan (WIP) for the Chesapeake Bay TMDL, the Commonwealth of Virginia committed to a phased approach to reducing nutrients and suspended solids discharging from Municipal Separate Storm Sewer Systems (MS4). Section I.C of the Joint Base Langley Eustis–Langley (JBLE–Langley) MS4 permit (VAR040140, effective 01 November 2018) requires the base to prepare a Chesapeake Bay TMDL Action Plan that demonstrates future plans to meet the required nutrient and suspended solids reductions for each permit cycle as specified in the 2010 Phase I WIP (VDEQ, 2010).

JBLE–Langley developed a Chesapeake Bay TMDL Action Plan for the installation’s MS4 area (JBLE–Langley, 2020). The Action Plan is an annual report on the progress made by the base in meeting the Chesapeake Bay TMDL pollutant reduction requirements, specifically the Level 2 (L2) scoping run as specified in the 2010 Phase I WIP (VDEQ, 2010). The L2 reductions are to be met in phases corresponding to the permit cycles, as outlined in Table 1-1.

Table 1-1. Pollutant Percent Reduction Requirements by Permit Cycle

Permit Cycle	Timeframe	Cycle Percent Reduction	Cumulative Percent Reduction
1	2013-2018	5%	5%
2	2018-2023	35%	40%
3	2023-2028	60%	100%

The purpose of this memorandum is to document progress toward implementing the Chesapeake Bay TMDL Action Plan. The objectives of this memorandum are to present the required pollutant reduction requirements for the second permit cycle and discuss strategies that have been implemented or will be implemented by the Air Force Civil Engineer Center (AFCEC) and JBLE–Langley to reduce nutrient and sediment loads.

This memorandum is organized into the following sections:

- Section 1.0 presents the background, purpose and objectives
- Section 2.0 describes the pollutant load reduction requirements
- Section 3.0 describes the pollutant credits achieved by the base
- Section 4.0 describes future best management practices (BMP)
- Section 5.0 presents the progress summary
- Section 6.0 contains a list of references associated with this memorandum

2.0 POLLUTANT LOAD REDUCTION REQUIREMENTS

The methodology used to calculate the pollutant loads and credits is based on the VDEQ Guidance Memo No. 15-2005 (Guidance Document) (VDEQ, 2015). The base's pollutant loads for existing sources (contributed by the base as of 30 June 2009) and new sources (contributed by the base between 01 July 2009 and 30 June 2020) were calculated using impervious and pervious land cover area and loading rates for the base's MS4 permit area as specified in the Guidance Document (VDEQ, 2015). The MS4 permit area used to calculate pollutant loads was modified to account for the approximately 27 acres of MS4 area newly incorporated within the industrial permit VAR052285 boundary, effective 01 July 2019. Estimated loads for 2009 and 2020 are presented in Table 2-1.

Table 2-1. Existing and New Loads and Total Load Change at JBLE–Langley

Land Cover (Subsource)	Pollutant	Estimated Total Load as of 30 June 2020 (lbs/yr)	Estimated Total Load as of 30 June 2009 (lbs/yr)	Total Load Change (lbs/yr)	
Regulated Urban Impervious	Nitrogen	3,035.0	2,826.5	208.5	16.1
Regulated Urban Pervious		6,682.3	6,874.7	-192.4	
Regulated Urban Impervious	Phosphorus	626.9	583.9	43.0	30.2
Regulated Urban Pervious		445.5	458.3	-12.8	
Regulated Urban Impervious	Total Suspended Solids	189,604.5	176,583.9	13,020.6	11,190.2
Regulated Urban Pervious		63,573.5	65,403.9	-1,830.4	

Note and Acronym:

Minor calculation discrepancies are accounted for in rounding.
 lbs/yr – Pounds per year

The *Total Load Change* is adjusted by any credits earned from BMPs implemented during the 2009–2019 timeframe to arrive at the *Net Load Change*. BMPs installed after 01 July 2009 were included in this analysis when they were implemented under conditions of redevelopment. The base is required to offset 40% of the *Net Load Change* by the end of the second permit cycle, as shown in Table 2-2.

Table 2-2. Net Load Changes from New Sources and Additional Reductions Required

Pollutant	Total Load Change (lbs/yr)	Reductions from BMPs Installed between 01 July 2009 and 30 June 2019 (lbs/yr)	Net Load Change (lbs/yr)	Required Reduction by End of Second Permit Cycle	Additional Reductions Required between 01 July 2019 and 30 June 2023 (lbs/yr)
Nitrogen	16.1	41.6	-25.5	40%	-10.2
Phosphorus	30.2	7.8	22.4	40%	9.0
Total Suspended Solids	11,190.2	7,132.8	4,057.4	40%	1,623.0

Note and Acronym:

Minor calculation discrepancies are accounted for in rounding.
 lbs/yr – Pounds per year

3.0 LOAD REDUCTION CREDITS ACHIEVED

This section describes load reduction credits achieved by JBLE–Langley from post-construction BMPs, street sweeping, land use change and shoreline management.

3.1 Existing Post-Construction BMPs (Post-2006)

A geographic information system (GIS) inventory of existing post-construction BMPs present at JBLE–Langley and their drainage areas was developed to help calculate existing credits for the Action Plan. BMPs installed between 01 January 2006 and 30 June 2009 were included in this analysis. BMPs installed prior to 01 January 2006 are not eligible for credit and were thus excluded from consideration for this Action Plan. BMPs installed after 30 June 2009 were tracked separately to facilitate the calculation of new source loads. For BMPs installed after 30 June 2009, only those implemented under conditions of redevelopment were eligible for credits, as described in the Guidance Document (VDEQ, 2015). Summaries of existing BMP types and credits are provided in Table 3-1 and 3-2 respectively.

Table 3-1. Summary of Existing BMP Types

BMP Type	Timeframe Implemented		Total
	01 Jan 2006 to 30 June 2009	01 July 2009 to 30 June 2020	
Dry Detention Pond	0	12	12
Dry Extended Detention Pond	3	1	4
Swale	2	13	15
Wet Pond or Wetland	1	0	1
Filtrerra Bioretention Systems	0	8	8
Total	6	34	40

Table 3-2. Summary of Credits from Existing Post-Construction BMPs

BMP Timeframe	Number of BMPs	Credits (lbs/yr)		
		Nitrogen	Phosphorus	Total Suspended Solids
2006–2009	6	5.3	0.9	871.9
2009–2019	33	41.6	7.8	7,132.8

Acronym:

lbs/yr – Pounds per year

3.2 Street Sweeping

The base performs vacuum powered street sweeping on primary roads, secondary roads and parking lots on a regular basis. Street sweeping credits are calculated based on the methodology described in *Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices* (Donner et al., 2016). Data on frequency and linear miles of sweeping was provided by the base and is used to calculate load reduction credits. A summary of street sweeping credits is presented in Table 3-3.

Table 3-3. Summary of Annual Street Sweeping Credits

Lane-Miles Swept	Acres Swept	Credits (lbs/yr)		
		Nitrogen	Phosphorus	Total Suspended Solids
1,534.0	1,859.4	572.7	185.9	265,893.3

Acronym:

lbs/yr – Pounds per year

3.3 Land Use Change

No land use change credit opportunities were identified on the base at this time.

3.4 Shoreline Management

Pollutant load reductions from the 10,841 linear feet of shoreline restoration activities on the base are presented in Table 3-4.

Table 3-4. Summary of Shoreline Management Reductions

Pollutant	Shoreline Restoration (linear feet)	Loading Rate (lbs/ft/yr) ¹	Credit (lbs/yr)
Nitrogen	10,841	0.01218	132.0
Phosphorus	10,841	0.00861	93.3
Total Suspended Solids	10,841	42.0	455,322.0

Acronyms:

lbs/ft/yr – Pounds per foot per year

lbs/yr – Pounds per year

4.0 FUTURE BMPs

One additional shoreline management project is planned for 2021, totaling 1,350 linear feet. One stream restoration project was implemented in September 2019, totaling 785 linear feet and a stream restoration project is funded for implementation in 2021 totaling 1,500 linear feet. Because all of these projects were or will be implemented after 30 June 2019 no credit is being claimed.

The base will continue to investigate the applicability and feasibility of additional BMPs and BMP types in order to meet the pollutant load reduction requirements of the Chesapeake Bay TMDL. Opportunities for effective retrofit options will be explored and prioritized to make the best use of available resources.

5.0 PROGRESS SUMMARY

A summary of the required load reductions is presented in Table 5-1 and the second permit cycle pollutant credits are presented in Table 5-2.

Table 5-1. Summary of Permit Cycles 1, 2 and 3 Reduction Requirements

Pollutant	Required Load Reduction by 2018 (lbs/yr)	Required Load Reduction by 2023 (lbs/yr)	Required Load Reduction by 2028 (lbs/yr)
Nitrogen	32.1	256.5	641.3
Phosphorus	7.5	59.6	149.1
Total Suspended Solids	2,254.9	18,038.8	45,097.0

Acronym:

lbs/yr – Pounds per year

Table 5-2. Summary of Second Permit Cycle Reduction Requirements and Credits

Pollutant	Second Permit Cycle Cumulative Percent Reduction Requirement	Required Load Reduction by 2023 (lbs/yr)	Credits from Existing BMPs (lbs/yr)¹	Second Permit Cycle Target Met?
Nitrogen	40%	256.5	710.0	Yes
Phosphorus	40%	59.6	280.1	Yes
Total Suspended Solids	40%	18,038.8	722,087.2	Yes

Note and Acronym:

¹ Does not include credits related to New Sources that were previously accounted for in Table 2-2.

lbs/yr – Pounds per year

If the BMPs considered in this analysis are maintained and fully functional to provide the design performance, it is the conclusion of this analysis that the base currently meets its second permit cycle reduction requirement goals for all the POCs. The base will continue to investigate the applicability and feasibility of additional BMPs and BMP types in order to meet the future milestone pollutant load reduction requirements of the Chesapeake Bay TMDL.

6.0 REFERENCES

- JBLE–Langley. 2020. *Draft Chesapeake Bay Phase II Total Maximum Daily Load Action Plan for Joint Base Langley Eustis–Langley*. May 2020.
- Donner, S., Frost, B., Goulet, N., Hurd, M., Law, N., Maguire, T., Selbig, B., Shafer, J., Stewart, S. and Tribo, J. 2016. *Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices*. Chesapeake Bay Program Office. Accessed at https://www.chesapeakebay.net/channel_files/23064/final_street_cleaning_expert_panel_report.pdf.
- EPA. 2010. *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment*. 29 December 2010.
- Forand N., Dubois K., Halka J., Hardaway S., Janek, G., Karrh, G., Koch, E., Linker, L., Mason, P., Morgereth, E., Proctor, D., Smith, K., Stack, B., Stewart, S. and Wolinski, B. 2017. *Recommendations of the Expert Panel to Define Removal Rates for Shoreline Management Projects*. Chesapeake Bay Program Office. Accessed at https://www.chesapeakebay.net/documents/LONG_SHORELINE_MGMT_EPR_05152018.pdf.
- Virginia Department of Environmental Quality (VDEQ). 2010. *Chesapeake Bay TMDL Phase I Watershed Implementation Plan*. 29 November 2010.
- VDEQ. 2018. *General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, General Permit No. VAR040140*. Effective date 01 November 2018.
- VDEQ. 2015. *Guidance Memo No. 15-2005*. 18 May 2015.

LIST OF ACRONYMS

AFCEC	Air Force Civil Engineer Center
BMP	Best Management Practice
EPA	Environmental Protection Agency
GIS	Geographic Information System
JBLE–Langley	Joint Base Langley Eustis–Langley
lbs/yr	Pounds per year
MS4	Municipal Separate Storm Sewer System
POC	Pollutants of Concern
TMDL	Total Maximum Daily Load
VDEQ	Virginia Department of Environmental Quality
WIP	Watershed Implementation Plan

Attachment 8: Bacteria TMDL Action Plan Implementation Status Memo

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Date: 17 September 2020

Subject: **Back River Bacteria TMDL Action Plan Implementation Progress for JBLE–Langley**

1.0 INTRODUCTION

In 2017, the Virginia Department of Environmental Quality (VDEQ) developed Total Maximum Daily Loads (TMDL) to address fecal coliform bacteria impairment in the Back River Virginia (VDEQ, 2017). The TMDLs, which were approved by the United States Environmental Protection Agency (EPA) on 09 February 2018, assign wasteload allocations for bacteria to Joint Base Langley Eustis–Langley (JBLE–Langley). The wasteload allocation is a portion of the TMDL load and represents the allowable load a permittee may discharge to the waterbody and still meet water quality standards.

JBLE–Langley is authorized to discharge stormwater from the installation in accordance with an industrial stormwater permit (VAR052285) and a Municipal Separate Storm Sewer System (MS4) permit (VAR040140) (VDEQ 2018), both issued by the VDEQ. The MS4 permit identifies minimum control measures and special condition requirements, measurable goals and best management practices selected for implementation at JBLE–Langley. Special Condition 1 found in Section II.B.1 of the JBLE–Langley MS4 permit requires the installation to maintain a specific TMDL Action Plan for pollutants allocated to the MS4 in an approved TMDL.

JBLE–Langley updated their Bacteria TMDL Action Plan for the installation’s MS4 area. The TMDL Action Plan describes the TMDL waterbodies, JBLE–Langley installation, existing and proposed bacteria control measures and an implementation schedule for addressing bacteria sources in the Back River watershed (JBLE–Langley, 2020).

The purpose of this memorandum is to document progress toward implementing the Back River Bacteria TMDL Action Plan (JBLE–Langley, 2020). The objectives of this memorandum are to present the results of the bacteria source assessment at JBLE–Langley and discuss strategies that have been implemented or will be implemented by the Air Force Civil Engineer Center (AFCEC) and JBLE–Langley to reduce bacteria sources.

This memorandum is organized into the following sections:

- Section 1.0 presents the background, purpose and objectives
- Section 2.0 describes the schedule and actions for addressing bacteria sources
- Section 3.0 describes the bacteria source assessment
- Section 4.0 describes the bacteria action plan implementation progress
- Section 5.0 describes bacteria-reducing actions in progress
- Section 6.0 presents the summary and next steps
- Section 7.0 contains a list of references associated with this memorandum

2.0 ACTION PLAN FOR ADDRESSING BACTERIA IN THE BACK RIVER

JBLE–Langley developed an implementation schedule for addressing bacteria impairments in the Back River as part of the Back River Bacteria TMDL Action Plan for JBLE–Langley (JBLE–Langley, 2020b). During the first MS4 permit cycle (2017 – 2018), the Action Plan lists the following JBLE–Langley implementation actions:

- Identify and maintain a list of existing source controls and management practices that are applicable to reducing fecal coliform bacteria.
- Identify opportunities for enhancing public education and outreach programs to address bacteria impairment.
- Assess significant sources of bacteria using desktop evaluations, field investigations and collaboration with key base staff.
- Determine if additional source controls are needed. If additional controls are needed, prepare a summary of potential controls and identify programs and activities to support their implementation.
- Evaluate new bacteria-related datasets for the Back River watershed collected by other agencies (e.g., VDEQ) as available.
- Update the Bacteria TMDL Action Plan to reflect activities performed during the reporting year. Adjust the implementation schedule as needed to reflect the findings from the field and desktop assessments and report on progress annually.

As described in the Back River Bacteria TMDL Action Plan, bacteria-reducing activities to be performed during the second MS4 permit cycle (2018 – 2023) include:

- As funding permits, implement activities identified in the implementation schedule (from previous years) as appropriate.
- Evaluate new bacteria-related datasets for the Back River watershed collected by other agencies as available.
- Identify any current or additional activities to be performed during the subsequent permit cycle.
- Submit an estimated end date for achieving the bacteria wasteload allocation.
- Update the Bacteria TMDL Action Plan to reflect activities performed during the following year and report on progress annually. Adjust the implementation schedule as needed to reflect findings from field and desktop assessments. Report on progress annually.

3.0 BACTERIA SOURCE ASSESSMENT

The Back River TMDL report identifies both natural and anthropogenic sources of bacteria in the watershed (Table 3-1).

Table 3-1. Fecal Bacteria Source Allocations (%) in the Back River Watershed
(Source: VDEQ 2017, Table 3.7 and Table 3.8)

Source Category	Source	Percent
Wildlife	Deer	4.3
	Ducks/Birds	43.2
	Muskrats	0.6
	Nutria	1.3
	Racoons	0.3
Pets	Dog	34.6
Livestock	Livestock	9.0
Human	Human-Sanitary Sewer Overflow	6.1
	Human-Septic	0.0
	Marina (slips)	0.4

The percentages presented in Table 3-1 are averages across the entire Back River watershed. The 2017 TMDL does not identify any specific sources of bacteria within the JBLE–Langley MS4 area. To build on this information, JBLE–Langley initiated source assessments on base in February 2020. The sources identified, and strategies taken to address these sources are described in Sections 4 and 5.

In February 2020, a bacteria source investigation (windshield survey) was performed at JBLE–Langley to locate bacteria sources described in Table 3-1 and to identify other potential sources that might be present. In addition, multiple JBLE–Langley personnel involved with activities that may be affecting fecal bacteria loading from the base were interviewed to discuss actions that JBLE–Langley was currently taking to reduce or remove bacteria sources.

4.0 BACTERIA ACTION PLAN IMPLEMENTATION PROGRESS

This section describes programs and activities that are being implemented at JBLE–Langley to address bacteria sources and accomplish the goals set forth in the JBLE–Langley Bacteria Action Plan.

4.1 Wildlife

Wildlife is the single largest source contributor of bacteria within the Back River watershed and also the most challenging to control. Migratory birds are the largest wildlife source of bacteria and any reductions in the population of resident bird species can provide a substantial reduction in bacteria loading to the Back River. In managing the base’s clear recovery zone, JBLE–Langley works with the United States Department of Agriculture, Natural Resource Conservation Service to relocate deer, coyotes, large birds, cats and other animals. The base also manages lands surrounding the airfields to deter wildlife and reduce bird/animal aircraft strike hazard (BASH) safety concerns.

4.2 Pets

Pet waste is the second largest contributor of bacteria within the Back River watershed. Unlike wildlife, pet waste can be effectively controlled using a variety of management approaches. JBLE–Langley residents are permitted to have pets and it is reasonable to assume that residents walk their dogs around nearby neighborhoods. Pet waste disposal stations have been installed and are maintained by Langley Family Housing privatized staff, the private real estate company that manages JBLE–Langley housing. As described in the base’s MS4 Program Plan, residents with pets are briefed on the importance of proper pet waste disposal and the impact on stormwater and water quality (JBLE–Langley, 2020a).

JBLE–Langley maintains a military/police dog training center and associated dog kennels. Dog training areas are covered with artificial turf and are surrounded by vegetated buffers that provides filtration of pollutants prior to entering surface waters. Potential sources of bacteria in runoff from the dog training center are addressed through stormwater treatment practices and training as described in the MS4 Program Plan (JBLE–Langley 2020a).

JBLE–Langley has developed and distributed a pet waste brochure that contains educational information and contact information for the Stormwater Program Manager. The pet waste brochure is given to new residents of base housing.

4.3 Livestock

The JBLE–Langley horse stable is the only location housing livestock on the installation. The JBLE–Langley horse stable is privatized through the Saddle Club and encompasses approximately 15 acres including a horse stable, boarding facility and pasture. Stable bedding and manure associated with the stable are contained under cover and horse owners are informed of the importance of minimizing exposure to stormwater. Potential sources of bacteria in runoff from both the dog training center and horse stable are addressed through stormwater treatment practices and training as described here and in the MS4 Program Plan (JBLE–Langley, 2020a).

4.4 Human

The entire JBLE–Langley installation is currently connected to a sanitary sewer network, and there are no septic systems currently located on the installation. In 2017, JBLE–Langley replaced piping and spent approximately 1.3 million dollars on sanitary sewer repairs to reduce infiltration and inflow. In addition, the primary force main that services most of the base has been redesigned and is planned for construction. These efforts assist in reducing the occurrence of sanitary sewer overflows. Illicit discharge detection and elimination (IDDE) inspections of outfalls were conducted during 2019-2020 to help detect and identify illicit discharges into the stormwater network. Initiatives planned for 2020-2021 include continued inspections of non-industrial outfalls and investigation and reporting of potential illicit discharges (JBLE–Langley, 2020a).

The JBLE–Langley marina offers both dry and wet slips available for boat storage. The marina installed a new \$18,000 marine pump out station on 15 September 2017 that is available for users at a cost of \$5.00. During normal operating hours, marina staff will assist visitors with pump out needs thereby

helping to minimize sewage leaks and associated bacteria inputs to the Southwest Branch Back River and Back River.

4.5 All Source Categories

JBLE–Langley has implemented a number of additional control measures to address sources of fecal coliform on the base. Over the past seven years, JBLE–Langley has completed 9,295 linear feet of shoreline stabilization along the eastern and southeastern shorelines of the Back River and Southwest Branch Back River (Figure 5-1). JBLE–Langley constructed an additional 1,566 linear feet of stabilization in 2020 along portions of the Southwest Branch Back River near the marina. These areas of stabilization increase resilience to major storm events and flooding, provide habit for native animals and plants and reduces erosion and suspension of sediment and associated bacteria in the Back River and Chesapeake Bay.

In June 2017, JBLE–Langley partnered with the Chesapeake Bay Foundation and Booker Elementary school to implement an oyster reef restoration project in the Back River near the base marina. Oyster reefs form a complex ecosystem for filter feeders that filter bacteria and other pollutants from the water column. Through this project, 75 bushels of oyster shells and 2,000 young oyster spat were used to begin building the reef habitat. This project also helped to educate children on the role oysters play in filtering pollutants, improving water quality and providing habitat within the Back River and Chesapeake Bay (Figure 4-8 and Figure 4-9). In August 2018 and again in June 2019, the base expanded the reef habitat through oyster reef building workshops, involving both elementary school students and base residents. The class was led by instructors from the Chesapeake Bay Program.

5.0 BACTERIA-REDUCING ACTIVITIES IN PROGRESS (2020-2021)

JBLE–Langley has initiated 2020-2021 actions that are identified in Section 2.0 of this memorandum. In addition, JBLE–Langley is in the process of exploring additional opportunities for public education and outreach to aid in the reduction of bacteria sources. These opportunities are aimed at pet owners, individuals involved with the dog training center, individuals involved with the Langley Saddle Club and base personnel who could potentially identify illicit discharges from the base’s sanitary sewer network.

6.0 SUMMARY

In summary, JBLE–Langley has taken several actions to reduce bacteria and address various sources on the installation. Completed or ongoing actions taken by JBLE–Langley include the following:

- Prepared a Bacteria Action Plan, including preliminary source investigations and schedule for addressing bacteria sources.
- Relocated deer, coyotes, large birds, cats and other animals away from the base and deterred these wildlife from areas surrounding airfields to avoid BASH safety concerns.
- Installed pet waste disposal stations at housing areas and in areas frequented by pets
- Developed and distributed educational brochures to the public, including pet waste, outdoor vehicle washing, and car maintenance and pollution prevention brochures.

- Performed sanitary sewer repairs to reduce infiltration and inflow and redesigned the primary force main that services most of the base.
- Installed a new sewage boat pump out station.
- Completed 10,861 linear feet of shoreline stabilization along the eastern and southeastern shorelines of the Back River and Southwest Branch Back River.
- Constructed an oyster reef restoration project in the Back River in partnership with the Chesapeake Bay Foundation and Booker Elementary school in 2017. In August 2018 and again in June 2019, the base expanded the reef habitat through oyster reef building workshops, involving both elementary school students and base residents.
- Currently exploring additional opportunities for public education and outreach to aid in the reduction of bacteria sources.

7.0 REFERENCES

JBLE–Langley. 2020a. *Joint Base Langley Eustis–Langley (JBLE–Langley) Municipal Separate Storm Sewer System (MS4) Program Plan*. January 2020.

JBLE–Langley. 2020b. *Back River Bacteria Total Maximum Daily Load Action Plan for Joint Base Langley Eustis–Langley*. Prepared by AECOM Technical Services, Inc. May 2020.

VDEQ. 2017. *Total Maximum Daily Loads of Bacteria for Back River in York County and the Cities of Hampton, Poquoson, and Newport News, Virginia*. Prepared by Virginia Institute of Marine Science. 21 June 2017. Approved by the U.S. EPA on 9 February 2018.

VDEQ. 2018. *Authorization to discharge under the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. VPDES Permit Number VAR040140*. Permit effective November 1, 2018.

LIST OF ACRONYMS

AFCEC	Air Force Civil Engineer Center
BASH	Bird/Animal Aircraft Strike Hazard
EPA	Environmental Protection Agency
IDDE	Illicit Discharge Detection and Elimination
JBLE–Langley	Joint Base Langley Eustis–Langley
MS4	Municipal Separate Storm Sewer System
TMDL	Total Maximum Daily Load
VDEQ	Virginia Department of Environmental Quality