

Air Force Civil Engineer Center



What is AFCEC?

Mr. Benjamin Roope, P.E.,
Maj, USAFR
AFCEC/CZOE



Who am I?



- **Section Chief for Joint Base Charleston Installation Support Team**
- **Air Force Reserve Officer – IMA to the Civil Engineer Squadron Commander at Vandenberg AFB, CA**
- **Air Force Academy Admissions Liaison Officer – South Carolina Area**
- **Owner/Principal at eponymous Civil and Environmental Engineering Consulting LLC**

- **P.E. in California, Colorado and South Carolina**
- **Former faculty at US Air Force Academy, Co**
- **6 Years Active Duty Civil Engineer (Prime BEEF and RED HORSE)**
- **15 Years total Military Service**
- **10 years Civilian Service**

- **B.A. Civil Engineering – Loyola Marymount University, CA (2002)**
- **M.S. Environmental Engineering – University of Notre Dame, IN (2004)**



Agenda



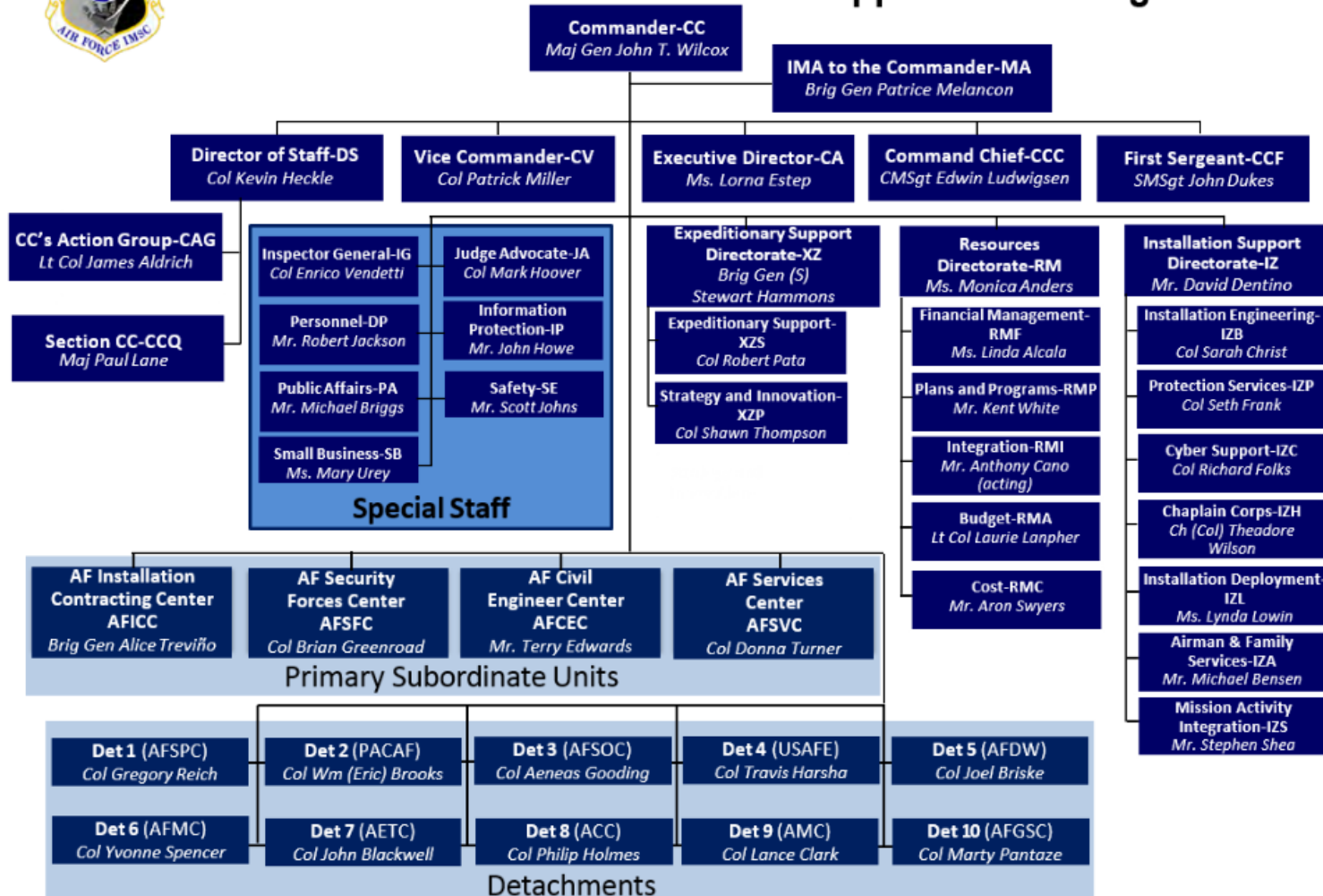
- **AFCEC Organization**
- **Environmental Directorate Organization, Local Presence**
- **Funding and Contract Opportunities**
- **Environmental Remediation Program Overview**
- **PFOS and PFOA Overview**
- **Hiring Opportunities**
- **Wrap Up/Questions**



AF Installation & Mission Support Center Organization



Air Force Installation and Mission Support Center Organization



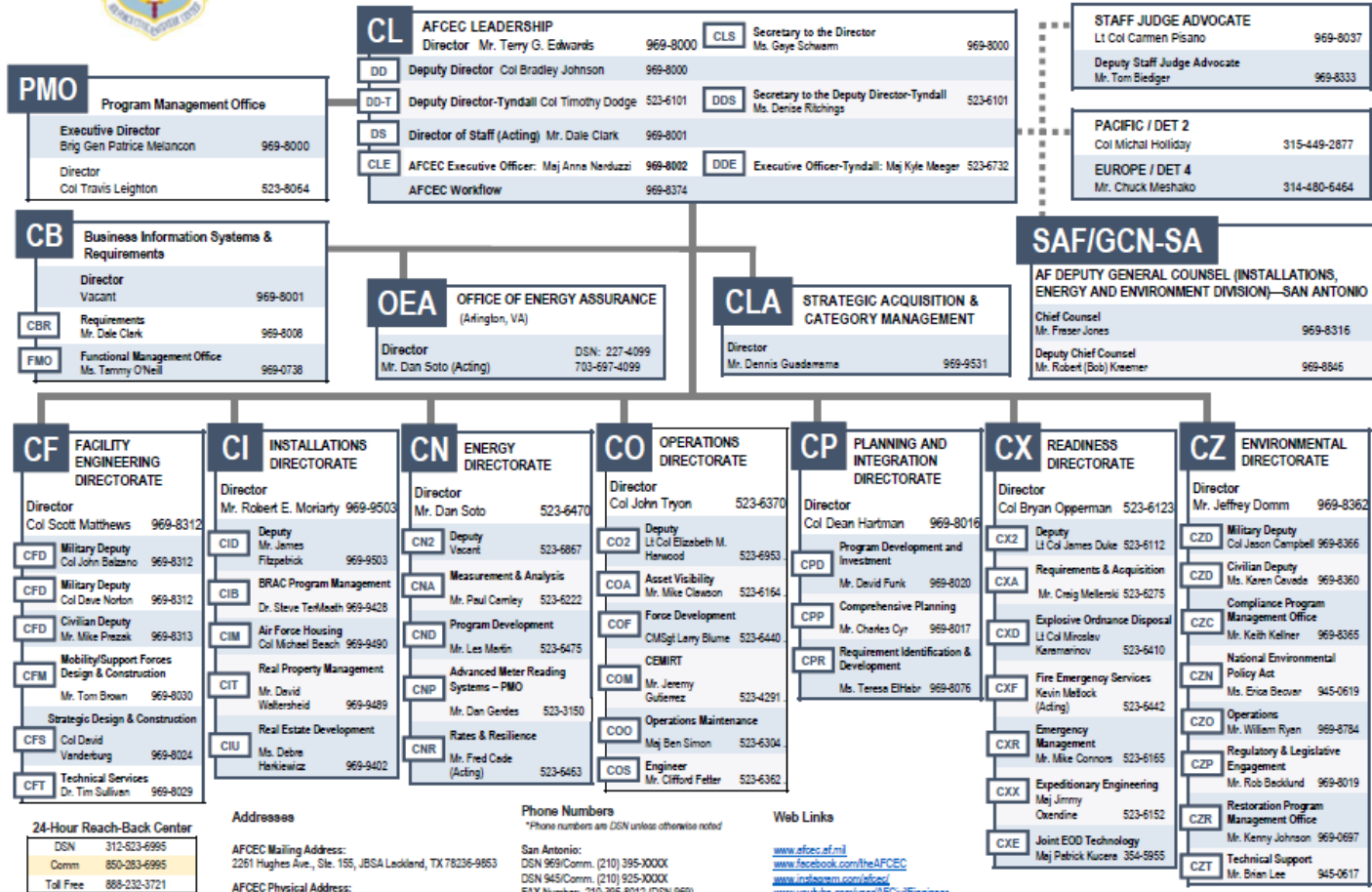
• Integrity - Service - Excellence



AFCEC Organization



AFCEC Organizational Structure



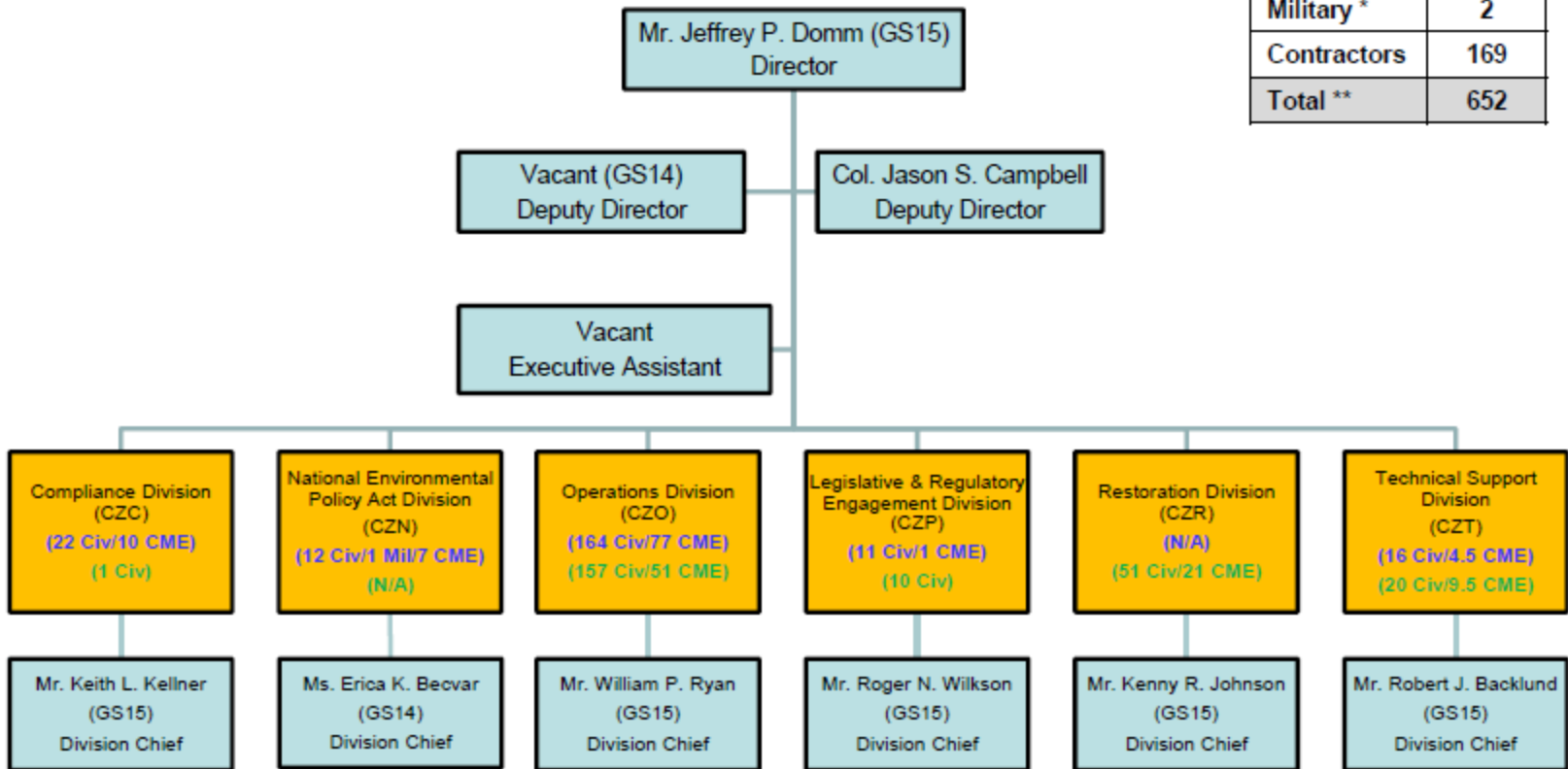
Current as of 12 November 2019



AFCEC/CZ Organization



| | |
|-----------------|------------|
| Civilians * | 481 |
| Military * | 2 |
| Contractors | 169 |
| Total ** | 652 |





AFCEC/CZ Organization



•Operations Division (CZO)

Geographically distributed Installation Support Sections located in the continental United States and Alaska. Includes the Wildland Fire Branch

Compliance Division (CZC)

The Compliance Division provides Air Force headquarters, major commands and installations with environmental compliance support.

Environmental Restoration Division (CZR)

Provides Air Force headquarters, major commands, and installations (Active Duty, Air Force Reserve, Air National Guard and Base Realignment and Closure) with environmental remediation support.

Technical Support Division (CZT)

Technical and regulatory subject matter experts for most Air Force environmental programs.

National Environmental Policy Act Division (CZN)

The National Environmental Policy Act Division executes environmental impact analysis in support of Air Force mission requirements for CONUS & OCONUS

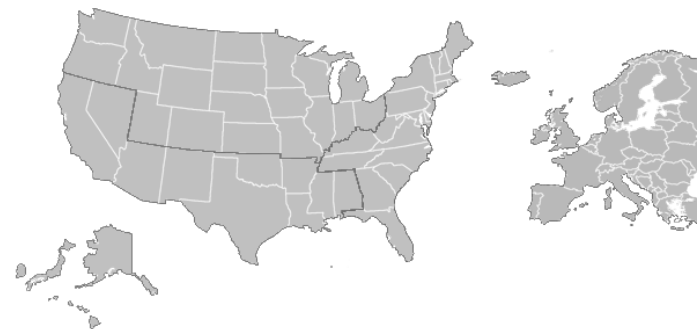
Legislative and Regulatory Engagement Division (CZP)

Provides regional environmental coordinators, media experts and Air Force Legal Operations Agency Environmental Law and Litigation Division support for the Air Force and Department of Defense regional environmental coordinator program

•AFCEC CZO Fact Sheet



Enabling AF Missions By Keeping Bases & Ranges Compliant With Law

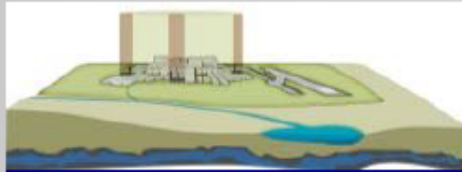


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Environmental Directorate

What We Support – The Big Picture



**161 Installations,
44 Range Complexes**

156K NM² SUA; 350 MTRs; 29K
Acres Accident Zones; 309K Acres
Noise Zones



200 Miles of Coastline

50 Launches/yr



**285 Federally-Recognized
Tribes**



**598K acres of forest
266K acres of wetlands**



9M Acres of Land

Forests, prairies, deserts, wetlands,
coastal habitats



**125 Threatened/Endangered
Species on 53 installations**



**246 Waste Water Permits
207 Storm Water Permits**



180 Water Systems

Serving 1M+ AF Personnel



240 Clean Air Permits

Natural & Built Infrastructure Provides Capacity for Mission Capability



Mission and Vision Statements



Mission:

- Safeguarding our mission, Airmen and environmental resources by continuously improving Air Force stewardship and compliance

Vision:

- To be the world leader in sustaining and promoting sound environmental performance for our Airmen, their families and communities to meet our mission in air, space and cyberspace

| | | |
|--|---|--|
|  <p>What do the Components do?</p> <ol style="list-style-type: none">1 Steam Boiler-Generates steam that is injected into ground2 Vacuum Blower-Maintains vacuum on well-head to remove solvent vapors from ground3 Oil-Water Separator-Separates water from solvents and oil4 Air Stripper-Removes dissolved solvents from water and sends them to thermal oxidizer in vapor phase5 Thermal Oxidizer-Destroys solvents in vapor6 Quench Chamber-Cool vapors from thermal oxidizer7 Scrubber-Adds caustic liquid to reduce acidity of discharge air and water8 Carbon Filter-Removes any dissolved solvents that remain in water9 Moisture Separator-Separates water from vapor10 Caustic Tank-Holds caustic liquid that is fed to the scrubber |  |  |
| <p>Environmental Restoration</p> | <p>Environmental Quality</p> | <p>Wildland Fire Center</p> |

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Environmental Directorate Scope of Responsibility



Annual Program Budget: ~585M/yr

Bases Supported: 161 bases & 44 Range Complexes (9M acres)

Natural Resources: 125 Threatened/Endangered Species on 53 bases

Cultural Resources: 6,763 historical buildings // 285 Tribes

Environmental Quality: 693 permits // 4.66M tons of solid waste per year

Contract Management: ~500 multi-year contracts valued at \$3.25B/yr

Remediation Sites: 2,465 open of 7,944 total in the inventory

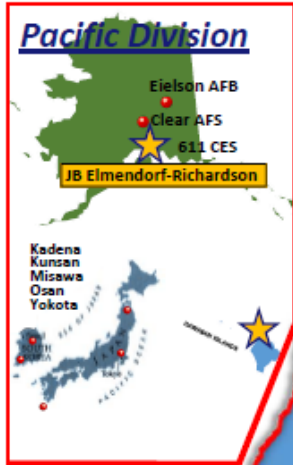
Wildland Fire: 140K acres of Prescribed Fire/Mechanical Treatments per year

Legislative Assessments: 10K/yr // \$48M cost avoidance





AFCEC/CZO Operations Division



Installation Support Sections



Midwest Region Branch

(EPA 5, 7, 8 and 10)



West Region Branch

(EPA 4, 6 and 9)

East Region Branch

(EPA 1, 2, 3 and 4)

a/o 2 Oct 18



Installation Support Sections



JB Charleston ISS Program Roles & Capabilities



| KEY ISS PERSONNEL (DSN: 673-XXXX) | | |
|---|-------------------------|----------------|
| Section Chief, Envr Training TDY Approving Official | Mr. Benjamin Roope | (843) 963-4020 |
| PPBE, Water Quality, F2F | Mr. Luis Classaviles | (843) 963-4975 |
| Air Quality, Natural/Cultural Resources, Data Calls | Mr. Al Urrutia | (843) 963-4978 |
| Haz & Solid Waste, Tanks | Mr. Ervin Smalls | (843) 963-8096 |
| Envr Restoration (Air) | Mr. Chris Wargo | (843) 963-3656 |
| Envr Restoration (Weapons), Training | Mr. Zac Stevison | (843) 963-2194 |
| Envr Restoration (Weapons), Environmental Management System | Ms. Jenny Burger | (843) 963-2708 |
| Envr Restoration Support | Mr. Mark Holmes (Ctr) | (843) 963-8023 |
| Envr Restoration Support | Ms. Kate Pezzillo (Ctr) | (843) 963-5328 |
| GIS Support and Analysis | Mr. Travis Lyon (Ctr) | (843) 963-4937 |



| AFCEC Environmental Directorate Capabilities |
|---|
| EQ Planning, Programming, Budget and Execution – Review/Validate Project Req'ts |
| Environmental Compliance Subject Matter Expertise & Restoration Project Mgmt |
| Contract Execution Support, Contracting Officer's Representative (COR) Services |
| Data Call Facilitation and Validation |
| Spill Reporting and Analysis |
| Environmental Plan Review, Publication and Permit Renewals |
| Environmental System Modeling and Evaluation |
| Authoritative Database Technical Support and Gap Analysis (APIMS, STARS, WET, EASI, EESOH-MIS, etc.) |
| GIS/GeoBase Environmental Dataset population, maintenance/mapping services |
| Environmental Training and TDY Funding |
| Field Support - Staff Assistance Visits and Surge Resource Augmentation |
| Wildland Fire Branch – Prescription burns, forestry management, Ecosystem support |
| Environmental Planning Function – Nat'l Env Policy Act (NEPA) |

JB Charleston ISS Mission: *Enable the missions of JB Charleston through support of Environmental Compliance, Conservation and Restoration programs with requirements advocacy, planning, programming, budgeting and execution actions, technical support and reach-back services.*

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Environmental Quality (EQ)

AF COLS



- **AF COLS 1:** Comply with All Mission Requirements and Associated Env Drivers, and, environmental stewardship initiatives are funded.
- **AF COLS 2:** Comply with All Mission Requirements and Associated DoD Env Drivers. **Will not support AF policy.** For example, no environmental baseline surveys for real estate transactions. No initiatives with a ROI. Undermines AF ability to achieve compliance. Degrades EMS conformance.
- **AF COLS 3:** Risk-based Mission that Complies with EOs and Regulatory Drivers, and, recurring/non-recurring requirements without a strictly mandated timeline for compliance. **Will not support DoD policy.** For example, operational range assessment updates. Best management practices, mission enabling initiatives, responsible environmental stewardship unfunded. Degrades ability to conserve/protect cultural resources and impacts planning readiness.
- **AF COLS 4:** Risk-based Mission that Complies with Regulatory Drivers; requirements are annually recurring required by Federal, State and Local environmental laws and regulations. **Will not support EO/SSPP.** For example, EMS not funded. Funded to comply with law and prevent mission stoppage. No environmental resiliency. No GeoBase, EMS, environmental services contracts/cooperative agreements.
- https://cs1.eis.af.mil/sites/AFCOLS/FY17Playbook/Pages/Current_FY_AFCOLS_Levels.aspx



FY20 EQ Execution Plan



Air Force Environmental Quality Program:

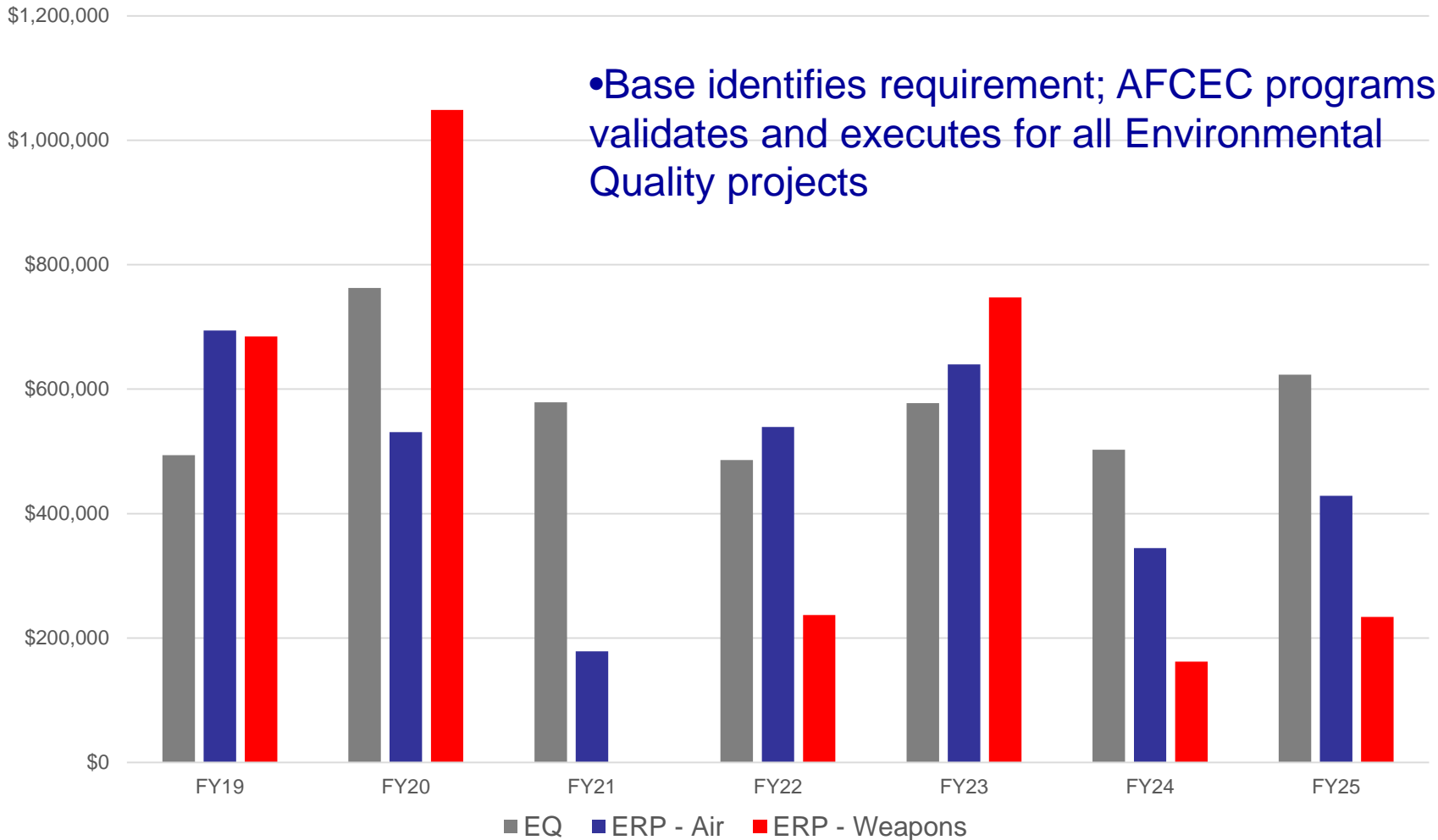
- Approved (Validated) Env Tasking Order (ETO) (1-n list): **\$280.4 M**
- Anticipated funding projection: \$257.3M
- AF COLS 4 requirements: \$178.2M
- AF COLS 3 requirements: \$63.5M
- AF COLS 2 requirements: \$15.6M
- Unfunded program: \$23.1M

JB Charleston Environmental Quality Program

- Approved (Validated) Env Tasking Order (ETO) (1-n list): **\$766K**
- Anticipated funding projection \$763K (includes \$347K of NEPA projects)
- AF COLS 4 requirements: \$464K
- AF COLS 3 requirements: \$299K
- Unfunded program: \$3K (Outreach)

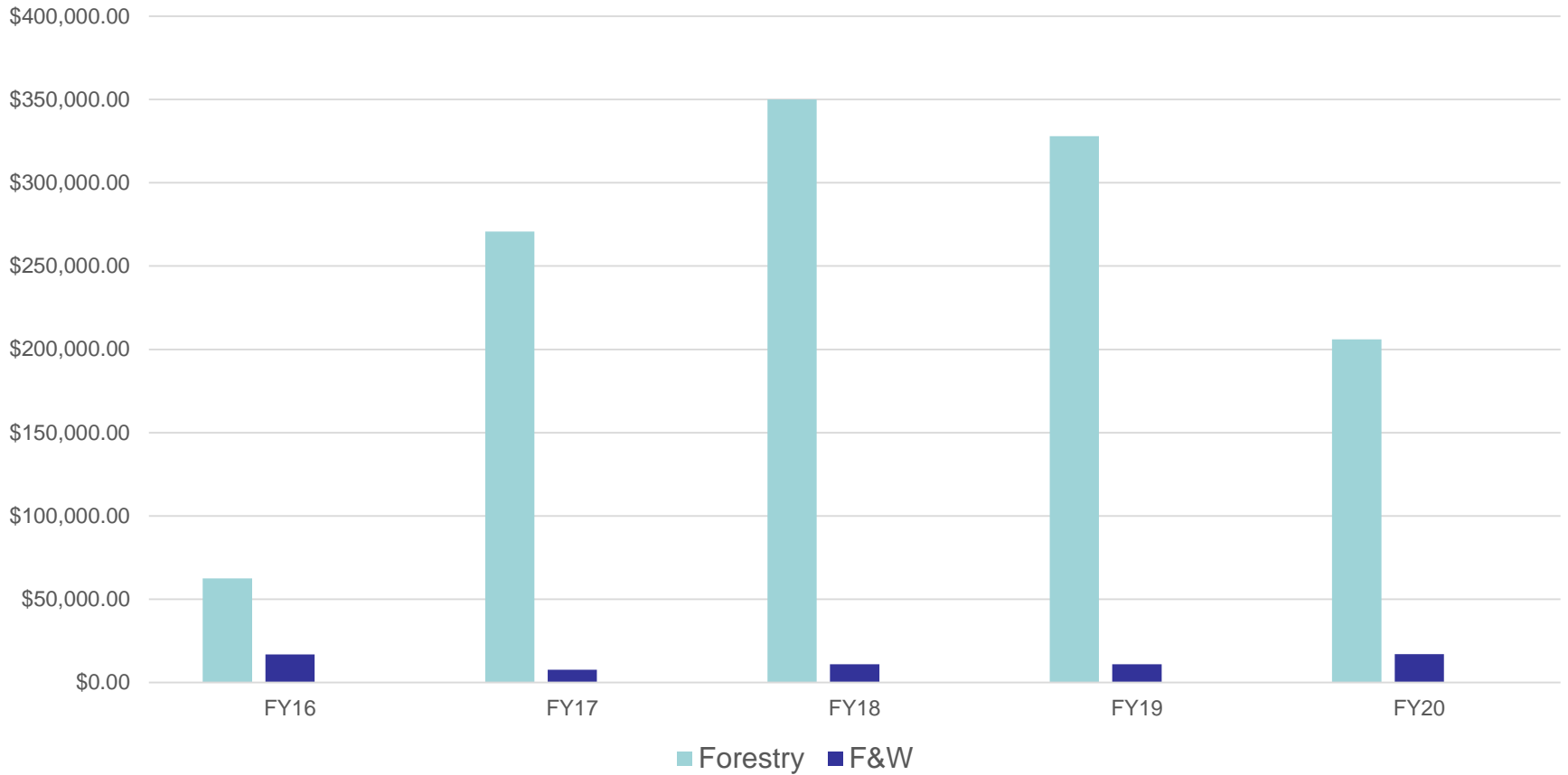


JBCHS EQ & ERP Funding FY19-25





JB Charleston Natural Resources Funding Reimbursable Accounts





Fence-to-Fence (F2F) Envr Compliance Contract



Current Status

- Consolidates 85% of JB Charleston, Shaw AFB's environmental requirements
- Current Contractor: Chenega Services
- Contract Agent: 772 ESS
- Current Contract awarded 4 Apr 2018, includes Base Year + 4 Option Years (AFICA; Type C SB)
- Not exercising last 3 Option Years of current F2F contract



Near Term Priorities

- GSA scheduled to issue RFP in Dec 19
- Site Visits 7-8 Jan 2020 at JB Charleston, Shaw AFB

Medium/Long Term Items of Interest

- Anticipated Award Mar 2020

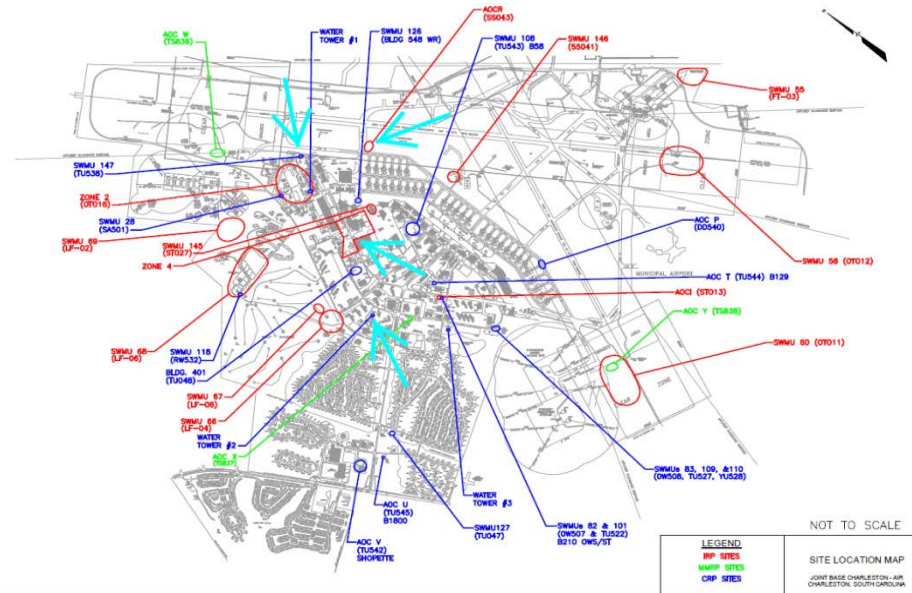


Air Base Environmental Restoration Program (ERP)



Current Items of Interest

- Total of 179 ERP (IRP & MMRP) sites:
 - 113 - no further action
 - 24 - On admin hold due to active ops
 - 42 - In various stages of cleanup
- AFI 32-7020 requires ABW CC signature approval for all DDs; Received RW532 (Bldg 371) SoB approval on 13 Dec
- Aug 2019 RCRA Permit renewal formally documented Site Closure milestones



Near Term Items of Interest

- DD540 - 3 horizontal bioventing wells under aircraft parking spot 29 (electrical repairs complete; system start up 9 Dec)

Medium/Long Term Items of Interest

- FT003 - off-Base semi-annual surface water sampling due to chlorinated solvent plume (no regulatory exceedances); additional on-Base investigation required before remedial actions
- PFOS/PFOA – discussed further on slide 29



Air Base ERP Remedial Actions



SWMU 145 (ST027)
Horizontal Well Installation



AOC P (DD540)
Horizontal Well Installation



AOC I (ST013)
LTM



SWMU 55 (FT003)
Original CA Location



Weapons Station ERP

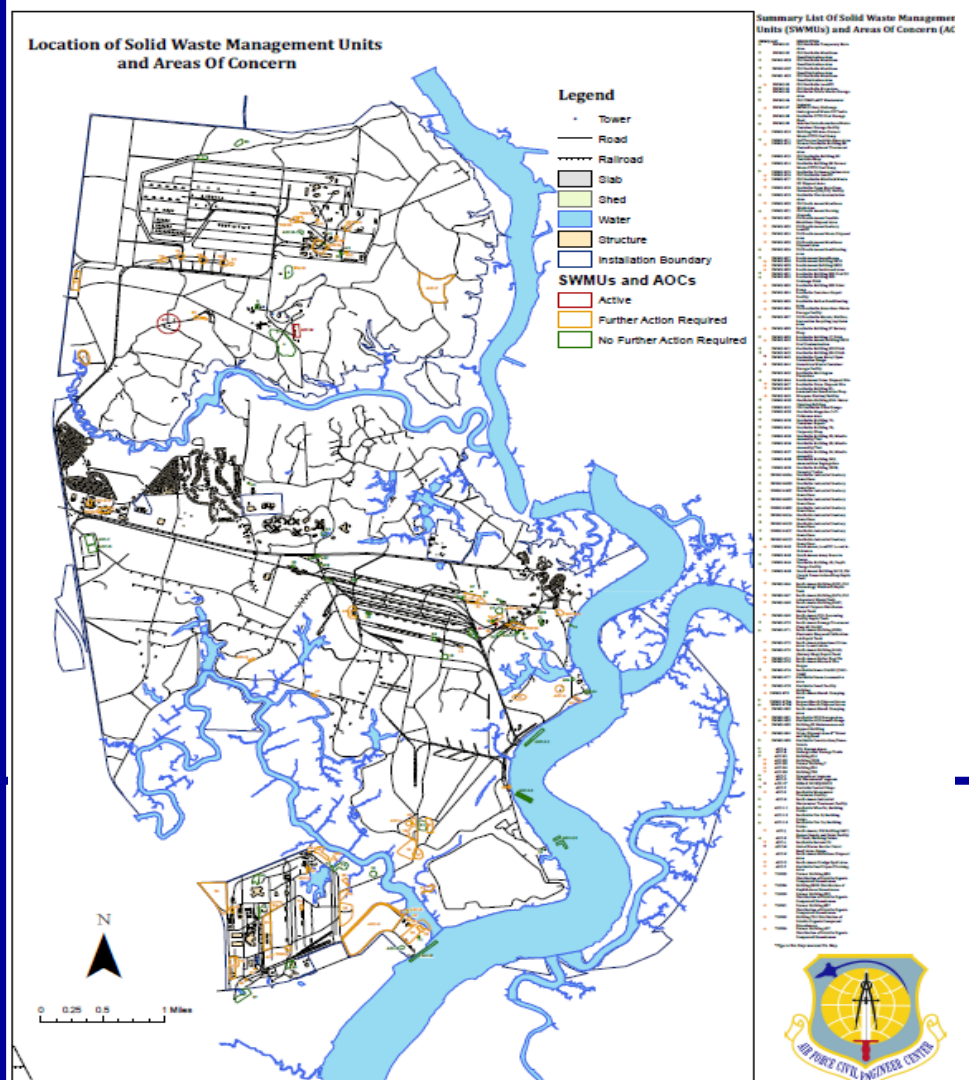


Current Items of Interest

- Total of 112 ERP sites:
 - 72 – No further action
 - 40 – In various stages of cleanup
- Performance-Based Remediation (PBR) Contractor will complete remedy selection for 41 Sites by 2025
- FY19 Milestones Attained: 14 Sites RIP; 13 Sites RC; 7 Sites SC
- FY20 Planned Milestones: 7 Sites RIP; 5 Sites RC
- 23 Oct 2019 RCRA Permit Modification was completed by SCDHEC

Near Term Items of Interest

- Active field work: Remedial actions being implemented at 6 ERP sites. SWMUs 12, 36, 66, 68, 69 and 77. Soil removal, GW injections, LUCs.





Weapons Station Remedial Actions



•SWMU 83 (NW039)



•SWMU 85 (DA085)



•SWMU 17 (DA017)



•SWMU 80 (DA037)



Shaw Environmental Restoration Program (ERP)



Current Taskers, Items of Interest

- Total of 124 ERP sites:
 - 103 - no further action
 - 21 - active or various stages of cleanup
- PFAS Expanded Site Inspection (SI)
 - Revised work plan to SCDHEC for review
 - Field work ready following SCDHEC review
 - Contract pending on off-base mitigation
- Optimized Remediation Contract (ORC)
 - 16 Jan 2020: pre-bid site visit



Near Term Significant Actions/Events

- Supplemental MW drilling @BOS100 site
 - Jan-Mar 2020 field work planned
- Renew off-base easements/ROEs
 - USACE-Savannah funded for 2 easements
- PFAS filter sys for GW Treatment Plant
 - Pending 30% design-build submittal
 - Summer 2020 projected completion

Medium/Long Term Significant Actions/Events

- Jun 2020: current basewide performance-based restoration (PBR) contract expires
 - Currently serviced by USACE-Omaha
- Award new FY20 basewide ORC
 - Will be serviced by USACE-Savannah
 - Projected award Jul/Aug 2020



Deep Aquifer Systems Expansion

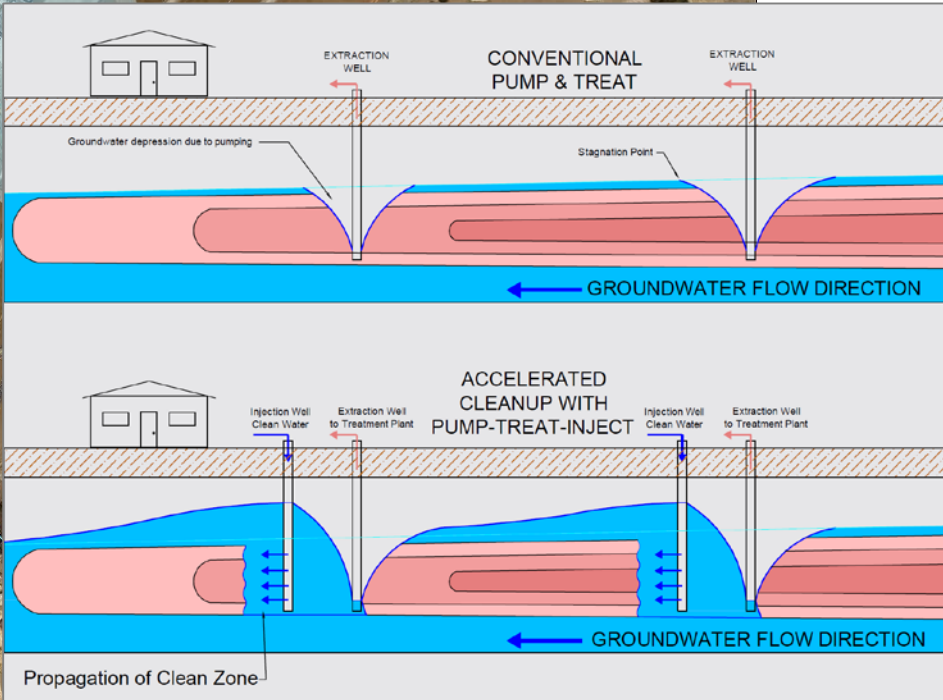
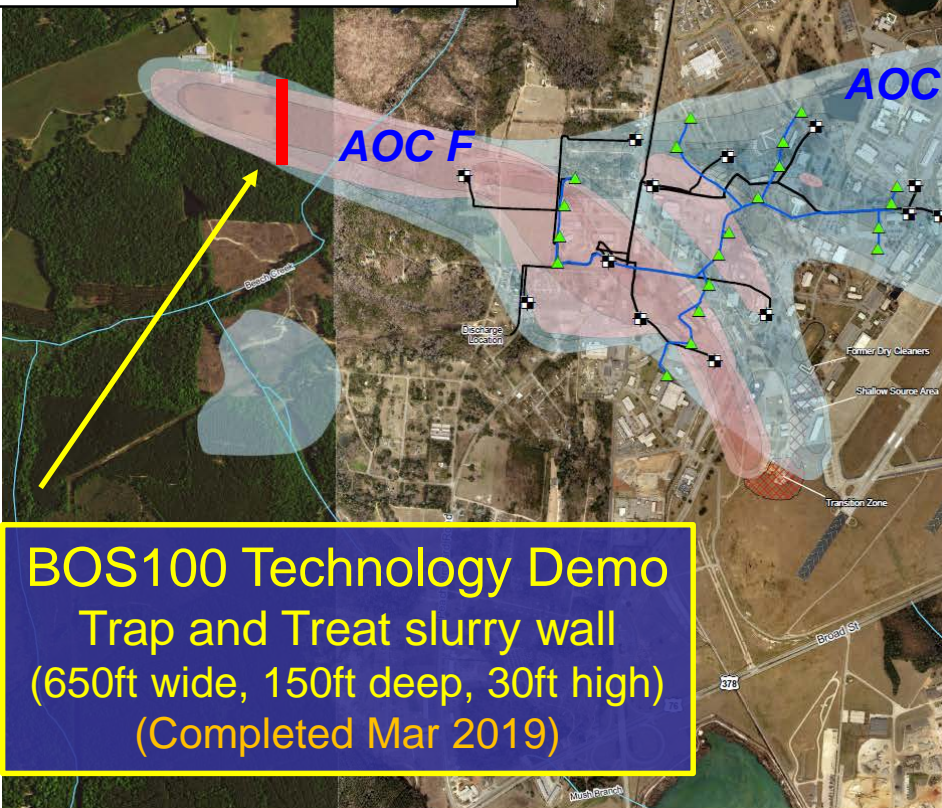


“Extract Dirty Water; Re-inject Treated Water”

- Increased extraction of dirty water (■)
- Installed 2nd air stripper to treat increased capacity
- Re-inject clean water (▲)
- Reduced cleanup time by 75%

Currently shut-off to install PFAS-filter System

3 new injection wells @ AOC N (Completed)



BOS100 Technology Demo
Trap and Treat slurry wall
(650ft wide, 150ft deep, 30ft high)
(Completed Mar 2019)

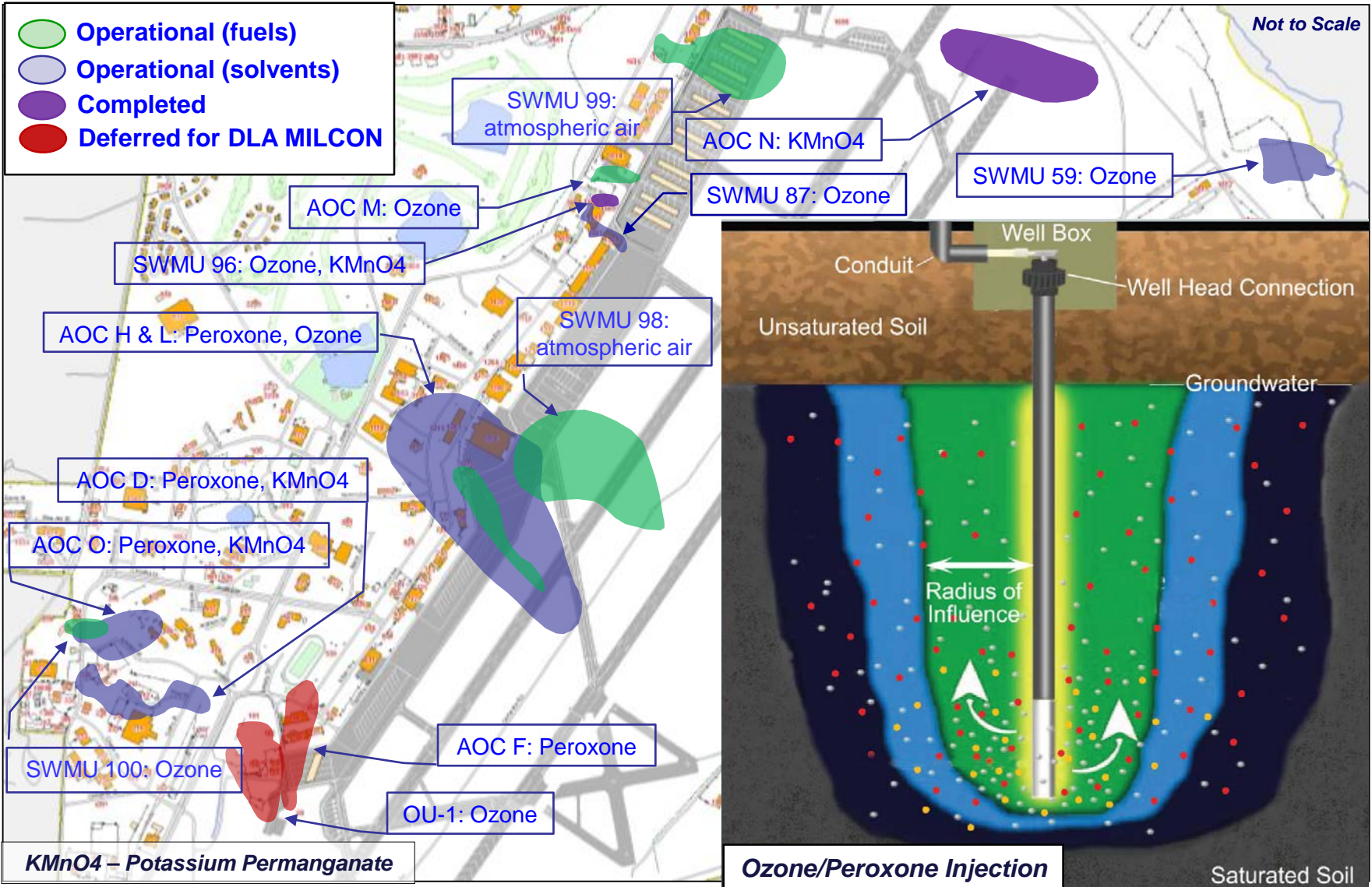


Shallow Aquifer Systems

“Inject air to accelerate cleanup”



- Operational (fuels)
- Operational (solvents)
- Completed
- Deferred for DLA MILCON





Perfluorinated Compounds PFOS/PFOA



Air Force PFOS/PFOA Snapshot

Perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) are synthetic fluorinated organic chemicals that were used in many industrial and consumer products such as nonstick cookware, stain-resistant fabric and carpet, some food packaging and specialized foam.

PFOS and PFOA are part of a family of synthetic fluorinated chemicals called per- and polyfluoroalkyl substances (PFAS). PFOS and PFOA are the only two compounds of this group with established Environmental Protection Agency health advisories for drinking water.

Significant Information

- In 1970, the Air Force began using the firefighting agent Aqueous Film Forming Foam (AFFF) which contained PFOS and PFOA.
- AFFF is the most efficient extinguishing method for petroleum-based fires and is widely used across the firefighting industry, to include all commercial airports, to protect people and property.
- On May 19, 2016, the EPA established a lifetime health advisory (LHA) level of 70 parts per trillion for PFOS and/or PFOA in drinking water. The LHA is non-regulatory and not enforceable; however, under the Comprehensive Environmental Response, Compensation and Liability Act the Air Force uses it to determine an acceptable level of PFOS/PFOA in drinking water.

203 Installations Require Preliminary Assessments (PAs)



*Estimated completion for last base, Joint Base Elmendorf-Richardson, Alaska, is Spring 2020.

of those 203, **189** Installations Expected to Require a Site Inspection (SIs)



IDENTIFY

39 BRAC
89 Active/Reserve
75 ANG

30 BRAC
84 Active/Reserve
75 ANG



Perfluorinated Compounds PFOS/PFOA



RESPOND

23
Installations

Air Force Drinking Water Response Actions:

- Bottled water
- Point-of-use filtration
- Whole-house filtration
- Municipal water supply hookup

BRAC
 Castle
 K.I. Sawyer
 March
 Mather
 Pease
 Plattsburgh
 Reese
 Wurtsmith

ACTIVE/RESERVE
 Cannon Luke
 Dover Mountain Home
 Eielson New Boston
 Ellsworth Peterson
 Fairchild Wright-Patterson
 JBMDL

ANG
 JB Cape Cod
 Gabreski
 Horsham
 Toledo

PREVENT

176/176

Installations transitioned to new C6 AFFF in stockpiles and fire trucks

\$5.3M

Cost for ecologic system kits for fire vehicles

99%

Installations finished retrofitting vehicles with ecologic system kits

979,000

Gallons of legacy AFFF incinerated

\$10.8M

Cost to date to replace and incinerate legacy AFFF in stockpiles and fire trucks



*Total expenditure for PFOS/PFOA actions to date as of end of FY19.

\$447.5M*

total expenditure

PFOS/PFOA Actions to Date

investigations | response actions | prevention

Current as of 26 November 2019

1-866-725-7617 • (210) 925-0956 • afimsc.pa.workflow@us.af.mil • www.afcec.af.mil

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JB Charleston PFOS/PFOA



- Preliminary Assessment completed 2015 w/ 2019 Amendment
- Air Base/NAAF Site Investigation Report completed 29 May 2018:
 - 19 of 22 groundwater samples exceeded the LHA; concentrations range from 235 ppt (2005 Crash Site) to 1,150,000 ppt (FT003)
- Air Base and NAAF have no on-Base drinking water wells; Air Base obtains water from the Charleston Water System and NAAF from public supply wells
- *If/when PFOS and PFOA become regulated in SC, Remedial Investigations will be conducted at that time*
- Additional Information:
 - <https://www.afcec.af.mil/WhatWeDo/Environment/Perfluorinated-Compounds/>
 - <https://www.defense.gov/Explore/Spotlight/pfas/>



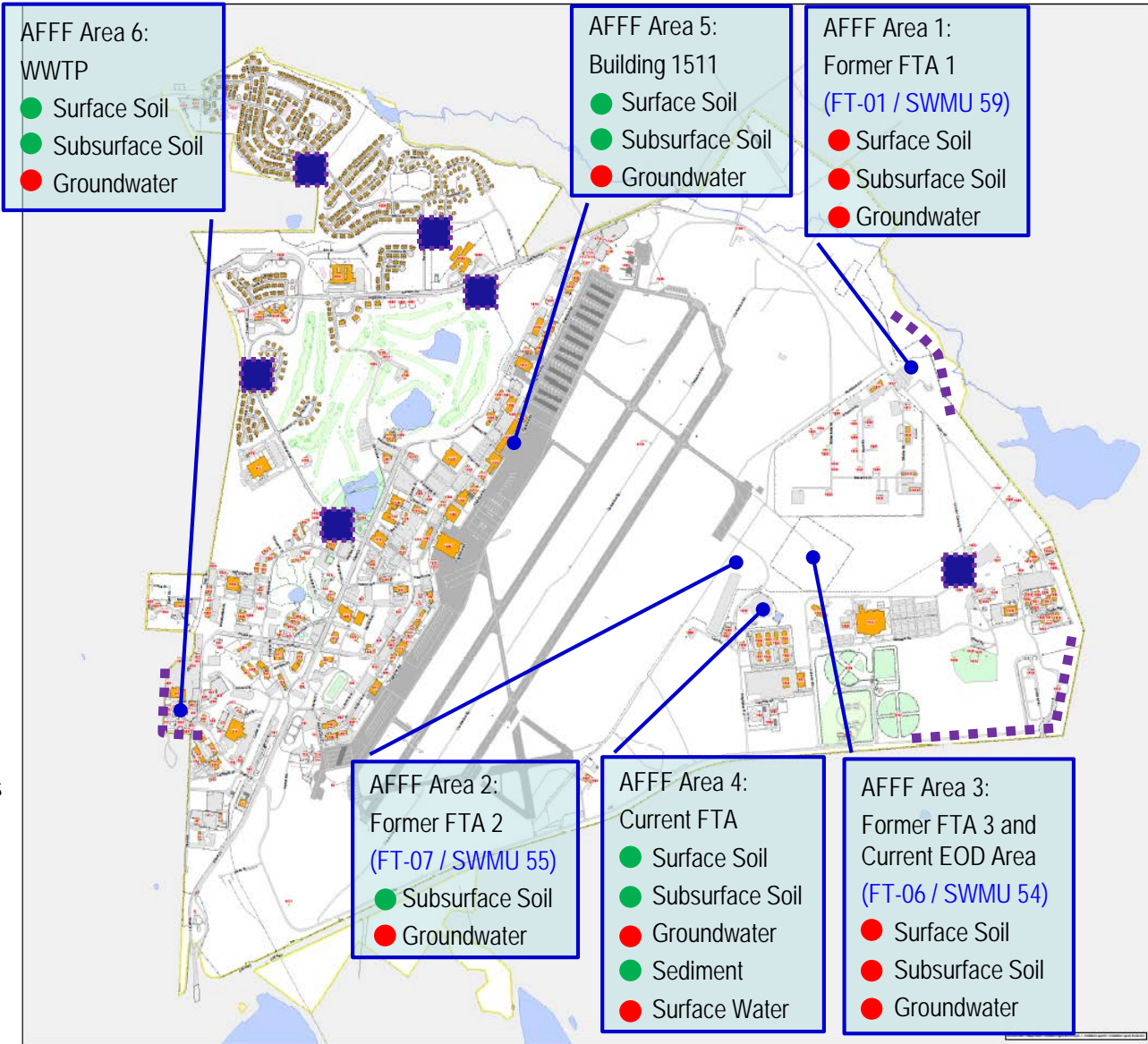
Shaw AFB PFOS/PFOA



- Jan 2016: Final Preliminary Assessment Report
 - 6 identified as potential AFFF release locations
- Jan 2019: Site Investigation (SI; field sampling) Report
 - Groundwater at 6 sites sampled exceeded EPA's health advisory level and all were recommended for Expanded SI
- Sep 2018: Expanded SI (ESI) contract awarded following Prelim SI findings
 - Goal: assess pathway to on-/off-base drinking water sources
 - Jan/Feb 2020: anticipate field work start at base boundaries
 - Contract for off-base sampling anticipates off base sampling in 2020
- Sep 2019: PFAS response action contract - Install IX sys at GWTP
- AFCEC Restoration PMO centrally manages PFOS/PFOA program



SHAW AFB AFFF SI Results





We are Hiring!



GS-12 Environmental Compliance Program Manager (JB Charleston)

- (Available immediately) \$74,596 starting salary plus benefits

GS-13 Environmental Remediation Program Lead (Shaw AFB)

- (Available immediately) \$88,704 starting salary plus benefits

• Applicants may qualify as General/Civil/Environmental Engineer or Physical/Biological/Chemical Scientist. These mid-grade positions desire some experience in environmental compliance management project and program management. Contact Ben Roope at 843-872-7027 if interested. Send resumes to Benjamin.roope.2@us.af.mil <<mailto:Benjamin.roope.2@us.af.mil>>

