DCN 760

DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
WASHINGTON, D.C. 20380-0001

IN REPLY REFER TO:

7

11000
LFL/F615
27 OCT 1994

MEMORANDUM FOR THE CHAIRMAN, BASE STRUCTURE EVALUATION COMMITTEE (OASN(I&E))

Subj: CLARIFYING DATA RESPONSE

Ref: (a) Col D. Stockwell phone request of 26 OCT 94

Encl: (1) Response to clarifying question received from Col Stockwell, Navy BSAT, of 26 OCT 94

1. The enclosure provides the requested certified information.

2. Points of contact for this information are Mr. Rich Anderson or Major G. W. Moore, Headquarters U. S. Marine Corps (LFL-3), commercial (703) 696-0865.

J. A. BRABHAM
LIEUTENANT GENERAL, U.S. MARINE CORPS
DEPUTY CHIEF OF STAFF FOR
INSTALLATIONS AND LOGISTICS

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DATA CALL: SUPPLEMENTAL CLARIFYING DATA

ACTIVITY: HQMC DATA BASE INFO FOR MC AIR STATIONS

PAGE (S): 1

BSWG REVIEW OFFICIAL

R. L. ANDERSON
NAME (Please type or print)

Signature

GM-14, REAL ESTATE & BRAC SECTION HEAD
Title

27 OCT 94
Date

SUPPLEMENTAL CLARIFYING DATA REQUEST OF 26 OCT 94

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type of print

Signature

Title

Date

Activity

In certify that the information herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J. A. BRABHAM
LIEUTENANT GENERAL, U.S. MARINE CORPS
DEPUTY CHIEF OF STAFF FOR
INSTALLATIONS AND LOGISTICS

Signature

Title

10/31/94

Date

11011
LFL/B-426
26 OCT 94

CLARIFICATION QUESTION RECEIVED FROM COL D. STOCKWELL, BSAT OF 26 OCT 94

QUESTION: Provide for each MCAS the nearest live-fire air-to-ground range rated for 500 lb or greater HE and provide distance from MCAS?

MCAS	RANGE	DISTANCE
Cherry Point	Fort Bragg, R 5311C	108 mi
	W122 {water targets}	75 mi
New River	Fort Bragg, R 5311C	118 mi
	W122 {water targets}	85 mi
✓Beaufort	Fort Bragg, R 5311C	158 mi
Camp Pendleton	MCB Camp Pendleton, Zulu R 2503	4 mi
Miramar	MCB Camp Pendleton, Zulu R 2503	32 mi
Yuma	Chocolate Mountain AGR, R 2507	35 mi
NAF Kaneohe	Pohakuloa Training Area (big Is)	150 mi

Document Separator

DATA CALL 1: GENERAL INSTALLATION INFORMATION

1. ACTIVITY: Follow example as provided in the table below (delete the examples when providing your input). If any of the questions have multiple responses, please provide all. If any of the information requested is subject to change between now and the end of Fiscal Year (FY) 1995 due to known redesignation, realignments/closures or other action, provide current and projected data and so annotate.

Name

Official name
Marine Corps Air Station, Beaufort,
South Carolina 29904-5001

Acronym(s) used in
correspondence
MCAS Beaufort

Commonly accepted
short title(s)
MCAS Beaufort

Complete Mailing Address

Commanding Officer
Marine Corps Air Station
P. O. Box 55001
Beaufort, SC 29904-5001

PLAD MCAS BEAUFORT SC//CO//

PRIMARY UIC: 02030 (Plant Account UIC for Plant Account Holders)
Enter this number as the Activity identifier at the top of each Data Call response page.

Data Call 1: General Installation Information, continued Activity: 02030

- ALL OTHER UIC(s): PURPOSE:

00031	MAG-31
00273	MWSS-273
00972	MACS-2
01086	MALS-31
01115	VMFA-115
01122	VMFA-122
01224	VMFA(AW)-224
01251	VMFA-251
01296	MATCS-28 DET A
01312	VMFA-312
01332	VMFA(AW)-332
01451	VMFA-451
01533	VMFA(AW)-533
02031	HQHQRON
27140	CSSD-23
33203	NAVAL AVIATION ENGINEERING SERVICE UNIT (NAESU)
41629	12TH DENTAL COMPANY
59021	FAMILY HOUSING
59257	STATION OF INITIAL ASSIGNMENT (SIA)
88841	INDIVIDUAL MOBILIZATION AUGMENTEE (IMA) DETACHMENT

2. PLANT ACCOUNT HOLDER:
   - Yes XX No ____ (check one)

3. ACTIVITY TYPE: Choose most appropriate type that describes your activity and completely answer all questions.

- HOST COMMAND: A host command is an activity that provides facilities for its own functions and the functions of other (tenant) activities. A host has accountability for Class 1 (land), and/or Class 2 (buildings, structures, and utilities) property, regardless of occupancy. It can also be a tenant at other host activities.

  - Yes XX No ____ (check one)

- TENANT COMMAND: A tenant command is an activity or unit that occupies facilities for which another activity (i.e., the host) has accountability. A tenant may have several hosts, although one is usually designated its primary host. If answer is "Yes," provide best known information for your primary host only.

  - Yes ____ No XX (check one)
  - Primary Host (current) UIC: ____
  - Primary Host (as of 01 Oct 1995) UIC: ____
  - Primary Host (as of 01 Oct 2001) UIC: ____

- INDEPENDENT ACTIVITY: For the purposes of this Data Call, this is the "catch-all" designator, and is defined as any activity not previously identified as a host or a tenant. The activity may occupy owned or leased space. Government Owned/Contractor Operated facilities should be included in this designation if not covered elsewhere.

  - Yes ____ No XX (check one)

4. SPECIAL AREAS: List all Special Areas. Special Areas are defined as Class 1/Class 2 property for which your command has responsibility that is not located on or contiguous to main complex.

Name	Location	UIC
Townsend Target Range	McIntosh County, Georgia	60169

5. DETACHMENTS: If your activity has detachments at other locations, please list them in the table below.

Name	UIC	Location	Host name	Host UIC
Not Applicable				

6. BRAC IMPACT: Were you affected by previous Base Closure and Realignment decisions (BRAC-88, -91, and/or -93)? If so, please provide a brief narrative.

Based on the Defense Base Closure and Realignment Commission 1993 Report to the President (Commandant of the Marine Corps letter 11011 FLF/B-081 dated 2Jul93), Naval Air Station, Cecil Field, FL will relocate two F/A-18 Reserve squadrons and dedicated personnel to Marine Corps Air Station Beaufort for permanent assignment in the near future.

7. MISSION: Do not simply report the standard mission statement. Instead, describe important functions in a bulletized format. Include anticipated mission changes and brief narrative explanation of change; also indicate if any current/projected mission changes are a result of previous BRAC-88, -91,-93action(s). (See paragraph 6 above.)

Current Missions

To maintain and operate facilities in support of flight operations; operate and maintain assigned aircraft; provide services and material to support operations of a Marine Aircraft Wing and/or units thereof and other activities and units as designated by the Commandant of the Marine Corps in coordination with the Chief of Naval Operations. The mission is accomplished through assigned tasks to:

a. Provide services as a Category "B" Air Station in accordancewith NAVAIR 00-80T-114.

b. Provide operational, search and rescue, logistics and administrative support and services for tenant units and assigned activities.

c. Provide shop, hangar and line aircraft maintenance facilities for Air Station supported FMF units and other tenant activities.

d. Provide service and maintenance on assigned aircraft, support equipment and visiting aircraft in accordance with OPNAVINST 4790.2E.

e. Maintain assigned training ranges and targets.

f. Provide weather service support to tenant and assigned units.

g. Provide overall coordination for airspace assigned by the current edition of OPNAVINST 3770.2G.

h. Provide maintenance and services in support of radar air traffic control operations and electronic communication aboard the Air Station.

i. Provide complete environmental support for tenant and assigned units.

j. Provide base storage and distribution of Class V ammunition to tenant and supported activities of the Fleet.

k. Provide explosive ordnance disposal services for MCAS Beaufort, Marine Corps Recruit Depot, Parris Island, Beaufort Naval Hospital, Townsend Bombing Range, Townsend, GA and Beaufort, Jasper, Colleton and Hamilton counties.

l. Provide planning and programming support for the facility requirements of tenant and Air Station activities.

m. Provide inspection, maintenance, repair and operation of all real property facilities on the Air Station.

n. Develop, coordinate, maintain and report financial and management functions.

o. Provide supply, warehouse storage, food service, transportation and motor vehicle services.

p. Provide fire protection, firefighting, mock fire training facilities and Crash Fire and Rescue support for tenant and assigned units.

q. Provide Occupational Safety and Health and traffic safety education through a constant training, inspection and assistance rendered program for all tenant and assigned units.

r. Provide flightline security, entry control and law enforcement support for all tenant commands, military and dependents aboard the Air Station and Laurel Bay Housing area.

s. Ensure the best possible quality of life support is provided to service personnel and dependents including MWR activities, Family Service Center and physical and spiritual care facilities.

t. Provide training, audio-visual support and off-duty educational programs to Air Station and tenant units.

u. Provide maintenance support planning, design services, procurement and repair of real property facilities for Laurel Bay DoD Section 6 Schools.

v. Provide Radar Approach Control services to all aircraft operating within the terminal airspace as delegated by JAX ARTCC (Air Route Traffic Control Center).

w. Provide secured storage of prepositioned war reserve assets in support of the Navy Shore Ordnance Load Plan.

x. Provide Traffic Management support (includes freight, air freight, passenger (Air PAXs) household goods, passenger control point for the Eastern area) for MCAS Beaufort, Marine Corps Recruit Depot, Parris Island and Beaufort Naval Hospital.

y. Provide F/A-18 support for air-to-air and air-to-ground simulated aircrew training.

z. Provide facilities and support for Regional Defense Reutilization and Marketing Office (DRMO).

Projected Missions for FY 2001

Provide facility management and support services for two additional Reserve F/A-18 fighter attack squadrons. (BRAC-93)

8. UNIQUE MISSIONS: Describe any missions which are unique or relatively unique to the activity. Include information on projected changes. Indicate if your command has any National Command Authority or classified mission responsibilities.

Current Unique Missions

a. Provide military funeral/escort services to all service personnel within the local geographical area.

b. Provide backup firefighting helo support with aerial delivery of fire retardant for pinpoint accuracy at remote locations.

c. Provide helo backup support for Coast Guard rescue operations.

d. Provide military aircraft training utilizing the Tactical Aircrew Combat Training System (TACTS) Center for the Southeastern United States.

e. Test and evaluate alternate firefighting agents to replace HALON which has been determined by the EPA to be environmentally unsafe and provide local HALON recovery and recycling.

f. Provide an alternate landing site for the Space Shuttle Transport Program.

g. Provide an alternate training base for Joint Service Training Exercises.

h. Provide waste water treatment services for Beaufort Country School District in support of Shanklin Elementary School.

i. Provide fully trained Hazardous Material Response Teams (HMRT) for Beaufort, Jasper and Colleton county area.

j. Provide direct supply support for all NAVAIRSYSCOM managed aircraft systems.

k. Provide Presidential security and support for the Secret Service as required.

l. Provide an operational site for the test and evaluation of the programmable type computerized airfield lighting control system (AFLCS).

m. Maintain eight primary transmitters and receivers as well as two emergency support radio towers in direct support of FACSFAC JAX, FL.

n. Provide F/A-18 2E7 Dome state-of-the-art aircraft flight simulator and weapons tactics trainer.

o. Provide engine maintenance support for F/A-18 Reserve unit (VMFA-321) located at Andrews AFB, Maryland.

Projected Unique Missions for FY 2001

a. Provide passive bioremediation techniques for viable petroleum technology.

b. Provide backup Emergency Operations Center (EOC) capability for Beaufort County.

9. IMMEDIATE SUPERIOR IN COMMAND (ISIC): Identify your ISIC. If your ISIC is not your funding source, please identify that source in addition to the operational ISIC.

	UIC
• Operational name	
Commander, Marine Corps Air Bases, Eastern Area, Marine Corps Air Station, Cherry Point, NC	67358
• Funding Source	UIC
Commander, Marine Corps Air Bases, Eastern Area, Marine Corps Air Station, Cherry Point, NC	67358

10. PERSONNEL NUMBERS: Host activities are responsible for totalling the personnel numbers for all of their tenant commands, even if the tenant command has been asked to separately report the data. The tenant totals here should match the total tally for the tenant listing provided subsequently in this Data Call (see Tenant Activity list). (Civilian count shall include Appropriated Fund personnel only.)

On Board Count as of 01 January 1994

	Officers	Enlisted	Civilian (Appropriated)
• Reporting Command	53	327	305
• Tenants (total)	305	2725	182

Authorized Positions as of 30 September 1994

	Officers	Enlisted	Civilian (Appropriated)
• Reporting Command	53	312	336
• Tenants (total)	362	2499	184

11. KEY POINTS OF CONTACT (POC): Provide the work, FAX, and home telephone numbers for the Commanding Officer or OIC, and the Duty Officer. Include area code(s). You may provide other key POCs if so desired in addition to those above.

Title/Name	Office	Fax	Home
• Commanding Officer			
Colonel Richard D. Stearns	803-522-7158 DSN 832-7158	803-522-7032 DSN 832-7032	803-846-2603

• Duty Officer

Command duty officer is changed daily, telephone number 803-522-7121 DSN 832-7121

12. TENANT ACTIVITY LIST: This list must be all-inclusive. Tenant activities are to ensure that their host is aware of their existence and any "subleasing" of space. This list should include the name and UIC(s) of all organizations, shore commands and homeported units, active or reserve, DOD or non-DOD (include commercial entities). The tenant listing should be reported in the format provide below, listed in numerical order by UIC, separated into the categories listed below. Host activities are responsible for including authorized personnel numbers, on board as of **30 September 1994**, for all tenants, even if those tenants have also been asked to provide this information on a separate Data Call. (Civilian count shall include Appropriated Fund personnel only.)

- Tenants residing on main complex (shore commands)

Tenant Command Name	UIC	Officer	Enlisted	Civilian
MAG-31	00031	23	98	NA
MWSS-273	00273	29	567	NA
MACS-2	00972	30	186	NA
MALS-31	01086	27	526	NA
VMFA-115	01115	23	119	NA
VMFA-122	01122	22	119	NA
VMFA(AW)-224	01224	42	135	NA
VMFA-251	01251	23	119	NA
MATCS-28 Det A	01296	2	25	NA
VMFA-312	01312	23	119	NA
VMFA(AW)-332	01332	42	135	NA
VMFA-451	01451	23	119	NA
VMFA(AW)-533	01533	42	137	NA
HQHQRON	02031	53	305	336
CSSD-23	27140	5	84	NA
Naval Aviation Engineering Service Unit (NAESU)	33203	1	1	13
12th Dental Company	41629	3	3	NA
Family Housing	59021	0	0	0
Station of Initial Assignment (SIA)	59257	0	0	0
Individual Mobilization Augmentee (IMA) Detachment	88841	2	7	0

DoDD Section 6 Schools	NA	NA	NA	152
Branch Dental Clinic	NA	NA	NA	2
Branch Medical Clinic	NA	NA	NA	2
Defense Investigative Service	NA	NA	NA	1
Defense Reutilization/Marketing Office (DRMO)	NA	NA	NA	1
Federal Aviation Administration (FAA)	NA	NA	NA	1
Naval Investigative Service	NA	NA	NA	2
Naval Air Warfare Center Training Systems Division	NA	NA	NA	1
Naval Air Warfare Center Weapons Division	NA	NA	NA	2
Resident Officer-in-Charge of Construction (ROICC)	NA	NA	NA	3
Tactical Aircrew Combat Training Systems (TACTS)	NA	NA	NA	4

- Tenants residing on main complex (homeported units.)

Tenant Command Name	UIC	Officer	Enlisted	Civilian
Not Applicable				

- Tenants residing in Special Areas (Special Areas are defined as real estate owned by host command not contiguous with main complex; e.g. outlying fields).

Tenant Command Name	UIC	Location	Officer	Enlisted	Civilian
Not Applicable					

- Tenants (Other than those identified previously)

Tenant Command Name	UIC	Location	Officer	Enlisted	Civilian
Not Applicable					

13. REGIONAL SUPPORT: Identify your relationship with other activities, not reported as a host/tenant, for which you provide support. Again, this list should be all-inclusive. The intent of this question is capture the full breadth of the mission of your command and your customer/supplier relationships. Include in your answer any Government Owned/Contractor Operated facilities for which you provide administrative oversight and control.

Activity name	Location	Support function (include mechanism such as ISSA, MOU, etc.)
MCRD Parris Island, Beaufort Naval Hospital, Beaufort County Department of Social Services	*Beaufort, SC*	*MOU - Family Services Program*
Overland Park, Kansas	*Overland Park, Kansas*	*ISA (M60169-88068-008) Reserve Prior Service Procurement Liaison Personnel*
SC State Forestry	*South Carolina*	*LOA - Forest Fire Protection*
Park College Webster, USC-Beaufort, Technical College of the LowCountry	*Beaufort, SC*	*MOU - Education*
Chief of Naval Operations	*Beaufort, SC*	*MOU - Air Refueling*
Fire Departments	*Beaufort, SC*	*MOA - Mutual Fire Fighting Assistance*
MCRD Parris Island	*MCRD, Parris Island*	*ISA - (M60169-90247-010) Communication Traffic*
MCRD Parris Island	*MCRD, Parris Island*	*ISA - (M60169-91232-002) Housing at Laurel Bay*
Beaufort Naval Hospital and Beaufort County	*Beaufort, SC*	*ISA - (M60169-92068-018) Emergency Medical Evacuation*
MCRD Parris Island	*MCRD, Parris Island*	*ISA - (M60169-90201-009) Weather and Climatology*
MCRD Parris Island	*MCRD, Parris Island*	*ISA - (M60169-90213-011) Polygraph Services*
MCRD Parris Island	*MCRD, Parris Island*	*ISA - (M60169-90236-002) Explosive Ordnance Disposal*
Beaufort Naval Hospital	*Beaufort, SC*	*ISA - (M60169-90232-001) Administrative Services*
MCRD Parris Island	*MCRD, Parris Island*	*ISA - (M60169-90278-012) BOQ Accommodations*

MCRD Parris Island	*MCRD, Parris Island*	*ISA - (M60169-90264-001) Traffic Management Office*
MCRD Parris Island	*MCRD, Parris Island*	*ISA - (M60169-90311-013) Hazardous Substance / Material*
Defense Reutilization & Marketing Service (DRMS)	*Battle Creek MI*	*ISA - (M60169-90304-302) Administrative Services*
437 Military Airlift Wing (MAC)	*Charleston, SC*	*ISA - (M60169-91258-015) Storage*
Naval Investigative Service	*Virginia Beach VA*	*ISA - (M60169-91399-301) Administrative Services*
48th Ordnance Detachment, Fort Jackson, SC	*Columbia, SC*	*ISA - (M60169-92113-303) Explosive Ordnance Disposal*
Fleet Area Control & Surveillance Facility	*Jacksonville, FL*	*ISA - (M60169-92150-304) Maintenance of Electronic Equipment*
MCRD Parris Island	*MCRD, Parris Island*	*ISA - (M60169-91291-001) Dental Clinic*
Naval Air Warfare Center Weapons Division	*Point Mugu, CA*	*ISA - (M60169-87298-002) Administrative Services*
McDonnel Douglas Corp	*St Louis, MO*	*ISA - (M60169-88010-002) Administrative Services*
Naval Aviation Engineering Service Unit	*Philadelphia, PA*	*ISA - (M60169-89333-306) Administrative Services*
Tactical Aircrew Combat Training System (TACTS), Naval Weapons Station	*Seal Beach, CA*	*ISA - (M60169-88183-201) Administrative Services*
Defense Investigative Service	*Smyrna, GA*	*ISA - (M60169-90032-308) Administrative Services*
Naval Air System Command	*Washington, DC*	*ISA - (M60169-90345-310) Administrative Services*
Townsend Range	*Townsend, GA*	*LOA - Bombing Range*
DoDD Section 6 Schools	*Laurel Bay, SC & Washington, DC*	*ISA - (M60169-930601-001) Administrative Services*

Ft Riley and 1st Infantry Division	*Fort Riley, KS*	*ISA - (M60169-92315-001) Administrative Services*
Defense Finance Accounting System (DFAS)	*Kansas City, MO*	*ISA - (M60169-931001-001) Administrative Services*
Defense Logistics Agency (DLA)	*Alexandria, VA*	*ISA - (M60169-93211-001) Fuel Facilities Storage*
CSSD-23	*Beaufort, SC*	*ISA - (M60169-931201-001) Flatbed Truck Usage*

14. FACILITY MAPS: This is a primary responsibility of the plant account holders/host commands. Tenant activities are not required to comply with submission if it is known that your host activity has complied with the request. Maps and photos should not be dated earlier than 01 January 1991, unless annotated that no changes have taken place. Any recent changes should be annotated on the appropriate map or photo. Date and label all copies.

- Local Area Map. This map should encompass, at a minimum, a 50 mile radius of your activity. Indicate the name and location of all DoD activities within this area, whether or not you support that activity. Map should also provide the geographical relationship to the major civilian communities within this radius. (Provide 12 copies.)

- Installation Map / Activity Map / Base Map / General Development Map / Site Map. Provide the most current map of your activity, clearly showing all the land under ownership/control of your activity, whether owned or leased. Include all outlying areas, special areas, and housing. Indicate date of last update. Map should show all structures (numbered with a legend, if available) and all significant restrictive use areas/zones that encumber further development such as HERO, HERP, HERF, ESQD arcs, agricultural/forestry programs, environmental restrictions (e.g., endangered species). (Provide in two sizes: 36"x 42" (2 copies, if available); and 11"x 17" (12 copies).)

- Aerial photo(s). Aerial shots should show all base use areas (both land and water) as well as any local encroachment sites/issues. You should ensure that these photos provide a good look at the areas identified on your Base Map as areas of concern/interest - remember, a picture tells a thousand words. Again, date and label all copies. (Provide 12 copies of each, 8½"x 11".)

- Air Installations Compatible Use Zones (AICUZ) Map. (Provide 12 copies.)

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

R. D. STEARNS, Colonel
NAME (Please type or print)

M Stearns
Signature

Commanding Officer
Title

9 February 1994
Date

MCAS, Beaufort, SC 29904
Activity

MAPS ATTACHED

12 copies of AICUZ (APZ Configuration) dated Feb94
12 copies of AICUZ (Noise Contours) dated Feb94
12 copies of Installation (Timber Management) dated Jan94
14 copies of Constraints Analysis (North View) dated Feb94
14 copies of Constraints Analysis (South View) dated Feb95
14 copies of Constraints Analysis (Laurel Bay Military Housing) dated Feb94
12 copies of Laurel Bay Family Military Housing (Timber Management) dated Feb94
24 copies of Townsend Bombing Target Range (Target/Timber) dated Feb94
12 copies of Local Area (Regional Map Military Installations) dated 1Feb94)
16 copies of General Development dated Jan94
12 copies (Photo) of MCAS Beaufort (Merritt Field) dated 1994

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (If applicable)

D. A. JONES
NAME (Please type or print)

Signature

ACTING
Title

2/14/94
Date

COMCABEAST
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL If applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

NAME (Please type or print)

Signature

10 MAR 1994

Title

Date

7

DATA CALL 66
INSTALLATION RESOURCES

2Activity Information:

Activity Name:	**MARINE CORPS AIR STATION BEAUFORT, SC**
UIC:	**60169**
Host Activity Name (if response is for a tenant activity):	**N/A**
Host Activity UIC:	**N/A**

General Instructions/Background. A separate response to this data call must be completed for each Department of the Navy (DON) host, independent and tenant activity which separately budgets BOS costs (regardless of appropriation), and, is located in the United States, its territories or possessions.

1. Base Operating Support (BOS) Cost Data. Data is required which captures the total annual cost of operating and maintaining Department of the Navy (DON) shore installations. Information must reflect FY 1996 budget data supporting the FY 1996 NAVCOMPT Budget Submit. Two tables are provided. Table 1A identifies "Other than DBOF Overhead" BOS costs and Table 1B identifies "DBOF Overhead" BOS costs. These tables must be completed, as appropriate, for all DON host, independent or tenant activities which separately budget BOS costs (regardless of appropriation), and, are located in the United States, its territories or possessions. Responses for DBOF activities may need to include both Table 1A and 1B to ensure that all BOS costs, including those incurred by the activity in support of tenants, are identified. If both table 1A and 1B are submitted for a single DON activity, please ensure that no data is double counted (that is, included on both Table 1A and 1B). The following tables are designed to collect all BOS costs currently budgeted, regardless of appropriation, e.g., Operations and Maintenance, Research and Development, Military Personnel, etc. Data must reflect FY 1996 and should be reported in thousands of dollars.

a. Table 1A - Base Operating Support Costs (Other Than DBOF Overhead). This Table should be completed to identify "Other Than DBOF Overhead" Costs. Display, in the format shown on the table, the O&M, R&D and MPN resources currently budgeted for BOS services. O&M cost data must be consistent with data provided on the BS-1 exhibit. Report only direct funding for the activity. Host activities should not include reimbursable support provided to tenants, since tenants will be separately reporting these costs. Military personnel costs should be included on the appropriate lines of the table. Please ensure that individual lines of the table do not include duplicate costs. Add

additional lines to the table (following line 2j., as necessary, to identify any additional cost elements not currently shown). **Leave shaded areas of table blank.**

Table 1A - Base Operating Support Costs (Other Than DBOF Overhead)			
Activity Name: MARINE CORPS AIR STATION BEAUFORT, SC		**UIC: 60169**	
Category	**FY 1996 BOS Costs ($000)**		
	Non-Labor	**Labor**	**Total**
1. Real Property Maintenance Costs:			
1a. Maintenance and Repair	3,584	2,573	6,157
1b. Minor Construction	313	36	349
1c. Sub-total 1a. and 1b.	3,897	2,609	6,506
2. Other Base Operating Support Costs:			
2a. Utilities	1,582	713	2,295
2b. Transportation	90	700	790
2c. Environmental	330	637	967
2d. Facility Leases	17	0	17
2e. Morale, Welfare & Recreation	188	910	1,098
2f. Bachelor Quarters	5	142	147
2g. Child Care Centers	83	393	476
2h. Family Service Centers	34	150	184
2i. Administration	145	6,196	6,341
2j. Other (Specify)	1,908	18,757	20,665
2k. Sub-total 2a. through 2j:	4,382	28,598	32,980
3. Grand Total (sum of 1c. and 2k.):	8,279	31,207	39,486

b. Funding Source. If data shown on Table 1A reflects more than one appropriation, then please provide a break out of the total shown for the "3. Grand-Total" line, by appropriation:

Appropriation	Amount ($000)
N/A	

c. Table 1B - Base Operating Support Costs (DBOF Overhead). This Table should be submitted for all current DBOF activities. Costs reported should reflect BOS costs supporting the DBOF activity itself (usually included in the G&A cost of the activity). For DBOF activities which are tenants on another installation, total cost of BOS incurred by the tenant activity for itself should be shown on this table. It is recognized that differences exist among DBOF activity groups regarding the costing of base operating support: some groups reflect all such costs only in general and administrative (G&A), while others spread them between G&A and production overhead. Regardless of the costing process, all such costs should be included on Table 1B. The Minor Construction portion of the FY 1996 capital budget should be included on the appropriate line. Military personnel costs (at civilian equivalency rates) should also be included on the appropriate lines of the table. Please ensure that individual lines of the table do not include duplicate costs. Also ensure that there is no duplication between data provided on Table 1A. and 1B. These two tables must be mutually exclusive, since in those cases where both tables are submitted for an activity, the two tables will be added together to estimate total BOS costs at the activity. Add additional lines to the table (following line 21., as necessary, to identify any additional cost elements not currently shown). **Leave shaded areas of table blank.**

Other Notes: All costs of operating the five Major Range Test Facility Bases at DBOF activities (even if direct RDT&E funded) should be included on Table 1B. Weapon Stations should include underutilized plant capacity costs as a DBOF overhead "BOS expense" on Table 1B.

DATA CALL 66
INSTALLATION RESOURCES

Table 1B - Base Operating Support Costs (DBOF Overhead)

N/A - DOES NOT APPLY TO THIS ACTIVITY

Activity Name:	**UIC:**

Category	**FY 1996 Net Cost From UC/FUND-4 ($000)**		
	Non-Labor	**Labor**	**Total**
1. Real Property Maintenance Costs:			
1a. Real Property Maintenance (>$15K)			
1b. Real Property Maintenance (<$15K)			
1c. Minor Construction (Expensed)			
1d. Minor Construction (Capital Budget)			
1c. Sub-total 1a. through 1d.			
2. Other Base Operating Support Costs:			
2a. Command Office			
2b. ADP Support			
2c. Equipment Maintenance			
2d. Civilian Personnel Services			
2e. Accounting/Finance			
2f. Utilities			
2g. Environmental Compliance			
2h. Police and Fire			
2i. Safety			
2j. Supply and Storage Operations			
2k. Major Range Test Facility Base Costs			
2l. Other (Specify)			
2m. Sub-total 2a. through 2l:			
3. Depreciation			

4. Grand Total (sum of 1c., 2m., and 3.) :			

2. **Services/Supplies Cost Data.** The purpose of Table 2 is to provide information about projected **FY 1996** costs for the purchase of services and supplies by the activity. **(Note: Unlike Question 1 and Tables 1A and 1B, above, this question is not limited to overhead costs.)** The source for this information, where possible, should be either the NAVCOMPT OP-32 Budget Exhibit for O&M activities or the NAVCOMPT UC/FUND-1/IF-4 exhibit for DBOF activities. Information must reflect FY 1996 budget data supporting the FY 1996 NAVCOMPT Budget Submit. Break out cost data by the major sub-headings identified on the OP-32 or UC/FUND-1/IF-4 exhibit, disregarding the sub-headings on the exhibit which apply to civilian and military salary costs and depreciation. Please note that while the OP-32 exhibit aggregates information by budget activity, this data call requests OP-32 data for the activity responding to the data call. Refer to NAVCOMPTINST 7102.2B of 23 April 1990, Subj: Guidance for the Preparation, Submission and Review of the Department of the Navy (DON) Budget Estimates (DON Budget Guidance Manual) with Changes 1 and 2 for more information on categories of costs identified. Any rows that do not apply to your activity may be left blank. However, totals reported should reflect all costs, exclusive of salary and depreciation.

Table 2 - Services/Supplies Cost Data

Activity Name: MARINE CORPS AIR STATION BEAUFORT, SC	**UIC: 60169**

Cost Category	**FY 1996 Projected Costs ($000)**
Travel:	**$73**
Material and Supplies (including equipment):	**$1,811**
Industrial Fund Purchases (other DBOF purchases):	**$0**
Transportation:	**$0**
Other Purchases (Contract support, etc.):	**$6,395**
Total:	**$8,279**

DATA CALL 66
INSTALLATION RESOURCES

3. Contractor Workyears.

a. On-Base Contract Workyear Table. Provide a projected estimate of the number of contract workyears expected to be **performed "on base"** in support of the installation during FY 1996. Information should represent an annual estimate on a full-time equivalency basis. Several categories of contract support have been identified in the table below. While some of the categories are self-explanatory, please note that the category "mission support" entails management support, labor service and other mission support contracting efforts, e.g., aircraft maintenance, RDT&E support, technical services in support of aircraft and ships, etc.

Table 3 - Contract Workyears	
Activity Name:	**UIC:**
Contract Type	**FY 1996 Estimated Number of Workyears On-Base**
Construction:	**540**
Facilities Support:	**57**
Mission Support:	**49.5**
Procurement:	**0**
Other:*	**0**
Total Workyears:	**646.5**

* **Note:** Provide a brief narrative description of the type(s) of contracts, if any, included under the "Other" category.

DATA CALL 66
INSTALLATION RESOURCES

b. Potential Disposition of On-Base Contract Workyears. If the mission/functions of your activity were relocated to another site, what would be the anticipated disposition of the **on-base contract workyears** identified in Table 3.?

1) Estimated number of contract workyears which would be transferred to the receiving site (This number should reflect the number of jobs which would in the future be contracted for at the receiving site, not an estimate of the number of people who would move or an indication that work would necessarily be done by the same contractor(s)):

Construction - 0
Facilities Support - 0
Mission Support - 48.5

2) Estimated number of workyears which would be eliminated:

Construction - 540
Facilities Support - 0 (as long as facility is in caretaker status)
Mission Support - 1

3) Estimated number of contract workyears which would remain in place (i.e., contract would remain in place in current location even if activity were relocated outside of the local area):

Facilities Support - 57 (as long as facility is in caretaker status)

c. "Off-Base" Contract Workyear Data. Are there any contract workyears located in the local community, but not on-base, which would either be eliminated or relocated if your activity were to be closed or relocated? If so, then provide the following information **(ensure that numbers reported below do not double count numbers included in 3.a. and 3.b., above)**:

No. of Additional Contract Workyears Which Would Be Eliminated	General Type of Work Performed on Contract (e.g., engineering support, technical services, etc.)
0	**N/A**

No. of Additional Contract Workyears Which Would Be Relocated	General Type of Work Performed on Contract (e.g., engineering support, technical services, etc.)
0	**N/A**

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DATA CALL: 66

ACTIVITY: MCAS BEAUFORT

PAGE (S): ALL

BSWG REVIEW OFFICIAL

W. J. WALLENHORST
Budget Branch
Fiscal Division

Name (Please type or print)

Signature

Title

31 OCT

Date

MCAS BEAUFORT

DATA CALL 66

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type of print

Signature

Title

Date

Activity

In certify that the information herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

NAME (Please type or print

J. A. BRABHAM
DEPUTY CHIEF OF STAFF FOR
INSTALLATIONS AND LOGISTICS

Signature

Title

21 OCT 94

Date

1

MILITARY VALUE ANALYSIS:
DATA CALL WORK SHEET FOR
OPERATIONAL/RESERVE AIR STATION: MCAS BEAUFORT UIC M60169

Category ..... Operational Support
Sub-category ..... Operational and Reserve Air Stations
Types ..... Navy and Marine Corps Operational and Reserve Air Stations and Facilities

************If any responses are classified, attach separate classified annex.************

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

R. D. STEARNS
NAME (Please type or print)

Signature R D Stearns

COMMANDING OFFICER
Title

Date 13 June 94

MCAS BEAUFORT
Activity

Data Call # 38

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief. BRAC '95 Data Call #38: MILITARY VALUE)

NEXT ECHELON LEVEL (if applicable)

F. MCCORKLE
NAME (Please type or print)

F MCCORKLE
Signature

Commanding General
Title

15 JUN 1994
Date

Marine Corps Air Bases East
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J.A. BRABHAM
LIEUTENANT GENERAL U.S. MARINE CORPS
DEPUTY CHIEF OF STAFF FOR
INSTALLATIONS AND LOGISTICS
NAME (Please type or print)

Signature

Title

7/29/94
Date

Data Call # 38

AIR STATION	TITLE	LOCATION
AIR STATION	NORFOLK	NORFOLK, VA
AIR STATION	JACKSONVILLE	JACKSONVILLE, FL
AIR STATION	OCEANA	VA BEACH VA
AIR STATION	KEY WEST	KEY WEST FL
AIR STATION	BRUNSWICK	BRUNSWICK ME
NAS/MCAS	MIRAMAR	SAN DIEGO CA
MC AIR STATION	CHERRY POINT	CHERRY POINT NC
MC AIR FACILITY	KANEOHE BAY	KANEOHE BAY HI
MC AIR STATION	YUMA	YUMA AZ
MC AIR STATION	BEAUFORT	BEAUFORT SC
MC AIR STATION	NEW RIVER JAX	JACKSONVILLE NC
MC AIR STATION	CAMP PENDLETON	CP PENDLETON CA
AIR STATION	NORTH ISLAND	SAN DIEGO CA
AIR STATION	WHIDBEY ISLAND	OAK HARBOR WA
AIR STATION	LEMOORE	LEMOORE CA
AIR STATION	FALLON	FALLON NV
AIR STATION	ADAK	ADAK AL
AIR FACILITY	EL CENTRO	EL CENTRO CA
RESERVE AIR STATION	S. WEYMOUTH	S. WEYMOUTH MA
RESERVE AIR STATION	NEW ORLEANS	NEW ORLEANS LA
RESERVE AIR FACILITY	WASHINGTON	WASHINGTON D.C.
RESERVE AIR STATION	ATLANTA	ATLANTA GA
RESERVE AIR STATION	FORT WORTH	FORT WORTH TX
RESERVE AIR STATION	WILLOW GROVE	WILLOW GROVE PA
NAVAL STATION	MAYPORT	JACKSONVILLE FL
NAVAL STATION	ROOSEVELT ROADS	ROOSEVELT ROADS PR

Data for Military Value Analysis

Mission Requirements. 2
- Support of transient aircraft. 2
- Training ranges, outlying & auxiliary fields & airspace. . 3
- General Military Support 4
- Other units. 6
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Mission Requirements

1. List the types and number of transient aircraft/detachments supported at this air station during FY 93 and describe the training and/or military missions conducted by these aircraft while stationed here. If supporting transient aircraft/detachments is a major mission, attach detailed schedules for the 1st & 2nd quarters FY 94.

Table 1.1 Transient Aircraft

Types of Aircraft/Unit. Name/T/M/S	Description of Frequency, Quantity and Primary Mission
Various Wing Units	Quarterly ISO Hornets Nest
MCAS Yuma	Annual aggressor squadrons for tenant squadrons combat readiness training
C141, C5, C17	Daily 1-6 aircraft by 93 totals - 11,743 approach work
Various Aircraft	Service stops FY-93 totals - 1,961 (All types helo and fixed wing aircraft)

2.a. List the training ranges (including land areas used for tactical or infantry training), outlying airfields, auxiliary airfields and airspace that are actively managed (scheduled or controlled) by the air station.

Table 2.1 Training Management

Managed Training Assets	Management Role
Beaufort MOA's 1, 2, & 3	Scheduling and using agency
W74	Scheduling and using agency
Townsend range	Gov agency holding land deed for impact area
Beaufort Spl Refueling Airspace	Exercise specific airspace designated through LOA with Jacksonville ARTC, using agency
Beaufort Approach Control	ATC Agency delegate by FAA controlling airspace 10,000 and below in area designated by Jacksonville ARTC Center. Federal airway segments V437, V1, V3

2.b. List other candidate installations (DoD and non-DoD) that could be considered for performing these management duties.

Table 2.2 Other Installations

Installation	Agency	Reason for Consideration
Charleston	FAA Tracon	Adequate radar and communication
Savannah	FAA Tracon	Coverage of the affected Beaufort
	FAA Tracon	Approach Control Service

General Military Support

3.a. Does this air station directly support a military or civilian area control and surveillance mission (i.e., FACSFAC, FAA support)? If so, provide details of your level of support.

MCAS Beaufort is the ATC agency delegated by FAA for controlling airspace 10,000 and below in the area designated by Jacksonville ARTC Center. This control jurisdiction includes segments of the following federal airways V437, V1, & V3 contains aircraft operations on portion of IR 018, an MTR scheduled by FACSFAC Jacksonville. Military IFR traffic entering alternate entry point of VR104, an MTR scheduled by MCAS Cherry Point provides primary departure and aerial control to the following public access civil airports, Beaufort County, Hilton Head, Ridgeland and Laurel Hill.

3.b. Over the foreseeable future, is this mission requirement expected to decrease, increase, or remain the same?

Mission expected to increase along with civil traffic.

3.c. List all other installations (DoD and Non-DoD) that could potentially support this mission.

Charleston SC and Savannah GA FAA Tracons

4.a. Describe the role this air station plays in the Logistics Support and Mobilization Plan (LSMP)?

Provides full logistics support and mobilization to COMNAVAIRLANT personnel and equipment, Fourth Landing Support Battalion and Internal Contractor Supply Bondroom which supplies mission essential parts for both Navy and Marine Corps aircraft and weapons systems.

4.b. Over the foreseeable future, is this mission requirement expected to decrease, increase, or remain the same?

Increase

4.c. List all other installations (DoD and Non-DoD) that could potentially support this mission.

NONE

5. List any other military support missions currently conducted at/from this air station (i.e., port of embarkation for USMC personnel).

Designated as an authorized point of entry for aircraft originating outside CONUS requiring customs and agricultural inspections.

6. Are any new military missions planned for this air station?

Implementation of the F-18D aircraft
Implementation of MCAS 28 Det
F-18A reserve squadrons (BRAC 93)

7.a. List all ground combat or special operations units (not previously mentioned in your Capacity Data Call)that train at, operate from, or mobilize to this air station.

NONE

Table 7.1 Ground Combat or Special Operations Units

Ground Unit	Training Function / Facilities Used

7.b. List all other operational units (not previously mentioned in your Capacity Data Call) that train at, operate from, or mobilize to this air station.

NONE

Table 7.2 Other Units

Operational Unit	Training Function / Facilities Used

7.c. List all Joint (non-DON) units (not previously mentioned in your Capacity Data Call) that train at, operate from, or mobilize to this air station.

NONE

Table 7.3 Joint Units

Operational Unit	Training Function / Facilities Used

8. Does the air station or its tenants have any requirements to support training of other Navy and Marine Corps forces or non-DON Joint forces (e.g., ground force training, battle group exercise, etc).

Table 8.1 Forces Supported

Forces	Location / Distance	Type of Support	Frequency
CAG 8	**Norfolk 350 Miles**	**Marine VMFA Squadron to Carrier**	**8 periods/yr**
CAG 1	**Norfolk 350 Miles**	**Marine VMFA Squadron to Carrier**	**8 periods/yr**
2d MarDiv	**Camp Lejeune 380 Miles**	**Close Air Support**	**Monthly**

MAG-31 aircraft flew ISO of the following exercises:

Agile Provider Combat Air Support (CAS)/Annual Large Scale exercise ISO CINCLANT
SATEX - CAS/Annual CAS Exercise ISO II MEF
Ready Olympiad - ACM, Strike, Escort, Aggressor Support ISO ANG/quarterly (discontinued by MAG-31 in 3d qtr FY-93)
CAPEX - Aerial Capability Demonstration for Congressional Staff and Allied Nation Representatives/Quarterly

9.a. Does the air station have a role in a disaster assistance plan, search, and rescue or local evacuation plan? If so, describe.

Letter of agreement with Naval Hospital, Beaufort, SC, Beaufort Memorial Hospital, Beaufort, SC, Hilton Head Hospital, Hilton Head, SC and Beaufort County Emergency Medical Service, Beaufort, SC for military assistance for emergency medical evacuation (AIREVAC) from remote or inaccessible geographical sites and interhospital patient transfer of patients who are in imminent danger of losing life or limb. Letter of agreement with South State Forestry Commission to provide mutual fire fighting assistance along with aerial fire bucket and helicopter support to a 50NM radius from MCAS Beaufort. Provides emergency ATC services in the event of Jacksonville ARTC Center outage up to 23,000' in accordance with existing agreement.

BSAT requested supporting data for the revised data. Responses have been provided at Pages 7a through 7n.

9.b. Does the air station provide any direct meteorological support to local civilian, governmental or military agencies? If so, describe.

Direct meteorological support is provided to the Parris Island Recruit Depot and the Naval Hospital. Occasional support is provided to civilian aircraft transiting the local flying area. Also provides enroute weather advisory service in accordance with FAA regulations.

10.a. Does this air station currently have any special non-DoD or civilian support missions (i.e., counter-drug, scientific support)? If so, describe.

N/A

10.b. If applicable, give the type and number of aircraft based at your air station that conduct these operations (10.a.)and the

N/A

SUPPORT AGREEMENT

1. DOCUMENT IDENTIFIER ("X" one)
[X] NEW [ ] REVIEW NO. ____ [ ] REVISION NO ____ [ ] TERMINATION

2. SUPPLIER (Name, Office Symbol & complete address)
Commanding Officer (CR)
Marine Corps Air Station
Beaufort, SC 29904-5000
GEOGRAPHICAL AREA OR COUNTRY CODE: 45

2a. MAJOR COMMAND CODE: M60169
2b. SUBORDINATE COMMAND CODE: N/A
3. PRESENT AGREEMENT NUMBER: M60169-92068-018
3a. SUPERSEDED AGREEMENT NUMBER: M60169-85126-018
4. TERMINATION DATE (Month and Year): 7/98

5. RECEIVER (Name, Office Symbol & complete address)
Commanding Officer
Naval Hospital
Beaufort, SC 29902
GEOGRAPHICAL AREA OR COUNTRY CODE: 45

5a. DODAAC/FEDSTRIP NUMBER: N61377
5b. MAJOR COMMAND CODE: N61377
5c. SUBORDINATE COMMAND CODE: N/A

6. SUPPORT AGREEMENT RESOURCE SUMMARY

a. CATEGORY CODES	SUPPLIER				
	b. MAN YEARS		c. GROSS ADDITIONAL COSTS		
	MILITARY	CIVILIAN	TOTAL	NON-REIMBURSEABLE	REIMBURSEABLE
BE	0	0	0	0	0
TOTAL	0	0	0	0	0

6d. RECEIVER DATA (When applicable, provide similar data required in blocks 6a, b and c)
N/A

7. SAVINGS ACCRUED/COSTS INCURRED/MAN YEARS SAVED/EXPENDED TO FEDERAL GOVERNMENT

7a. SAVINGS	7b. COSTS	7c. MAN YEARS SAVED	7d. MAN YEARS EXPENDED
0 FY: 92	0 FY:	0 FY:	0 FY:

8. FUNDING AND REIMBURSEMENT ARRANGEMENT (Include all details concerning billing/reimbursement procedures, funding limitations, and the appropriate "billing/submit thru" addresses. Also list those references which specifically apply to the type of organization being supported.)

7a

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S/N 0102-LF-001-1441

PREVIOUS EDITIONS ARE OBSOLETE

PAGE OF PAGE(S)

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LETTER OF AGREEMENT
OF
MILITARY ASSISTANCE FOR EMERGENCY MEDICAL EVACUATION (AIREVAC)

UNITED STATES MARINE CORPS
Marine Corps Air Station
Beaufort, South Carolina 29904-5001

COMMANDING OFFICER
Naval Hospital
Beaufort, South Carolina 29902

ADMINISTRATOR
Beaufort Memorial Hospital
Beaufort, South Carolina 29902

ADMINISTRATOR
Hilton Head Hospital
Hilton Head Island, South Carolina 29902

DIRECTOR
Beaufort County Emergency Medical Service
Beaufort, South Carolina 29902

Ref: (a) DoD 4515.13R, Enclosure (1) to OPNAVINST 4630.25A and MCO 4630.16, Air Transportation Eligibility
(b) DoD 3000.2, Employment of Military Resources for Military Assistance to Safety and Traffic
(c) NWP-19, National Search and Rescue Manual
(d) OPNAVINST 3710.7M NATOPS General Flight and Operating Instructions

Encl: (1) MCAS Helicopter Capabilities, Limitations, and Equipment
(2) UC-12B Capabilities, Limitation and Equipment
(3) Liability Release
(4) Airevac Request Checklist

1. Purpose. This agreement is published to provide guidance for requesting Marine Corps Air Station, Beaufort aviation assets for the purpose of emergency medical evacuation to include inter-hospital patient transfer. This agreement is intended to comply with the spirit and the expressed intent of references (a) through (d).

2. Background

a. Marine helicopter emergency medical evacuation from remote or inaccessible geographical sites (e.g., Daufuskie Island) and inter-hospital patient transfer via available aviation assets is available upon request provided:

(1) A life threatening situation exists.

(2) Airevac will result in significant saving in time which will directly contribute to patient welfare.

(3) Alternate means of evacuation are deemed inadequate or not available to meet situational requirements.

(4) The associated risk involved in flight operations is justified given the urgency of the situation and alternate means of transportation.

b. The following factors should be considered before a decision is made to request an airevac:

(1) That MCAS helicopter assets are maintained primarily to provide SAR coverage to tactical aircraft flight operations and are only available for cases that will not interfere with this mission.

(2) That helicopter crews must be recalled when tactical flight operations are not in progress, resulting in up to a two hour delay before the helicopter could be airborne in response to an evacuation request.

(3) That no standby crew is assigned to UC-12B (fixed-wing) aircraft, so delays in excess of two hours could occur prior to launch of a UC-12B airevac. Additional delays may occur while attempting to obtain authorization for a UC-12B airevac mission.

(4) That an airevac may not be able to complete the mission due to adverse weather or landing site conditions.

(5) That limited medical and equipment options are available while airborne, especially for UC-12B airevac. Additionally, defibrillation is not allowed on the CH-46 SAR helicopter, thereby making any ACLS requiring patient inappropriate for transfer.

(6) That the possibility exists for patient or attendant fear of flight.

3. <u>Actions and Responsibilities</u>

a. <u>Request Procedures</u>:

(1) All requests will be directed by competent medical authority, i.e., a licensed physician or signatory to this agreement and will be made to the Airfield Operations Officer during airfield operating hours:

Mon - Thur	0700 - 2300
Friday	0700 - 1800
Saturday	1000 - 1800
Sunday	1200 - 2000
Phone #	522-7301/7302

If unable to contact the Airfield Operations Officer, contact the Marine Corps Air Station Duty Officer at 522-7121/7305.

(2) Requests shall contain all the information necessary to complete the airevac request (see Enclosure (4)).

(3) All medical consultation and patient admission arrangements at the receiving institution are to be accomplished by the requesting medical authority prior to making a request for airevac assistance. The aircraft may not be delayed at destination to permit lengthy transfer or consultation. With this in mind the requestor should make arrangements for patient transfer at the destination landing site or for alternate return transportation for attendants.

b. Patient Preparation

(1) Litters on which patients are to be transferred need not be compatible with the stanchions on military helicopters such as the standard military stretcher litters.

(2) Hospitals should have evacuation linen packs available. The packs should contain disposable linens and pillows or other linens, as they will be lost to transferring hospitals. In each case, there should be two sheets, one pillow, one blanket, and a roll of regular adhesive tape. The adhesive tape shall be used to hold the linen on the litter, thereby preventing possible damage to the helicopter rotor system.

(3) I.V. fluids for transfer patients should be of the plastic bag container type. If they are not available, the glass bottle types must be wrapped with wide adhesive tape to prevent possible shattering. Extra fluids should be sent with the patient if the fluids being administered are likely to be used up before reaching the designated hospital.

(4) Name bracelets or I.D. tags must be worn by the patient. Medical records and x-rays, if applicable, should accompany each patient. The medical records should contain any information on treatment the patient has received, or medications and time given. These records should later be given to the receiving physician. Entrust these records to the attending physician or the medical attendant accompanying the patient. A copy of DD Form 1381 must be included in the records and an additional copy must be provided to MCAS duty personnel. For helicopter evacuations the additional copy of the Liability Release shall be retained for record purposes by the requesting agency. (See Enclosure (4)).

(5) Hospital equipment sent with the evacuated patient cannot be expected to be returned by the airevac crew. Crews will not sign for or accept responsibility for any hospital equipment. Any hospital equipment handling, exchange, or return

must be arranged through hospital administrative channels or be the responsibility of the accompanying physician or medical attendant.

c. Patient Loading

(1) Patients should be transferred to a litter five minutes prior to the ETA, and moved near the landing site for helicopter evacuation.

(2) Hospital personnel are not to carry patients to the helicopter. The helicopter crew members will come and get the patient and, if other assistance is needed, they will direct hospital personnel to assist.

(3) Patients to be evacuated by UC-12B aircraft shall be delivered by ambulance at the time specified by MCAS duty personnel. Delivery shall be to the MCAS Beaufort passenger terminal.

(4) Give all patient valuables to the medical attendant accompanying the patient. Crew members will not be responsible for valuables.

d. Patient Attendance. All patients will be accompanied by a physician or designated medical representative. Crew members will not assume medical responsibility for patient welfare. Transfer of the patient must be accomplished at the destination landing site. The aircraft cannot always delay to permit consultation or lengthy transfer. Consultation should be accomplished in advance of the request. If consultation is necessary at the receiving institution, patient attendants must make separate return arrangements.

e. Safety

(1) It is necessary to have fire protection equipment at the helicopter transfer and destination landing sites. This is the responsibility of the requestor.

(2) Crew members will direct all activity around the aircraft.

(3) Helicopter operations require that the landing area and nearby obstructions on approaches to a landing area be well marked by means that provide good visibility to helicopter crews. (Obstruction lights, wire markings, etc..)

(4) Helicopter landing zones will be thoroughly inspected prior to the arrival of the helicopter and all debris or material that might be either blown around or sucked into the helicopter rotors shall be removed.

(5) Inter-hospital patient transfers, particularly at night, will only be flown from approved airfields or helicopter helipads. If approved areas are not available, patients will be picked up at the nearest suitable airfield.

4. Summary. It is agreed that all signatories will give the contents of this agreement widest possible dissemination. It is understood by all signatories that compliance in every respect is mandatory to assure the approval of requests for airevac assistance and the safe and expeditious accomplishment of the mission. This agreement shall remain in force unless terminated by mutual consent of both parties.

C. O. HOELLE, JR.
COMMANDING OFFICER
MCAS, BEAUFORT, SC

P. E. CAMPBELL
COMMANDING OFFICER
NAVAL HOSPITAL, BEAUFORT, SC

CHUCK ELLIOTT
ADMINISTRATOR
BEAUFORT MEMORIAL HOSPITAL

ASA C. GODOWNS
ASSISTANT DIRECTOR
BEAUFORT COUNTY EMS

STEVEN CAYWOOD
ADMINISTRATOR
HILTON HEAD HOSPITAL

62

FOREST FIRE PROTECTION AGREEMENT
BETWEEN
THE COMMANDING OFFICER, MARINE CORPS AIR STATION, BEAUFORT, SOUTH CAROLINA
AND
THE SOUTH CAROLINA STATE FORESTRY COMMISSION

THIS AGREEMENT, made and entered into between the Commanding Officer of the Marine Corps Air Station, Beaufort, South Carolina, hereinafter referred to as the Commanding Officer and the South Carolina State Forestry Commission, hereinafter referred to as the Commission.

WITNESSETH:

WHEREAS, the Commanding Officer is responsible for the management and protection of all federally owned lands within the boundaries of the Marine Corps Air Station, Beaufort, S. C. and its Laurel Bay Housing Area, and

WHEREAS, the Commission is responsible for fire protection of all non-federal lands outside corporate limits of municipalities located within the county surrounding Marine Corps Air Station, Beaufort, S. C. and

WHEREAS, in view of the live and moving characteristics of forest fires, it is the desire of the Commanding Officer and the Commission to create more effective protection for both federally owned and privately owned lands within and adjacent to Marine Corps Air Station, Beaufort, S. C. and its Laurel Bay Housing Area.

NOW THEREFORE, in consideration of the mutual promises hereinafter made, the Commanding Officer and the Commission agree as follows:

1. To provide mutual fire fighting assistance at the request of either party to fight fires occurring on or near the Marine Corps Air Station or the Laurel Bay Housing area whether on government or private land. This assistance will be provided in accordance with the availability of personnel and equipment employed by each agency.

2. Whenever any personnel or equipment of Marine Corps Air Station, Beaufort, S. C. are engaged in the suppression of fire outside of the boundary of Marine Corps Air Station, Beaufort or its Laurel Bay Housing Area, such personnel and equipment shall remain under the supervision of the Commanding Officer or his duly authorized representatives who shall employ such personnel and equipment so as to render full cooperation with duly

authorized representatives of the Commission.

3. Whenever any personnel or equipment employed by, and for, the Commission are engaged in the suppression of fire inside the boundary of Marine Corps Air Station, Beaufort, S. C. or its Laurel Bay Housing Area, they shall remain under the supervision of the Commission who shall employ such personnel and equipment so as to render full cooperation with duly authorized representatives of the Commanding Officer.

4. In all cases of cooperative fire suppression, each agency will bear the costs of its own suppression personnel and equipment regardless of land ownership.

5. Report of individual fires will be made by the agency suppressing the fire. In cases where a fire burns on both federal and non-federal lands, a separate report will be prepared for the burned area of each, each report submitted to respective authority as required.

6. Since fire suppression is an emergency where many situations cannot be foreseen in individual cases, it is necessary that considerable flexibility be provide in any cooperative fire suppression agreement; therefore, mutual agreement between the Commission's County Ranger and the Commanding Officer shall, in effect, modify or enlarge upon these unforseen actual fire suppression esponsibilities in the case of an individual fire.

7. Both agencies shall render mutual assistance in securing evidence on the ground as to the cause of fires occurring.

8. Marine Corps Air Station, Beaufort further agrees to provide additional fire fighting assistance in the form of aerial firebucket and helicopter support outside the proximity of its boundary. Helicopter and firebucket assistance will encompass a radius of 50 nautical miles when at least two search and rescue helicopters are on station or a radius of 20 nautical miles otherwise. This support may not be available during military operations or emergency situations.

9. The Commission agrees to train fire fighting personnel of Marine Corps Air Station, Beaufort, to include training in the operation of fire fighting equipment.

10. No liability or responsibility is assumed by either of the parties hereto for any damage to property, or for any damage to equipment used by the other party, or for any personal injury to personnel employed by the other party which may result from their activity while suppressing fires.

11. No warranty is made by either of the parties hereto as to the quality or continuity of services which may be furnished under the agreement. Each of the parties reserves the right to withdraw its personnel and equipment from the scene of the fire whenever circumstances are such that said personnel or equipment be employed to better advantage elsewhere. The decision for any such withdrawal will be up to the responsible representative of the agency whose equipment or personnel is being employed and any such withdrawal is not to be considered a breach of this agreement.

12. This agreement shall remain in full force and effect until it is terminated. Either party may terminate this agreement at any time, with or without cause, providing that the party so desiring to terminate the same shall give unto the other, at least thirty days prior to the proposed date of termination, a written notice of such intention.

This Agreement is effective as of the latest date of signature given below.

Leonard A. Kilian Jr

State Forester
S. C. State Forestry Commission

Date: Nov. 11, 1986

The Commanding Officer
Marine Corps Air Station
Beaufort, South Carolina

Date: 24 December 86

R

MCAS HELICOPTER CAPABILITIES, LIMITATIONS, AND EQUIPMENT

a. Maximum Fuel Endurance: 3 hours 30 minutes

b. Type Fuel: JP-4, JP5, Jet-A

c. Maximum Airspeed: 150 mph

d. Maximum Range: 450 statute miles

e. Maximum Passenger Capacity: 7 persons plus crew

f. Maximum Litter Capacity w/Medical Attendants: 3 litters

g. Maximum Gurney Capacity: 2 gurneys

h. Crew: The crew consists of a pilot, co-pilot, crew chief, SAR Medical Technician and Rescue Swimmer.

i. Crew Training: All crew members are Red Cross CPR certified. SAR Medical Technicians and Rescue Swimmers are trained and certified in rappelling as well as litter and personnel lowering techniques. SAR Medical Technicians are also National EMT and IV certified.

j. Aircraft Equipment includes but is not limited to the following:

1. UHF and VHF FM/AM Radios
2. LORAN
3. UHF Direction Finder
4. Boom/Winch Hoists
5. Loud Hailer
6. Rescue Hook
7. Rescue Sling
8. Rescue Seat/forest Penetrator
9. Night Sun Search Light
10. Aldis Lamp Spot Light
11. Stokes Litter (1)
12. Field Litter (2)
13. Day/Night Smoke-Flares
14. 7 Man Life Raft
15. Rappeling Equipment
16. Rescue Swimmer Equipment

k. Medical Equipment:

1. Portable Suction Unit (1)
2. Portable Oxygen Equipment (2)
3. Burn and Trauma Pack (Sterile)
4. Hare Traction Splints (1)
5. Pneumatic Splints
6. Blankets (4)
7. OB Kit
8. M.A.S.T.
9. Emergency Medical Pack Inclusive (w/o Restricted Use Drugs)

Encl (1)

UC-12B CAPABILITIES, LIMITATIONS, AND EQUIPMENT

a. Maximum Fuel Capacity: 6 hours

b. Type Fuel: JP-4, JP-5

c. Maximum Airspeed: 285 mph

d. Maximum Range: 1200 statute miles

e. Maximum Passenger Capacity:

(1) One litter patient with attendant plus crew

(2) Two litter patients with attendant plus crew (reduces range)

(3) One ambulatory patient with attendant plus crew

(4) Six ambulatory patients with attendant plus crew (reduces range)

f. The crew consists of a pilot, co-pilot and crew chief

g. Crew Training: Crew chiefs are CPR qualified

h. Aircraft Equipment: No special medical equipment installed. Provisions for temporary installation of up to two frame (Stokes type) litters.

Encl (2)

LIABILITY RELEASE

In consideration of receiving free transportation from the United States Marine Corps by _____
(Type of Conveyance)
from _____ to _____, including such
(Origin) (Destination)
other transportation by this and other means that may be reasonably required, commencing on or about _____ and ending
(Date)
on or about _____, I _____
(Date)
hereby release the United States Government, including all its subdivisions, officers, military personnel, employees and agents from all liability for any injuries or death that may result to me from this transportation, whether caused by negligence or otherwise. I understand that in transporting me, the United States Government is not acting as a common carrier for hire and does not bear the liabilities attaching to that status. I am under no compulsion to do so. I understand that by accepting such transportation, I incure no obligation towards the United States Government except as imposed by this release. I agree that this release not only binds myself, but also my family, heirs, assigns, administrators, and executors.

_____
(Signature) (Date)

_____
(Witness)

_____
(Witness)

Encl (3)

R

AIREVAC REQUEST CHECKLIST

Instructions:

Requesting Agency. Fill in all blanks before calling MCAS Beaufort. Requests shall not be approved until all the required information is supplied. When request is called to MCAS Beaufort note time of call and name of person receiving the request. Remain at phone number supplied for confirmation of mission or request for additional information.

Operations Duty Officer. Copy all information provided by requesting agency. Alert duty SAR Helicopter Aircraft Commander (HAC) of possible patient transfer. A decision shall be made at this time if the airevac is feasible based on aircraft availability, weather, destination, facilities, etc. If the use of the UC-12B is required/recommended to accomplish the airevac, the Airfield Operations Officer shall be contacted for approval.

(NOTE: The type of aircraft to be used for an airevac mission shall be determined by MCAS Beaufort based on known mission factors and shall not be an option of the requesting agency. Obtain weather brief for pick-up point, enroute and destination. When advised of approval or disapproval of request, notify the requesting agency of the decision at the phone number provided. If approval has been granted, inform the requestor of the ETA of the helicopter/time and place to deliver patient.

1. Name of Requesting Hospital_____Phone#_____
2. Name of Requesting Physician_____
3. Location of Pick-up/Patient Drop Off_____
4. Desired Time of Pick-up/Patient Drop Off_____
5. Pick-up Site Identification/Obstacles_____
6. Law Enforcement Agency at Scene (If Any)_____
7. Fire/Crash Equipment on Scene_____
8. Radio Frequencies and Call Signs_____
9. Name of Destination Hospital_____
10. Fire/Crash Equipment on Scene at Destination_____
11. Radio Frequencies and Call Signs_____
12. Name of Receiving Physician_____
13. Receiving Hospital/Physician Confirmation of Acceptance_____
14. Patients:
    Number (Ambulatory)_____(Litter)_____
    Type Injury_____
    Nature of Inflight Treatment Required_____
    _____
15. Medical Attendants:
    Physician_____
    Corpsmen/EMT_____
16. Request Called in to_____AT (Time)_____

Encl (4)

FOR ODO USE

1. Date and Time Request Received_____
2. TAC/HAC Notified_____
3. Weather Brief_____
4. Mission Request Approved_____ Disapproved_____
5. Name of Official Making Decision_____
6. Time Notification Made to Requestor_____
7. Helicopter ATD_____ ATA_____
8. Remarks:_____

ODO SIGNATURE_____

Encl (4)

MAG-31 aircraft flew ISO of the following exercises:

Agile Provider Combat Air Support (CAS)/Annual Large Scale exercise ISO CINCLANT
SATEX - CAS/Annual CAS Exercise ISO II MEF
Ready Olympiad - ACM, Strike, Escort, Aggressor Support ISO ANG/quarterly (discontinued by MAG-31 in 3d qtr FY-93)
CAPEX - Aerial Capability Demonstration for Congressional Staff and Allied Nation Representatives/Quarterly

9.a. Does the air station have a role in a disaster assistance plan, search, and rescue or local evacuation plan? If so, describe.

Letter of agreement with Naval Hospital, Beaufort, SC, Beaufort Memorial Hospital, Beaufort, SC, Hilton Head Hospital, Hilton Head, SC and Beaufort County Emergency Medical Service, Beaufort, SC for military assistance for emergency medical evacuation (AIREVAC) from remote or inaccessible geographical sites and interhospital patient transfer of patients who are in imminent danger of losing life or limb. Letter of agreement with South State Forestry Commission to provide mutual fire fighting assistance along with aerial fire bucket and helicopter support to a 50NM radius from MCAS Beaufort. Provides emergency ATC services in the event of Jacksonville ARTC Center outage up to 29,000' in accordance with existing agreement.

9.b. Does the air station provide any direct meteorological support to local civilian, governmental or military agencies? If so, describe.

Direct meteorological support is provided to the Parris Island Recruit Depot and the Naval Hospital. Occasional support is provided to civilian aircraft transiting the local flying area. Also provides enroute weather advisory service in accordance with FAA regulations.

10.a. Does this air station currently have any special non-DoD or civilian support missions (i.e., counter-drug, scientific support)? If so, describe.

N/A

10.b. If applicable, give the type and number of aircraft based at your air station that conduct these operations (10.a.)and the total number of sorties flown during FY 1993 in support of these operations.

N/A

Table 10.1 Support Operations

Aircraft Type	Number of Aircraft	# Sorties Flown in FY 1993

10.c. If applicable, list the facilities, special equipment (e.g., radar surveillance systems) and personnel at your air station that directly support these operations.

N/A

Table 10.2 Supporting Equipment

Equipment/Facility /Personnel	Function

11. Are any new civilian or other non-DoD missions planned for this air station? If so, describe.

NONE

Facilities

Air Space and Flight Training Areas

12. List all areas for special use routinely used by aviation units or squadrons assigned to your air station. For each piece of airspace, provide the following data:

Airspace Designator: W-134

a. Type of airspace (i.e., warning area, MOA, alert area, restricted area, or MTR) - **SOA Special Operating Area (Supersonic)**
b. Dimensions (nmi. x nmi. x ft of altitude) - **43NM x 58NM x 4500' to unlimited**
c. Distance from main airfield - **26NM**
d. Time enroute from main airfield - **3 min**
e. Controlling agency - **Sealord**
f. Scheduling agency - **FACSFACJAX (see scheduling authority for l, n, o, p)**
g. Are canned/stereo airways needed to access air space? - **NO**
   - If so, how many?
   - If so, what types (i.e., IMC, VMC, or altitude reservation)? - **IMC**
h. Is the airspace under radar coverage? - **YES**
i. Is the airspace under communications coverage? - **YES**
j. Number of low level airways (below 18,000 ft) that bisect airspace - **0**
k. Number of high altitude airways (above 18,000 ft) that bisect airspace - **NONE**
l. Number of sorties flown in FY 1993
   - By Navy/USMC - **18,333**
   - By other services (including reserves and national guard)
m. Percent of sorties cancelled due to weather - **less than 10%**
n. Number of available hours in FY 1993
o. Number of scheduled hours in FY 1993
   - By Navy/USMC
   - By other services (including reserves and national guard)
p. Number of hours used
   - By Navy/USMC - **11,000**
   - By other services (including reserves and national guard)
q. Types of training permitted - **Air to Air**
r. Is the training within this airspace affected by environmental issues? If so, how? - **NO**

12. List all areas for special use routinely used by aviation units or squadrons assigned to your air station. For each piece of airspace, provide the following data:

Airspace Designator: W-157A

a. Type of airspace (i.e., warning area, MOA, alert area, restricted area, or MTR) - **SOA**
b. Dimensions (nmi. x nmi. x ft of altitude) - **100NM x 85NM x Surface to 43,000'**
c. Distance from main airfield - **32NM**
d. Time enroute from main airfield - **4 mins**
e. Controlling agency - **Sealord**
f. Scheduling agency - **FACSFACJAX (See scheduled authority for l, n, o, p)**
g. Are canned/stereo airways needed to access air space? - **NO**
   - If so, how many? - **0**
   - If so, what types (i.e., IMC, VMC, or altitude reservation)?
h. Is the airspace under radar coverage? - **YES**
i. Is the airspace under communications coverage? - **YES**
j. Number of low level airways (below 18,000 ft) that bisect airspace - **NONE**
k. Number of high altitude airways (above 18,000 ft) that bisect airspace - **1 air refueling route**
l. Number of sorties flown in FY 1993
   - By Navy/USMC - **18,333**
   - By other services (including reserves and national guard)
m. Percent of sorties cancelled due to weather.
n. Number of available hours in FY 1993
o. Number of scheduled hours in FY 1993
   - By Navy/USMC
   - By other services (including reserves and national guard)
p. Number of hours used
   - By Navy/USMC - **11,000**
   - By other services (including reserves and national guard)
q. Types of training permitted - **Air to Air (Supersonic)**
r. Is the training within this airspace affected by environmental issues? If so, how? - **NO**

12. List all areas for special use routinely used by aviation units or squadrons assigned to your air station. For each piece of airspace, provide the following data:

Airspace Designator: W-158

a. Type of airspace (i.e., warning area, MOA, alert area, restricted area, or MTR)
b. Dimensions (nmi. x nmi. x ft of altitude) - **100NM x 85NM x 43,000 to unlimited**
c. Distance from main airfield - **32NM**
d. Time enroute from main airfield - **4 mins**
e. Controlling agency - **Sealord**
f. Scheduling agency - **FACSFACJAX (see scheduled authority for l, n, o, p)**
g. Are canned/stereo airways needed to access air space?
   - If so, how many?
   - If so, what types (i.e., IMC, VMC, or altitude reservation)? - **IMC**
h. Is the airspace under radar coverage? - **YES**
i. Is the airspace under communications coverage? - **YES**
j. Number of low level airways (below 18,000 ft) that bisect airspace - **NONE**
k. Number of high altitude airways (above 18,000 ft) that bisect airspace - **4 Air refueling routes**
l. Number of sorties flown in FY 1993
   - By Navy/USMC - **18,333**
   - By other services (including reserves and national guard)
m. Percent of sorties cancelled due to weather - **less than 10%**
n. Number of available hours in FY 1993
o. Number of scheduled hours in FY 1993
   - By Navy/USMC
   - By other services (including reserves and national guard)
p. Number of hours used
   - By Navy/USMC - **11,000**
   - By other services (including reserves and national guard)
q. Types of training permitted - **Air to Air (Supersonic High Altitude)**
r. Is the training within this airspace affected by environmental issues? If so, how? - **NO**

12. List all areas for special use routinely used by aviation units or squadrons assigned to your air station. For each piece of airspace, provide the following data:

Airspace Designator: Beaufort MOA

a. Type of airspace (i.e., warning area, MOA, alert area, restricted area, or MTR) - **MOA**
b. Dimensions (nmi. x nmi. x ft of altitude) - **44NM x 43NM x 100' AGL to 10,000 MSL**
c. Distance from main airfield - **At Airfield**
d. Time enroute from main airfield - **0 mins**
e. Controlling agency - **MCAS Beaufort**
f. Scheduling agency - **MCAS Beaufort**
g. Are canned/stereo airways needed to access air space?
- If so, how many? - **2**
- If so, what types (i.e., IMC, VMC, or altitude reservation)? - **VMC**

h. Is the airspace under radar coverage? - **YES**
i. Is the airspace under communications coverage? - **YES**
j. Number of low level airways (below 18,000 ft) that bisect airspace - **1 IR-18/1 Airway**
k. Number of high altitude airways (above 18,000 ft) that bisect airspace - **0**
l. Number of sorties flown in FY 1993 - **762**
- By Navy/USMC - **530**
- By other services (including reserves and national guard) - **232**

m. Percent of sorties cancelled due to weather - **Less than 10%**
n. Number of available hours in FY 1993
o. Number of scheduled hours in FY 1993 - **16 Hours**
- By Navy/USMC - **VFR mutual use**
- By other services (including reserves and national guard) - **Mutual use for Hornet's Nest Exercise**

p. Number of hours used - **16 Hours**
- By Navy/USMC
- By other services (including reserves and national guard) - **Mutual use**

q. Types of training permitted - **Airfield Defense and Attacks**
r. Is the training within this airspace affected by environmental issues? If so, how? - **NO**

R

13. List all the air-to-ground training ranges routinely used by aviation units or squadrons assigned to your air station. For each range, provide the following data:

Range Name: R 5306 G-10

a. Location (city/county and state) - **East of Jacksonville, NC**
b. Distance from main airfield - **240NM**
c. Time enroute from main airfield - **30 mins**
d. Controlling agency - **Giant Killer**
e. Scheduling agency - **MCAS Cherry Point (see m, n, o)**
f. Are canned/stereo airways needed to access air space? - **NO**
- If so, how many?
- If so, what types (i.e., IFR, VFR, or altitude reservation)?
g. Is the airspace under radar coverage? - **YES**
h. Is the airspace under communications coverage? - **YES**
i. Number of low level airways (below 18,000 ft) that bisect airspace - **NONE**
j. Number of high altitude airways (above 18,000 ft) that bisect airspace - **NONE**
k. Number of sorties flown in FY 1993
- By Navy/USMC - **600 sorties**
- By other services (including reserves and national guard)
l. Percent of sorties cancelled due to weather - **Less than 15%**
m. Number of available hours in FY 1993
n. Number of scheduled hours in FY 1993
- By Navy USMC
- By other services (including reserves and national guard)
o. Number of hours used
- By Navy/USMC - **360 Hours**
- By other services (including reserves and national guard)
p. Types of training permitted - **CAS, Bomb, Straffe, Sim CAS** The ranges that have "Bomb" as part of training refer to practice bombs.
q. Is the training within this airspace impeded by environmental issues? - **NO**

13. List all the air-to-ground training ranges routinely used by aviation units or squadrons assigned to your air station. For each range, provide the following data:

Range Name: R 5306 G-10

a. Location (city/county and state) - **East of Jacksonville, NC**
b. Distance from main airfield - **240NM**
c. Time enroute from main airfield - **30 mins**
d. Controlling agency - **Giant Killer**
e. Scheduling agency - **MCAS Cherry Point (see m, n, o)**
f. Are canned/stereo airways needed to access air space? - **NO**
   - If so, how many?
   - If so, what types (i.e., IFR, VFR, or altitude reservation)?
g. Is the airspace under radar coverage? - **YES**
h. Is the airspace under communications coverage? - **YES**
i. Number of low level airways (below 18,000 ft) that bisect airspace - **NONE**
j. Number of high altitude airways (above 18,000 ft) that bisect airspace - **NONE**
k. Number of sorties flown in FY 1993
   - By Navy/USMC - **600 sorties**
   - By other services (including reserves and national guard)
l. Percent of sorties cancelled due to weather - **Less than 15%**
m. Number of available hours in FY 1993
n. Number of scheduled hours in FY 1993
   - By Navy USMC
   - By other services (including reserves and national guard)
o. Number of hours used
   - By Navy/USMC - **360 Hours**
   - By other services (including reserves and national guard)
p. Types of training permitted - **CAS, Bomb, Straffe, Sim CAS**
q. Is the training within this airspace impeded by environmental issues? - **NO**

13. List all the air-to-ground training ranges routinely used by aviation units or squadrons assigned to your air station. For each range, provide the following data:

Range Name: R5314 BT-9/BT-11

a. Location (city/county and state) - **NE of New Bern, NC**
b. Distance from main airfield - **260NM**
c. Time enroute from main airfield - **33 mins**
d. Controlling agency - **Giant Killer**
e. Scheduling agency - **MCAS Cherry Point (see form m, n, o)**
f. Are canned/stereo airways needed to access air space? - **NO**
   - If so, how many?
   - If so, what types (i.e., IFR, VFR, or altitude reservation)?
g. Is the airspace under radar coverage? - **YES**
h. Is the airspace under communications coverage? - **YES**
i. Number of low level airways (below 18,000 ft) that bisect airspace - **NONE**
j. Number of high altitude airways (above 18,000 ft) that bisect airspace - **NONE**
k. Number of sorties flown in FY 1993
   - By Navy/USMC - **300 sorties**
   - By other services (including reserves and national guard)
l. Percent of sorties cancelled due to weather - **less than 15%**
m. Number of available hours in FY 1993
n. Number of scheduled hours in FY 1993
   - By Navy USMC
   - By other services (including reserves and national guard)
o. Number of hours used
   - By Navy/USMC - **180 Hours**
   - By other services (including reserves and national guard)
p. Types of training permitted - **Bombing sea and land targets**
q. Is the training within this airspace impeded by environmental issues? - **NO**

13. List all the air-to-ground training ranges routinely used by aviation units or squadrons assigned to your air station. For each range, provide the following data:

Range Name: Townsend R3007

a. Location (city/county and state) - **NW of Brunswick, GA**
b. Distance from main airfield - **74NM**
c. Time enroute from main airfield - **10 mins**
d. Controlling agency - **Georgia Air National Guard**
e. Scheduling agency - **Georgia Air National Guard (see for m, n, o)**
f. Are canned/stereo airways needed to access air space? - **NO**
   - If so, how many?
   - If so, what types (i.e., IFR, VFR, or altitude reservation)?
g. Is the airspace under radar coverage? - **YES**
h. Is the airspace under communications coverage? - **YES**
i. Number of low level airways (below 18,000 ft) that bisect airspace - **1 Airway 2 VR low level routes**
j. Number of high altitude airways (above 18,000 ft) that bisect airspace - **NONE**
k. Number of sorties flown in FY 1993
   - By Navy/USMC - **400**
   - By other services (including reserves and national guard)
l. Percent of sorties cancelled due to weather - **less than 10%**
m. Number of available hours in FY 1993 - **1421**
n. Number of scheduled hours in FY 1993 - **1207.5**
   - By Navy/USMC
   - By other services (including reserves and national guard)
o. Number of hours used
   - By Navy/USMC - **240 Hours**
   - By other services (including reserves and national guard) - **547.5**
p. Types of training permitted - **Air to Ground; Bomb, Straffe, EW**
q. Is the training within this airspace impeded by environmental issues? - **NO**

13. List all the air-to-ground training ranges routinely used by aviation units or squadrons assigned to your air station. For each range, provide the following data:

Range Name: Pointsett R6002 Target Complex

a. Location (city/county and state) - **South of Sumter, SC**
b. Distance from main airfield - **79NM**
c. Time enroute from main airfield - **10 mins**
d. Controlling agency - **20th Fighter Wing USAF**
e. Scheduling agency - **20th Operational Support Squadron USAF (see for m, n, o)**
f. Are canned/stereo airways needed to access air space? - **NO**
   - If so, how many?
   - If so, what types (i.e., IFR, VFR, or altitude reservation)?
g. Is the airspace under radar coverage? - **YES**
h. Is the airspace under communications coverage? - **YES**
i. Number of low level airways (below 18,000 ft) that bisect airspace - **Z Tactical 1VR, 1IR, No airways**
j. Number of high altitude airways (above 18,000 ft) that bisect airspace - **NONE**
k. Number of sorties flown in FY 1993
   - By Navy/USMC - **200**
   - By other services (including reserves and national guard)
l. Percent of sorties cancelled due to weather - **Less than 10%**
m. Number of available hours in FY 1993
n. Number of scheduled hours in FY 1993
   - By Navy/USMC
   - By other services (including reserves and national guard)
o. Number of hours used
   - By Navy/USMC - **120 Hours**
   - By other services (including reserves and national guard)
p. Types of training permitted - **Air to Ground; Bombing, Straffe, EW**
q. Is the training within this airspace impeded by environmental issues? - **NO**

14. Is land and/or air encroachment an issue which endangers long term availability of any training areas? If so, provide details.

Unresolved landfill issue at Townsend Range R3007. If landfill site approved, may increase bird strike potential.

15. Is the SUA/airspace for special use routinely used by aviation units or squadrons assigned to your air station sufficient to satisfy the air-to-air training, air-to-ground training and low level training missions of units assigned to the air station? Explain the nature and magnitude of any shortfalls.

Beaufort SUAs do not provide for the practice of high altitude tactics or refueling at altitudes above 13,000 feet. MOA's cannot be used for nighttime or instrument tactical training due to FAA restrictions established in order to attain the airspace. No ACM, supersonic flights may be conducted. FAA required 5 SM visibility at MCAS Beaufort to activate airspace. The FAA process involved in adjusting airspace dimensions and scheduling historically requires as much as 7 years to obtain a final response from FAA headquarters.

16. If deployments or detachments to other domestic locations are required to satisfy airspace shortfalls, fill out the following tables:

N/A

Table 16.1 Deployment Costs

WHERE	REASON	ANNUAL TAD COSTS ADVERSE WEATHER	ANNUAL TAD COSTS AIRSPACE NOT AVAILABLE	ANNUAL TAD COSTS NO LOCAL RANGE/ OTHER

Airfields

17. For the main airfield(s) and each auxiliary and outlying field, provide the following data

Airfield Name: MCAS Beaufort, SC (Merritt Field)

a.Location: - **32 deg 26.6'M 80 deg 43.3' W**
b.Distance from main field: - **Main Airfield**
c.Does the airfield have more than one runway complex that can conduct independent (i.e., concurrent) flight operations? - **YES**
d.Does the airfield have parallel or dual offset runways? - **NO**
e.If the airfield has parallel or dual offset runways, do they permit dual IFR flight operations? **NA**
e.Does the airfield have full-length parallel taxiways? - **YES, 2 cross wind r/w, each has taxi**
f.Does the airfield have high speed taxiways? - **NO**
g.Does the airfield have a crosswind runway? - **YES**
h.If conditions force the use of this runway, does the airfield lose flight ops capacity? - **NO**
i.How much capacity is lost? -**NO**
j.What percent of the time do conditions force the crosswind runway to be used?
k.Is the airfield equipped to support IFR flight operations? - **YES**
l.Is the airfield owned by the navy or leased? **Owned**
m.Discuss any runway design features that are specific to particular types of aircraft (e.g., are the airfield facilities designed primarily for helo, prop. or jet train aircraft). - **Can support all types of aircraft**
n.Does the air station perimeter road completely encircle the airfield? - **YES**
o.Is the air station perimeter road 100% paved? If not estimate the percentage paved. - **YES, 100%**
p.Does the perimeter fence completely enclose the operational areas of the air station? If not, explain why. - **YES**
q.Is lack of fencing a security discrepancy? - **NO**
r.Other remarks.

18. Are the current airfield descriptions, operations and facilities consistent with the flight information publication (FLIP)? Attach a copy of the latest FLIP chart annotated with any updates.

Facilities
Base Infrastructure and Investment

19. List the project number, description, funding year, and value of the **capital improvements at your base completed (beneficial occupancy) during 1988 to 1994.** Indicate if the capital improvement is a result of BRAC realignments or closures.

Table 19.1 Capital Improvement Expenditure

Project Number	Description	Fund Year	Value
N802	Temporary lodging facility	90	2,060
R-1	Library Imp	89	336
R-1	Pistol Range Imp	89	158
R-1	Rec Fac Heads	89	57
R-2	Refueler Maintenance Facility	89	172
P-364	A/C Fuel Maintenance Facility	91	2,200
R-2	Fire Training Facility	90	163
R-2	Security Upgrade Facility	90	175
HR-2	Housing Office	90	283
P-332	A/C Rinse Facility	92	250
P-379	Add Oper Training Facility	92	958
P-354	Child Development Facility	92	1065
R-2	Add Bldg 595	92	175
R-2	Add Cryogenics Facility	92	140
R-2	Fire Alarms/Sprinklers	92	184
DODDS	Fire Protection/Schools	92	369
P-375	Aviation Armaments Facility	93	3,330
P-366	BEQ Phase I	93	5,517
R-*	Jogging Trail	93	150
R-2	Security Fence	92	90
R-2	MAG-31 Conference Room	92	172

DODDS (Hsg)	Elementary School Add	93	934
P-380	Air Traffic Control Tower	94	1,800
N-201 (Hsg)	Location MCX	94	1,269
R-2	Install Heads, Messhall	93	122
R-2	Composite Sanding Booth	93	109
R-2	Add to MAG-31 Headquarters	93	218
TOPS	Traffic Management Office	88	190
TOPS	Traffic Management Office Exp	93	116
DODDS	Fire Alarm/Comms System Schools	94	13
R-2	Environmental Imp Drainage	94	173
R-1	Theater Voice/Fire Alarm	94	14
R-2	MACS-2 Add	94	266
DODDS (Hsg)	Restroom Addition Schools	94	30
DLA/R-2	DRMO Storage Facility	94	270
DLA/R-2	DRMO Admin Facility	95	
R-1*	Carwash Facility	94	78
P-368	BEQ Phase II	95	8400
P-391	Controlled Humidity W.H.	95	1400
P-381	Jet Fuel Delivery System	95	2550
R-2	Land Acq R/W 32	94	188
R-2	Install 400HZ Power	95	223
R-2	Add to Fire Department	94	63
DODDS (Hsg)	Elementary School Add #2	95	2560
Local	Haz Mtl Store Facility	90	32

R-2	Blast Pvmts	90	1960
Local	Open Storage	90	84
Local	On-Load Ramp	93	20
R-2	Ordnance Operation Bldg	90	210
	MWSS-273 Headquarters and Bldgs	88	376
P-275	A/C Combat Loading area	88	1465
	Approach Lighting System	89	774
R-2*	Golf Driving Range	93	150
P-353	TACTS Facility Imp	89	1174
R-2 (Hsg)	Waste Transfer Facility	88	121
R-2 (Hsg)	Perimeter Fence	89	232
R-2 (Hsg)	Mobile Home Park	90	543

*** SECNAV Award Funds**

20.a. List the project number, description, funding year, and value of the **non-BRAC related capital improvements** planned for years 1995 through 1997.

Table 20.1 Planned Capital improvements

Project Number	Description	Fund Year	Value
P-388 DODDS	Elementary School Add No 2	95	2.6
P-367 NAF	Youth Center at Laurel Bay Family Housing	95	3.1
P-035 MED	Medical/Dental Facility	96	10.4
P-369	BEQ Phase III	96	10.0
P-394	F/A-18D Support Facilities	96	10.8

R

H-208 Hsg	Pine Grove Whole House Repairs (154 units)	96	4.8
H-209 Hsg	Pine Grove Whole House Repairs (22 units)	96	0.7
H-902 Hsg	Improvements to Mobile Home Park	96	0.4
H-010 Hsg	Home Improvements Phase I	96	0.6
P-385	High Explosive Missile Magazines	97	2.7
P-384	Armory	97	1.7
P-387	Combat Vehicle Maintenance Shop Expand	97	1.9
P-390	Supply Whse, Comm/Elec Maintenance Shop	97	5.8

H-208 Hsg	P.G. Whole House Repairs (156 units)	96	4.8
H-209 Hsg	P.G. Whole House Repairs (22 units)	96	0.7
H-902 Hsg	Improvements to Mobile Home Park	96	0.4
H-010 Hsg	Home Improvements Phase I	96	0.6
P-385	High Explosive Missile Magazines	97	2.7
P-384	Armory	97	1.7
P-387	Combat Vehicle Maintenance Shop Expand	97	1.9
P-390	Supply Whse, Comm/Elec Maintenance Shop	97	5.8
P-396 BRAC	F/A-18 Reserve Support Facilities	97	4.0

20.b. List the project number, description, funding year, and value of the **BRAC related capital improvements planned/programmed** for 1995 through 1999.

Table 20.2 **Planned Capital improvements**

Project Number	Description	Fund Year	Value
P-396	F/A-18 Reserves Support Facility	97	4.0

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Personnel Support Facilities

21. Administrative Spaces

21.a. In the following table, indicate the available space (SF), individual workstation (PN), and condition for each facility designated or used for administrative purposes.

Table 21.1 Administrative Support Spaces

Building Type	NAVFAC (P-80) category code	Adequate		Substandard		Inadequate		Total	
		SF	PN	SF	PN	SF	PN	SF	PN
Administrative office	610-10	59658	398	29317	195	4145	28	93120	621
ADP installations	610-20	NA	NA	NA	NA	NA	NA	NA	NA
Legal services	610-40	4623	31	0	NA	0	NA	4623	31
Admin storage	610-77	NA	NA	NA	NA	NA	NA	NA	NA
Underground administrative office	620-10	NA	NA	NA	NA	NA	NA	NA	NA
Underground ADP installation	620-20	NA	NA	NA	NA	NA	NA	NA	NA
Underground admin storage	620-77	NA	NA	NA	NA	NA	NA	NA	NA
Other	620-7X	NA	NA	NA	NA	NA	NA	NA	NA

NOTE: BSAT questioned why the SF for 610-40 was not reconciled with the P-80. Response was that the P-80 is not applicable to the SF for 610-40; said that it was probably a typo - should have read P-164.

21.b. For all facilities that were classified as inadequate in the preceding table, identify the type of facility and describe why the facility is inadequate; indicate how the facility is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate (do not be concerned with the economic justification for these costs). Indicate current plans to remove these deficiencies and the amount of any programmed funds. Does the deficiency result in a C3 or C4 designation on your baserep?

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Personnel Support Facilities

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ADP installations	610-20	NA	NA	NA	NA	NA	NA	NA	NA
Legal services	610-40	4623	31	0	NA	0	NA	4623	31
Admin storage	610-77	NA	NA	NA	NA	NA	NA	NA	NA
Underground administrative office	620-10	NA	NA	NA	NA	NA	NA	NA	NA
Underground ADP installation	620-20	NA	NA	NA	NA	NA	NA	NA	NA
Underground admin storage	620-77	NA	NA	NA	NA	NA	NA	NA	NA
Other	620-7X	NA	NA	NA	NA	NA	NA	NA	NA

21.b. For all facilities that were classified as inadequate in the preceding table, identify the type of facility and describe why the facility is inadequate; indicate how the facility is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate (do not be concerned with the economic justification for these costs). Indicate current plans to remove these deficiencies and the amount of any programmed funds. Does the deficiency result in a C3 or C4 designation on your baserep?

Metal Bldg 951 is the only 61010 inadequate facility due to its proximity to flightline, lack of adequate head/cooling, roof leaks, noise, etc.

22. Describe any administrative support facility limitations. Describe the potential for expansion of the services that administrative support facilities provide.

NONE. However, all administrative support facilities provide a capability to expand. Facilities were designed for expansion. Most facilities include real estate for building expansion.

Personnel Support Facilities

21.. Administrative Spaces

21.a. In the following table, indicate the available space (SF), individual workstation (PN), and condition for each facility designated or used for administrative purposes.

Table 21.1 Administrative Support Spaces

Building Type	NAVFAC (P-80) category code	Adequate		Substandard		Inadequate		Total	
		SF	PN	SF	PN	SF	PN	SF	PN
Administrative office	610-10	59658		29317		4145		93120	
ADP installations	610-20	NA							
Legal services	610-40	4623		0		0			
Admin storage	610-77		NA		NA		NA		NA
Underground administrative office	620-10	NA							
Underground ADP installation	620-20	NA							
Underground admin storage	620-77	NA	NA		NA		NA		NA
Other	620-7X								

21.b. For all facilities that were classified as inadequate in the preceding table, identify the type of facility and describe why the facility is inadequate; indicate how the facility is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate (do not be concerned with the economic justification for these costs). Indicate current plans to remove these deficiencies and the amount of any programmed funds. Does the deficiency result in a C3 or C4 designation on your baserep?

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22. Describe any administrative support facility limitations. Describe the potential for expansion of the services that administrative support facilities provide.

NONE. Facilities were designed for expansion. Most facilities include real estate for building expansion.

23.a. List all specialized training facilities/simulators that are located at or near the air station.

Table 23.1 Specialized Training Facilities/Simulators Onboard/In Vicinity

Type	Purpose and Availability Elsewhere
Operational Flight Trainer (OFT)	Train aircrew - not available elsewhere
Weapons Tactics Trainer (WTT)	Train aircrew - not available elsewhere
Radar Simulator	Train ATC Personnel

23.b. List other facilities/simulators not available locally that would assist the training mission.

NONE

Table 23.2 Facilities/Simulators Desired

Type	Training Function	Location

23.a. List all specialized training facilities/simulators that are located at or near the air station.

Table 23.1 Specialized Training Facilities/Simulators Onboard/In Vicinity

Type	Purpose and Availability Elsewhere
Operational Flight Trainer (OFT)	Train aircrew - not available elsewhere
Weapons Tactics Trainer (WTT)	Train aircrew - not available elsewhere
Radar Simulator	Train ATC Personnel

23.b. List other facilities/simulators not available locally that would assist the training mission.

NONE

Table 23.2 Facilities/Simulators Desired

Type	Training Function	Location

24.a. Is there is a NADEP located at the air station?
NO

24.b. Does the NADEP provide any direct support/benefit to the installation's intermediate maintenance mission?
N/A

25.a. What ship maintenance facilities are located at the air station?
NONE

Table 25.1 Ship Maintenance Facilities

Ship Maintenance Facility	Major Capabilities

25.b. What other maintenance facilities do ships homeported/berthed at the air station use on a regular basis?

N/A

Table 25.2 Other Ship Maintenance Facilities

Maintenance Activity	Type of Support	Location

Regional Maintenance Concept

26. Has your AIMD been identified to be a part of the Navy's Regional Maintenance concept? If so, provide the details as currently known and what other DON industrial activities (both intermediate and depot level) are located within a 25 mile range of your activity?

Special Military Facilities

27. List all facilities at or near the air station that have a special role in military operations (ASWOCs, oceanographic facilities, etc.) of the aircraft or ships based at the installation.
NONE

Table 27.1 Special Military Facilities

Type of Facility	Operational Mission of Facility

Non-DON Facility Support Arrangements

28. List all inter-service arrangements (e.g.., inter-service support agreements) that involve supporting military (non-DON) activities at the air station.

Table 28.1 Non-DON Support

Activity Name / Military Service	Description of Activity Role and Degree of Support
DIS Defense Investigative Service	Administrative Services
48th Ordnance Army	Administrative Services
DOD Schools Department of Defense	Administrative Services
Fort Riley National Guard	Administrative Services

DFAS Defense Finance & Accounting Service	Administrative Services
DLA Defense Logistics Agency	Fuel Facilities Storage
437 Military Airlift Wing Air Force	Storage

29. List all formal support agreements and other arrangements that involve supporting other governmental agencies (federal, state, local or international) or civilian activities at the air station.

Table 29.1 Other Agencies

Activity / Sponsor / Government Affiliation	Description of Activity Role and Support Level

Current Letters of Agreement with FAA delegate airspace 10,000' and below to MCAS Beaufort for ATC purposes. This agreement effectively designates MCAS Beaufort's Airport Surveillance Radar (ASR) and Terminal Radar Control (TRACON) facility a part of the National Airspace System (NAS).

LOCATION

Proximity to Operational Mission Areas

30.a. Describe the areas where aircraft based at this air station routinely conduct operational missions (vice training missions). Include details on the distance from the air station, average transit times and average length of time the aircraft spend in the operating areas.

Operational missions are supported by unit deployments around the world:
(1) Carrier Air Wings CAG 8 and CAG 1
(2) WestPac Deployments - III MEF
(3) EUCOM, CENTCOM - Real World

30.b. Does the location of the air station permit any specialized training with other operational units (i.e. Battle Groups or Joint forces)? If so, provide details.

YES - MOA and SUA provide for theater level missile defense and anti-air warfare and air to ground strikes in a free play force on force scenario. Only airfield on east coast to conduct full range airfield defense from air and ground attack.

30.c. Do squadrons routinely have to deploy to conduct carrier qualifications or other required training?

YES - 2 squadrons during work-ups.

Proximity to other support facilities

31.a. List all primary airfields in the local flying area that are available for training and emergency uses.

Table 31.1 Local Airfields

Airfield Name	Major Use / Capability	Location / Distance
Walterboro		

31.b. What other military facilities located in the vicinity are/could be used to support the air station's and tenants' mission?
NONE

Table 31.2 Other Military Facilities

Military Facility Name	Actual / Proposed Use	Distance

31.c. What civilian-owned facilities located in the vicinity are/could be used to support the air station's and tenants' mission?
NONE

Table 31.3 Civilian Facilities

Civilian Facility Name	Actual / Proposed Use	Distance

Location

Proximity to Major Transportation Nodes

32. List the major transportation facilities (both military and civilian) that play a significant logistics role and/or could play a role in any future operational deployment and mobilization plans.

Table 32.1 Transportation Nodes

Facility	Mobilization Role	Location
Port Royal Port Authority	Ship Loading/Off-loading	Port Royal, SC
Charleston Port Authority	Ship Loading/Off-loading	Charleston, SC
Savannah Port Authority	Ship Loading/Off-loading	Savannah, GA
Interstate 95 North/South	Major Road Access	25 miles from MCAS Beaufort
Port Royal Railroad Company	Rail Spur to MCAS Beaufort	Port Royal, SC
Charleston International Airport	Civilian Air Carrier Hub	Charleston, SC
Savannah International Airport	Civilian Air Carrier Hub	Savannah, GA
Hunter Army Air Field	Mil	Savannah, GA
US Highway 21	MCAS Access	Beaufort, SC

Features and Capabilities - Weather

33.a. What percentage of the time (on average, by month) does the local weather affect training operations and restrict airfield sortie rates? Use the following chart and add any further descriptions on how weather generally impacts airfield and training operations (recurring wind or fog conditions, etc.). Also fill out the chart for outlying fields if the information is available.

Table 33.1 Weather Information

Field Name: _____

Month	% of Hours[1] VMC	% of Hours IMC	% of Hours Below 200 ft Ceilings and 1/2 Mile Visibility	% of All Sorties Canceled[2] Due to Weather
Jan.	83.2	16.8	2.4	Less than 15%
Feb.	86.0	14.0	1.5	Less than 12%
Mar.	87.4	12.6	1.1	Less than 10%
Apr.	94.2	5.8	.3	Less than 10%
May	94.5	5.5	.3	Less than 10%
June	94.7	5.3	.3	Less than 10%
July	96.3	3.7	.2	Less than 10%
Aug.	93.8	6.2	.2	Less than 10%
Sept.	90.8	9.2	.4	Less than 10%
Oct.	91.6	8.4	.6	Less than 10%
Nov.	88.5	11.5	1.4	Less than 10%
Dec.	86.5	13.5	1.7	Less than 10%

[1]Percentage of total normal operating hours that specified weather conditions were observed (include list of normal operating hours used for this calculation).

[2]Only include lost sorties (do not include sorties delayed or rescheduled).

33.b. List the normal operating schedule used for the calculations on the previous table. Indicate if this schedule varies by month or season.

Table 33.2 Operating Hours

Day	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Operating Schedule	1200-2000	0700-2300	0700-2300	0700-2300	0700-2300	0700-1800	1000-1800

33.c. Do local weather conditions have a regular impact on maintenance schedules? If so, describe how the air station accommodates these conditions.

Local weather conditions rarely impact maintenance schedules.

33.d. Do the normal weather conditions at the most frequently used training areas pose a significant problem for scheduling training sorties? If so, are alternate training areas used? Does the use of alternate training facilities involve relocating aircraft and support personnel to other air stations during certain times of the year?

Normal weather conditions do not pose a significant problem for scheduling training sorties.

33.e. Does the local climate and geography provide unique training opportunities to the aircraft assigned to the air station (e.g., frequent opportunities for all-weather training)?

Local climate permits frequent opportunities for all-weather training.

Encroachment

34.a. Do current estimates of population growth and development or environmental constraints pose problems for existing or planned AICUZ restrictions (i.e., safety of flight, noise)? Attach a copy of any applicable sections of the air station AICUZ plan and note any recent modifications.

NO

34.b. Are there any known plans for a significant increase of commercial airline traffic in your area? If so, describe.

NO

35.a. Have there been any ATC delays (15 minutes or greater) between initial take-off request and actual take-off during the past three years as a result of civilian traffic? If so, please complete the following table.

No civilian traffic delays, minimal delays (15 minutes or less due to FAA Computer Systems)

Table 35.1 Delays

Fiscal Year	Average Delay (minutes)	Number of Delays	% of Total Flight Operations Scheduled
1991			
1992			
1993			

35.b. How many times during each of the past three years have any of your low level training routes been modified to accommodate development or population growth (noise complaints)?

NONE

Table 35.2 Required Changes

Fiscal Year	Number of changes
1991	
1992	

1993	

36.a. Is the existing AICUZ study encoded in local zoning ordinances?

Yes, however, the FY-94 AICUZ update includes a revised zoning ordnance and civilian land use plan the community intends to adopt.

36.b. Provide a description of local zoning ordinances and their impact on future encroachment, restricted flight hours and details of any litigation history.

The new FY-94 MCAS Beaufort AICUZ plan update, due 1 Aug 94 revises the proposed land use within the MCAS AICUZ/Airport overlay district increasing Beaufort County construction and land use regulations/restrictions that enhances the Air Station's military flight profiles and operations. The community is a good neighbor and have worked closely with the Air Station to prevent encroachment. Recent local acquisition of 357 acres in R/W APZ's decreased further encroachment potential. Only 30 noise complaints per 100,000 operations is indicative of low level of encroachment and high value of good community relations. The only major litigation in recent history 1973 war caused by Branning vs U. S. where Mr. Cloid Branning claimed A/C noise caused the failure of his Pleasant Point housing development. Mr. Branning won and U. S. Government got aviation easement over property.

36.c. Do current estimates of population growth and development or environmental constraints pose problems for existing or planned missions/other operations/or development.?

No. Beaufort County development is away from MCAS. There is no wastewater utility infrastructure in the vicinity of MCAS to support major development.

36.d. Provide a summary of the current and proposed land development plans for the area surrounding the air station (e.g. the local government's comprehensive land-use plan).

The county land use plan discourages growth in the vicinity of MCAS Beaufort.

36.e. Discuss briefly any ongoing litigation concerning environmental or airspace problems.

Although the Air Station is not currently a party to any ongoing litigation, the outcome of a recent lawsuit could have a direct impact on the Air Station. GSW Incorporated, a private waste management corporation, has applied for a permit to operate a municipal solid waste landfill (MSWLF) in Long County, Georgia. The proposed site for the MSWLF is directly beneath restricted airspace used for low level flight operations at Townsend Bombing Range (Range). GSW and Long county are currently involved in litigation involving the landfill.

On July 16, 1992, the Department of the Navy (Navy) completed the purchase of over

5000 acres of land needed for the operation of the Range. The Navy then assigned the facilities management responsibility for the Range to the Commanding Officer, Marine Corps Air Station Beaufort. The Range is operated, on a day-to-day basis, by the Georgia Air National Guard (Guard).

Over 5000 aircraft sorties are flown into the range each year. The annual usage of the Range is expected to increase by at least fifty percent in the mid 1990's.

The Navy opposes GSW's permit application for the MSWLF in Long County. This opposition is based on the grave threat to public safety in the air and on the ground. The likelihood of a bird/aircraft strike hazard will increase by the operation of a landfill at the proposed location. This enhanced danger is based on the manner in which large numbers of birds are attracted to landfills to scavenge for food and then over within the restricted airspace above the landfill site. The proposed landfill site is expected to severely encroach upon the Range's operations, thereby effecting the usefulness of the Air Station.

Major Robert G. Conway, Jr., U. S. Marine Corps, Associate Counsel, Land Use law, Office of the Counsel for the Commandant (Eastern Area Counsel Office), presented the Navy's memorandum in opposition to the landfill permit application and is currently tracking the permit process/litigation.

Features and Capabilities

Ability for Expansion

37. List the features of this air station that make it a candidate for basing other types of aircraft and other operational units in the future.

Air Station Feature	Benefit for Aircraft Squadrons
Overhead MOA	Airfield attack
Close Proximity to Training Areas	Easy access/exit
No Major Airways Overhead	No trouble with air carriers
Negligible Encroachment	Negligible noise complaints
Airfield	Can support all types of aircraft

38.a. Are there any assets in the vicinity of the air station that are currently not used because of a deficiency but could be improved or enhanced to increase the air station's capabilities?

Yes. Possibly abandoned airfield at Parris Island.

38.b. Does the operational infrastructure (i.e., parking apron, fuel and munitions storage, warehouse space, hangar space) meet current requirements and provide capabilities for future expansion or change in mission?

Yes. Facilities were planned for expansion.

39. Give the average level of SELRES drill participation for the past three years (i.e. percentage attending regular and make-up drills). These numbers should reflect the participation of the SELRES population reported in your Capacity Data Call.

	FY-1991	FY-1992	FY-1993
OFFICER	100%	100%	100%
ENLISTED	100%	100%	100%

40. Does the local area provide a skilled work force that is essential for air station operations? Are these skills unique to the area or readily duplicated or available elsewhere?

Quality of Life

41. Military Housing

a. Family Housing:

(1) Do you have mandatory assignment to on-base housing? (circle) yes no

(2) For military family housing in your locale provide the following information:

Type of Quarters	Number of Bedrooms	Total number of units	Number Adequate	Number Substandard	Number Inadequate
Officer	4+	52	52		
Officer	3	135	135		
Officer	1 or 2	15	15		
Enlisted	4+	137	137		
Enlisted	3	693	693		
Enlisted	1 or 2	244	244		
Mobile Homes					
Mobile Home lots		157	157		

(3) In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

Facility type/code:
What makes it inadequate?
What use is being made of the facility?
What is the cost to upgrade the facility to substandard?
What other use could be made of the facility and at what cost?
Current improvement plans and programmed funding:
Has this facility condition resulted in C3 or C4 designation on your BASEREP?

41.a.(4) Complete the following table for the military housing waiting list.

Pay Grade	Number of Bedrooms	Number on List[1]	Average Wait
O-6/7/8/9	1	NA	
	2	NA	
	3	0	NA
	4+	0	Designated Qtrs
O-4/5	1	NA	
	2	NA	
	3	11	3 MO
	4+	3	6-9 MO
O-1/2/3/CWO	1	NA	
	2	34	12 MO
	3	9	1-3 MO
	4+	1	9-12 MO
E6-E9	1	NA	
	2	14	6 MO
	3	22	1-3 MO
	4+	13	9-12 MO
E1-E6	1	NA	
	2	259	24 MO
	3	38	1-3 MO
	4+	8	1-3 MO

[1]As of 31 March 1994

41.a.(5)
What do you consider to be the top five factors driving the demand for base housing? Does it vary by grade category? If so provide details.

	Top Five Factors Driving the Demand for Base Housing
1	DoD School System
2	Security
3	Cost
4	Convenience to work
5	Comradery

(6) What percent of your family housing units have all the amenities required by "The Facility Planning & Design Guide" (Military Handbook 1190 & Military Handbook 1035-Family Housing)?

100%

(7) Provide the utilization rate for family housing for FY 1993.

Type of Quarters	Utilization Rate
Adequate	98.73
Substandard	NA
Inadequate	NA

(8) As of 31 March 1994, have you experienced much of a change since FY 1993? If so, why? If occupancy is under 98% (or vacancy over 2%), is there a reason?

No change

41.b. BEQ:

(1) Provide the utilization rate for BEQs for FY 1993.

Type of Quarters	Utilization Rate
Adequate	100%
Substandard	NA
Inadequate	63%

(2) As of 31 March 1994, have you experienced much of a change since FY 1993? If so, why? If occupancy is under 95% (or vacancy over 5%), is there a reason?

Yes, new BEQ housing 316 personnel came on line in Dec 93.

(3) Calculate the Average on Board (AOB) for geographic bachelors as follows:

AOB = (# Geographic Bachelors x average number of days in barracks)

. . . . . .

365 AOB = { 72 x 374 } 365 = 74

(4) Indicate in the following chart the percentage of geographic bachelors (GB) by category of reasons for family separation. Provide comments as necessary.

Reason for Separation from Family	Number of GB	Percent of GB	Comments
Family Commitments (children in school, financial, etc.)	72	100	
Spouse Employment (non-military)			
Other			
TOTAL		100	

(5) How many geographic bachelors do not live on base? **Two**

41.c. BOQ:

(1) Provide the utilization rate for BOQs for FY 1993.

Type of Quarters	Utilization Rate
Adequate	70%
Substandard	NA
Inadequate	NA

(2) As of 31 March 1994, have you experienced much of a change since FY 1993? If so, why? If occupancy is under 95% (or vacancy over 5%), is there a reason?

NO

(3) Calculate the Average on Board (AOB) for geographic bachelors as follows:

AOB = (# Geographic Bachelors x average number of days in barracks)

. . . . . .

365 AOB = { 32 X 266 } 365 = 23

(4) Indicate in the following chart the percentage of geographic bachelors (GB) by category of reasons for family separation. Provide comments as necessary.

Reason for Separation from Family	Number of GB	Percent of GB	Comments
Family Commitments (children in school, financial, etc.)	32	100	
Spouse Employment (non-military)			
Other			
TOTAL		100	

(5) How many geographic bachelors do not live on base? **NONE**

R

On Base MWR Facilities

42. For on-base MWR facilities[1] available, complete the following table for each separate location. For off-base government owned or leased recreation facilities indicate distance from base. If there are any facilities not listed, include them at the bottom of the table.

LOCATION_____ **DISTANCE**___
_____

Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Auto Hobby	Indoor Bays	4	N
	Outdoor Bays	N/A	N/A
Arts/Crafts	SF	N/A	N/A
Wood Hobby	SF	N/A	N/A
Bowling	Lanes	12	Y
Enlisted Club	SF	12436	*NOTE 1
Officer's Club	SF	15085	Y
SNCO Club	SF	12435	N
Library	Books	25000	N/A
Theater	Seats	701	*NOTE 1
ITT	SF	2832	N
Museum/Memorial	SF	N/A	N/A
Pool (indoor)	Lanes	N/A	N/A
Pool (outdoor)	Lanes	3	*NOTE 2
Beach	LF	N/A	N/A
Swimming Ponds	Each	N/A	N/A
Tennis CT	Each	4 * NOTE 2	N

[1] Spaces designated for a particular use. A single building might contain several facilities, each of which should be listed separately.

On Base MWR Facilities

42. For on-base MWR facilities[1] available, complete the following table for each separate location. For off-base government owned or leased recreation facilities indicate distance from base. If there are any facilities not listed, include them at the bottom of the table.

LOCATION _____ ..... **DISTANCE** _____

Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Auto Hobby	Indoor Bays	4	N
	Outdoor Bays	N/A	N/A
Arts/Crafts	SF	N/A	N/A
Wood Hobby	SF	N/A	N/A
Bowling	Lanes	12	Y
Enlisted Club	SF	12914	*NOTE 1
Officer's Club	SF	15579	Y
Library	SF	7208	N
Library	Books	21376	N/A
Theater	Seats	701	*NOTE 1
ITT	SF	2880	N
Museum/Memorial	SF	N/A	N/A
Pool (indoor)	Lanes	N/A	N/A
Pool (outdoor)	Lanes	3	*NOTE 2
Beach	LF	N/A	N/A
Swimming Ponds	Each	N/A	N/A
Tennis CT	Each	4 * NOTE 2	N

[1] Spaces designated for a particular use. A single building might contain several facilities, each of which should be listed separately.

R

*NOTE 1 - Enlisted Club has been closed. This facility will be converted into a fitness center to include boxing, martial arts, and wrestling. Theater is now closed but is scheduled for reopening.

*NOTE 2 - Tennis courts fall under MCAS Housing. Three swimming pools, only Air Station pool has lanes (6).

Facility	Unit of Measure	Total	Profitabl e (Y,N,N/A)
Volleyball CT (outdoor)	Each	N/A	N/A
Basketball CT (outdoor)	Each	N/A	N/A
Racquetball CT	Each	3	N/A
Golf Course	Holes	N/A	N/A
Driving Range	Tee Boxes	13	N
Gymnasium	SF	24130	N/A
Fitness Center	SF	3658	N/A
Marina	Berths	N/A	N/A
Stables	Stalls	13	*NOTE 3
Softball Fld	Each	6 * NOTE 3	N/A
Football Fld	Each	1	N/A
Soccer Fld	Each	1 * NOTE 3	N/A
Youth Center	SF	2000	N

***NOTE 3 - Of all six softball fields, two fall under MWR and the other 4 fall under MCAS Housing. The one soccer field falls under MCAS Housing. Stables, skeet/hunting clubs are private organizations.**

***NOTE 1 - Enlisted Club has been closed. This facility will be converted into a fitness center to include boxing, martial arts, and wrestling. Theater is now closed but is scheduled for reopening.**

***NOTE 2 - Tennis courts fall under MCAS Housing. Three swimming pools, only Air Station pool has lanes (6).**

Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Volleyball CT (outdoor)	Each	N/A	N/A
Basketball CT (outdoor)	Each	N/A	N/A
Racquetball CT	Each	3	N/A
Golf Course	Holes	N/A	N/A
Driving Range	Tee Boxes	13	N
Gymnasium	SF	9011	N/A
Fitness Center	SF	2646	N/A
Marina	Berths	N/A	N/A
Stables	Stalls	13	*NOTE 3
Softball Fld	Each	6 * NOTE 3	N/A
Football Fld	Each	1	N/A
Soccer Fld	Each	1 * NOTE 3	N/A
Youth Center	SF	3141	N

***NOTE 3 - Of all six softball fields, two fall under MWR and the other 4 fall under MCAS Housing. The one soccer field falls under MCAS Housing. Stables, skeet/hunting clubs are private organizations.**

43. Is your library part of a regional interlibrary loan program?

YES

44. Base Family Support Facilities and Programs

a. Complete the following table on the availability of child care in a child care center on your base.

Age Category	Capacity (Children)	SF			Number on Wait List	Average Wait (Days)
		Adequate	Substandard	Inadequate		
0-6 Mos	4		X		23	73.5 (SEE NOTE #10
6-12 Mos	8	X			6	85
12-24 Mos	25	X			17	85
24-36 Mos	21	X			13	72
3-5 Yrs	126 (SEE NOTE #2)	X			13	53

NOTE #1 - Infants (0 to 6 months) are put on the waiting list prior to their birth.
NOTE #2 - Figure represents both full time and part time patrons attending CDC programs.

b. In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means." For all the categories above where inadequate facilities are identified provide the following information:

Facility type/code:
What makes it inadequate?
What use is being made of the facility?
What is the cost to upgrade the facility to substandard?
What other use could be made of the facility and at what cost?
Current improvement plans and programmed funding:
Has this facility condition resulted in C3 or C4 designation on your BASEREP?

c. If you have a waiting list, describe what programs or facilities other than those sponsored by your command are available to accommodate those on the list.

Certified Family Child Care home providers.

R

d. How many "certified home care providers" are registered at your base?
14 certified and 9 are pending

e. Are there other military child care facilities within 30 minutes of the base? State owner and capacity (i.e., 60 children, 0-5 yrs).
Yes, Parris Island - 77 children, 0-5 years.

45. Complete the following table for services available on your base. If you have any services not listed, include them at the bottom.

Service	Unit of Measure	Qty
Exchange	SF	11022
Gas Station	SF	2859
Auto Repair	SF	N/A
Auto Parts Store	SF	N/A
Commissary	SF	N/A *NOTE 1
Mini-Mart	SF	10000
Package Store	SF	N/A *NOTE 2
Fast Food Restaurants	Each	2
Bank/Credit Union	Each	2
Family Service Center	5040 SF	25
Laundromat	SF	N/A
Dry Cleaners	Each	2
ARC	PN	1
Chapel	PN	150
FSC Classrm/Auditorium	PN	1
Cafeteria	SF	5178

***NOTE 1 - There is a commissary located at MCRD Parris Island.**
***NOTE 2 - Included in Exchange and 7-Day Store.**

d. How many "certified home care providers" are registered at your base?

14 certified and 9 are pending

e. Are there other military child care facilities within 30 minutes of the base? State owner and capacity (i.e., 60 children, 0-5 yrs).

Yes, Parris Island - 77 children, 0-5 years.

45. Complete the following table for services available on your base. If you have any services not listed, include them at the bottom.

Service	Unit of Measure	Qty
Exchange	SF	5736
Gas Station	SF	560
Auto Repair	SF	N/A
Auto Parts Store	SF	N/A
Commissary	SF	N/A
Mini-Mart	SF	10000
Package Store	SF	N/A
Fast Food Restaurants	Each	2
Bank/Credit Union	Each	2
Family Service Center	SF	1
Laundromat	SF	N/A
Dry Cleaners	Each	2
ARC	PN	1
Chapel	PN	1
FSC Classrm/Auditorium	PN	1

46. Proximity of closest major metropolitan areas (provide at least three):

City	Distance (Miles)
Savannah, GA	47
Hilton Head, SC	58
Charleston, SC	70

47. Standard Rate VHA Data for Cost of Living

Paygrade	With Dependents	Without Dependents
E1	$86.48	$48.39
E2	86.48	54.39
E3	82.62	60.87
E4	81.99	57.22
E5	85.43	59.65
E6	81.43	55.43
E7	79.90	55.50
E8	69.05	52.20
E9	71.97	54.63
W1	102.55	77.88
W2	50.15	39.34
W3	80.78	65.67
W4	56.88	50.43
O1E	84.52	62.70
O2E	62.80	50.07
O3E	60.64	51.30

O1	78.83	58.09
O2	67.85	53.03
O3	47.30	39.82
O4	37.75	32.83
O5	35.19	29.10
O6	5.93	4.91
O7	0.00	0.00

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48.a. Off-base housing rental and purchase

a. Fill in the following table for average rental costs in the area for the period 1 April 1993 through 31 March 1994.

Type Rental	Average Monthly Rent		Average Monthly Utilities Cost
	Annual High	Annual Low	
Efficiency	421	223	50
Apartment (1-2 Bedroom)	517	375	100
Apartment (3+ Bedroom)	554	450	120
Single Family Home (3 Bedroom)	700	450	180
Single Family Home (4+ Bedroom)	875	570	225
Town House (2 Bedroom)	517	375	140
Town House (3+ Bedroom)	554	450	150
Condominium (2 Bedroom)	644	510	160
Condominium (3+ Bedroom)	863	706	165

48.a. Off-base housing rental and purchase

a. Fill in the following table for average rental costs in the area for the period 1 April 1993 through 31 March 1994.

Type Rental	Average Monthly Rent		Average Monthly Utilities Cost
	Annual High	Annual Low	
Efficiency	295	175	50
Apartment (1-2 Bedroom)	530	250	100
Apartment (3+ Bedroom)	585	475	120
Single Family Home (3 Bedroom)	1000	400	180
Single Family Home (4+ Bedroom)	1200	450	225
Town House (2 Bedroom)	550	475	140
Town House (3+ Bedroom)	635	474	150
Condominium (2 Bedroom)	800	450	160
Condominium (3+ Bedroom)	850	540	165

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48.b. What was the rental occupancy rate in the community as of 31 March 1994?

Type Rental	Percent Occupancy Rate
Efficiency	98%
Apartment (1-2 Bedroom)	97%
Apartment (3+ Bedroom)	97%
Single Family Home (3 Bedroom)	95%
Single Family Home (4+ Bedroom)	80%
Town House (2 Bedroom)	97%
Town House (3+ Bedroom)	97%
Condominium (2 Bedroom)	97%
Condominium (3+ Bedroom)	97%

48.c. What are the median costs for homes in the area?

Type of Home	Median Cost
Single Family Home (3 Bedroom)	$75,000
Single Family Home (4+ Bedroom)	$175,000
Town House (2 Bedroom)	$70,000
Town House (3+ Bedroom)	$110,000
Condominium (2 Bedroom)	$70,000
Condominium (3+ Bedroom)	$79,900

48.b. What was the rental occupancy rate in the community as of 31 March 1994?

Type Rental	Percent Occupancy Rate
Efficiency	98%
Apartment (1-2 Bedroom)	97%
Apartment (3+ Bedroom)	97%
Single Family Home (3 Bedroom)	94%
Single Family Home (4+ Bedroom)	99%
Town House (2 Bedroom)	99%
Town House (3+ Bedroom)	99%
Condominium (2 Bedroom)	98%
Condominium (3+ Bedroom)	98%

48.c. What are the median costs for homes in the area?

Type of Home	Median Cost
Single Family Home (3 Bedroom)	$75,000
Single Family Home (4+ Bedroom)	$100,000
Town House (2 Bedroom)	$56,000
Town House (3+ Bedroom)	$60,000
Condominium (2 Bedroom)	$85,000
Condominium (3+ Bedroom)	$89,900

48.d. For calendar year 1993, from the local MLS listings provide the number of 2, 3, and 4 bedroom homes available for purchase. Use only homes for which monthly payments would be within 90 to 110 percent of the E5 BAQ and VHA for your area.

Month	Number of Bedrooms		
	2	3	4+
January	32	63	3
February	34	51	3
March	30	44	4
April	36	57	3
May	38	59	3
June	30	60	5
July	17	61	5
August	31	76	3
September	34	73	5
October	26	60	5
November	26	55	4
December	24	52	7

(e) Describe the principle housing cost drivers in your local area.

Resort area on Atlantic Intercoastal Waterway

49. For the top five sea intensive ratings in the principle warfare community your base supports, provide the following:

Rating	Number Sea Billets in the Local Area	Number of Shore billets in the Local Area

50. Complete the following table for the average one-way commute for the five largest concentrations of military and civilian personnel living off-base.

Location	% Employees	Distance (mi)	Time(min)
Beaufort	98.5	10	15
Charleston, SC	.5	58	70
Hilton Head	.5	40	50
Savannah, GA	.5	47	60

51. Complete the tables below to indicate the civilian educational opportunities available to service members stationed at the air station (to include any outlying fields) and their dependents:

51.a. List the local educational institutions which offer programs available to dependent children. Indicate the school type (e.g. DODDS, private, public, parochial, etc.), grade level (e.g. pre-school, primary, secondary, etc.), what students with special needs the institution is equipped to handle, cost of enrollment, and for high schools only, the average SAT score of the class that graduated in 1993, and the number of students in that class who enrolled in college in the fall of 1994.

Institution	Type	Grade Level(s)	Special Education Available	Annual Enroll-ment Cost per Student	1993 Avg SAT/ ACT Score	% HS Grad to Higher Educ	Source of Info
BATTERY CREEK HIGH SCHOOL	PUB	9-12	FULL SVC	NA	790	91/46%	BFT CO SCHOO L
BEAUFORT HIGH SCHOOL	PUB	9-12	FULL SVC	NA	824	122/ 57%	DIST ATTEN COOR D
HILTON HEAD HIGH SCHOOL	PUB	9-12	FULL SVC	NA	896	116/ 70%	KATH Y BROW
MCCRAKEN MIDDLE	PUB	6-8	FULL SVC	NA	NA	NA	NA
LADY'S ISL MIDDLE	PUB	6-8	FULL SVC	NA	NA	NA	NA
ROBERT SMALLS MIDDLE	PUB	6-8	FULL SVC	NA	NA	NA	NA
SHELL POINT ELEMENTARY	PUB	PK-3	FULL SVC	NA	NA	NA	NA
BEAUFORT ELEMENTARY	PUB	PK-5	FULL SVC	NA	NA	NA	NA
DAVIS ELEMENTARY	PUB	PK-5	FULL SVC	NA	NA	NA	NA

FIELDS ELEMENTARY	PUB	PK-5	FULL SVC	NA	NA	NA	NA
LADY'S ISL ELEMENTARY	PUB	PK-5	FULL SVC	NA	NA	NA	NA
RILEY ELEMENTARY	PUB	PK-5	FULL SVC	NA	NA	NA	NA
ST. HELENA ELEMENTARY	PUB	PK-5	FULL SVC	NA	NA	NA	NA
HILTON HEAD ELEMENTARY	PUB	K-5	FULL SVC	NA	NA	NA	NA
PORT ROYAL ELEMENTARY	PUB	1-5	FULL SVC	NA	NA	NA	NA
HILTON HEAD PRIMARY	PUB	3-5	FULL SVC	NA	NA	NA	NA
BROADRIVER ELEMENTARY	PUB	3-5	FULL SVC	NA	NA	NA	NA
LAUREL BAY SCHOOLS	DOD DS	PRE-6	FULL SVC	NA	NA	NA	DR. FLANA GAN SUPER INTEN DENT
AGAPE	PRI V	K-12	NONE	$600.00	900	7/90%	MRS. HAGE PRINCI
ATLANTIC SHORES CHRISTIAN ACADEMY	PRI V	K-12	NONE	$1200.00	TEST LAT ER	3/75%	MRS. FILLM ORE SECRE
BEAUFORT ACADEMY	PRI V	9-12 6-8 1-5 K	LIMITED LIMITED LIMITED LIMITED	$3500.00 $3250.00 $3025.00 $2600.00	973 NA NA NA	29/100 NA NA NA	MR. GRIFFI BUSIN OFF

BEAUFORT CHRISTIAN	PRIV	K-12	NONE	$1200.00	NA	0/0	MR. RICE PASTOR
CALVARY CHRISTIAN	PRIV	K-12	NONE	$900.00	TEST LATER	2/50%	MR. CAPDEPON PRINCIPAL
COMMUNITY BIBLE ACADEMY	PRIV	K-12	FULL SVC	$500.00	1400	2/100%	DR. BROGGI HEAD MASTER
ELENANOR CHRISTENSEN MONTESSORI	PRIV	K-6	LIMITED	$2400.00	NA	NA	MRS. TODESCO OFFIC MGR
HILTON HEAD CHRISTIAN	PRIV	1-2 K	LIMITED LIMITED	$3585.00 $2885.00	1000 NA	7/78% NA	MRS. CHANEY BOOK KEEPER
HILTON HEAD PREPARATORY	PRIV	1-12	LIMITED	$7200.00 (SEE NOTE #1)	1200	27/100	MRS. STUPINSKY ATTENDANCE MGR
HONEYTREE	PRIV	PRE-K	FULL SVC	$3380.00	NA	NA	MRS. CONNORS ASST DIR

LITTLE PEOPLE COLLEGE	PRI V	K-5	NONE	$2645.00	NA	NA	MRS. ABNER TEACH
PRAISE CHRISTIAN	PRI V	1-8 K	NONE NONE	$1300.00 $750.00	NA NA	NA NA	MRS. PERRY SCHOO SEC
SEA PINES MONTESSORI	PRI V	PRE-K	LIMITED	$2500.00	NA	NA	MRS. KELLY OFF MGR
ST PETERS CATHOLIC SCHOOL	PRI V	K-5	NONE	$1600.00 (SEE NOTE #2)	NA	NA	SISTER HATTO N PRINC
YORUBA ACADEMY	PRI V	K-12	NONE	NONE	SEE NOT E #3	2/100%	SEE NOTE #4

NOTE #1 - ENROLLMENT STARTS AT $6100.00, INCREASES BY $100.00 PER GRADE.
NOTE #2 - $1800.00 FOR NON-PARISHIONERS
NOTE #3 - STUDENTS ARE NOT REQUIRED TO BE ADMINISTERED THE SAT/ACT
NOTE #4 - ODUNDONDA ADORANOB

51.b. List the educational institutions within 30 miles which offer programs off-base available to service members and their adult dependents. Indicate the extent of their programs by placing a "Yes" or "No" in all boxes as applies.

Institution	Type Classes	Program Type(s)				
		Adult High School	Vocational/ Technical	Undergraduate		Graduate
				Courses only	Degree Program	
Battery Creek High School	Day	YES	NO	NO	NO	NO
	Night	YES	NO	NO	NO	NO
Technical College of the Lowcountry	Day	NO	YES	YES	YES	NO
	Night	NO	YES	YES	YES	NO
University of South Carolina Beaufort	Day	NO	YES	YES	YES	YES
	Night	NO	YES	YES	YES	YES
	Day					
	Night					

51.c. List the educational institutions which offer programs on-base available to service members and their adult dependents. Indicate the extent of their programs by placing a "Yes" or "No" in all boxes as applies.

Institution	Type Classes	Program Type(s)				
		Adult High School	Vocational/ Technical	Undergraduate		Graduate
				Courses only	Degree Program	
Park College	Day NO	NO	NO	NO	NO	NO
	Night YES	NO	NO	YES	YES	NO
	Corres-pondence NO	NO	NO	YES	YES	NO
University of South Carolina Beaufort	Day YES	NO	NO	YES	YES	NO
	Night YES	NO	NO	YES	YES	NO
	Corres-pondence YES	NO	NO	YES	NO	NO
Webster University	Day NO	NO	NO	NO	NO	NO
	Night YES	NO	NO	NO	NO	YES
	Corres-pondence NO	NO	NO	NO	NO	NO
Technical College of the Lowcountry	Day YES	NO	NO	YES	YES	NO
	Night YES	NO	NO	YES	YES	NO
	Corres-pondence NO	NO	NO	NO	NO	NO

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52. Spousal Employment Opportunities

Provide the following data on spousal employment opportunities.

Skill Level	Number of Military Spouses Serviced by Family Service Center Spouse Employment Assistance			Local Community Unemployment Rate
	1991	1992	1993	
Professional	10	8	40	See NOTE (a)
Manufacturing	4	2	4	
Clerical	57	42	107	
Service	72	52	115	
Other	0	0	0	

NOTE #a - Per the South Carolina Employment Commission's Labor Statistics Office, Columbia, SC:

1. Local community unemployment rate information is not available in the requested skill levels. The average unemployment rate information is not available in the requested skill levels. The average over all unemployment rate for Beaufort County is as follows:

	1991	1992	1993	1994 (Jan-Mar 94)
a.	4.5%	4.6%	5.5%	5.6%

b. Points of contact:

Robert Johnson, CWO4/USMC (Ret), Veterans Representative, (803) 524-3351 South Carolina Employment Security, 914 Boundary Street, Beaufort, SC 29901

Carolyn Sanders, (803) 737-3118, Labor Market Analyst, Labor Management Division, South Carolina Employment Security, P. O. Box 995 Columbia, SC 29202

Brenda Lisbon, Supervisory Labor Market Analyst, David Laird, Division Director, Labor Market Division
In response to BSAT statement that revised data was unsupported, the data on pages 65a. and 65b. was provided.

53. Do your active duty personnel have any difficulty with access to medical or dental care, in either the military or civilian health care system? Develop the why of your response.

DENTAL - No, military personnel have outstanding access to dental care. Marine

52. Spousal Employment Opportunities

Provide the following data on spousal employment opportunities.

Skill Level	Number of Military Spouses Serviced by Family Service Center Spouse Employment Assistance			Local Community Unemployment Rate
	1991	1992	1993	
Professional	10	6	5	See NOTE #1 and #2
Manufacturing	3	2	1	
Clerical	12	9	13	
Service	27	21	15	
Other	0	0	0	

NOTE #1 - Per the South Carolina Employment Commission's Labor Statistics Office, Columbia, SC:

1. Local community unemployment rate information is not available in the requested skill levels. The average unemployment rate information is not available in the requested skill levels. The average over all unemployment rate for Beaufort County is as follows:

1991	1992	1993	1994 (Jan-Mar 94)
4.5%	4.6%	5.5%	5.6%

2. Points of contact:

Robert Johnson, CWO4/USMC (Ret), Veterans Representative, (803) 524-3351 South Carolina Employment Security, 914 Boundary Street, Beaufort, SC 29901

Carolyn Sanders, (803) 737-3118, Labor Market Analyst, Labor Management Division, South Carolina Employment Security, P. O. Box 995 Columbia, SC 29202

Brenda Lisbon, Supervisory Labor Market Analyst, David Laird, Division Director, Labor Market Division

NOTE #3 - The above data represents military spouses who received in-depth employment assistance by CRMC staff members. Numerous individual requests for local labor market information (i.e. phone and walk-ins) are not included.

53. Do your active duty personnel have any difficulty with access to medical or dental care, in either the military or civilian health care system? Develop the why of your response.

DENTAL - No, military personnel have outstanding access to dental care. Marine

R

1700
FSC
21 Jun 94

MEMORANDUM

From: Career Resource Program Manager, FSC, MCAS Beaufort
To: S-1 Officer
Via: Director, Family Service Center

Subj: RESPONSE TO BRAC DATA CALL 52-38-94

Encl: Revision of the subject data call 52-38-94

1. The response to question 52 for the number of military spouses serviced by the Family Service Center Spouse Employment Assistance has been revised. The new data summarizes all spouses who received direct assistance of any type. Our original response showed spouses who had advised the CRMC that they had located employment.

2. The column requesting the local community unemployment rate for the five listed skill levels is not available. Note (a) summarizes the South Carolina Employment Commission Officers that were contacted in an effort to gather the requested information.

C. W. HAWKINS

ENCLOSURE (8)

(Revised Response)

52. Spousal Employment Opportunities

Provide the following data on spousal employment opportunities.

Skill Level	Number of Military Spouses Serviced by Family Service Center Spouse Employment Assistance			Local Community Unemployment Rate
	1991	1992	1993	
Professional	10	8	40	Note: (a)
Manufacturing	4	2	4	
Clerical	57	42	107	
Service	72	52	115	
Other	0	0	0	

Note: (a) Per the South Carolina Employment Commission's Labor Statistics Office, Columbia, SC

1. Local community unemployment rate information is not available in the requested skill levels. The average over all unemployment rate for Beaufort County is as follows:

1991	1992	1993	1994 (Jan-Mar 94)
4.5%	4.6%	5.5%	5.6%

2. Points of contact:
Robert Johnson, CWO4/USMC(RET), Veterans Representative, (803) 524-3351
South Carolina Employment Security, 914 Boundary Street, Beaufort, S.C. 29901

Carolyn Sanders, (803) 737-3118, Labor Market Analyst, Labor Management Division
South Carolina Employment Security, P.O. Box 995 Columbia, S.C. 29202

Brenda Lisbon, Supervisory Labor Market Analyst , David Laird,
Division Director, Labor Market Division, South Carolina Employment Security

ENCLOSURE (8)

Corps Air Station, Beaufort is a Branch Dental Clinic of Naval Dental Center (NDC), Parris Island, SC. This branch clinic provides all routine and most specialty dental care for MCAS active duty personnel. Only limited referrals for specialty treatment are required to go to MCRD, Branch Clinic or to the dental service to the Naval Hospital, Beaufort, both located approximately eight (8) miles away.

MEDICAL - Due to its small size (49 beds), Naval Hospital, Beaufort is limited in some specialties which may require referral to other regional Military Treatment Facilities (MTFs) or civilian sources. With this exception, there are no other difficulties with access to medical care.

54. Do your military dependents have any difficulty with access to medical or dental care, in either the military or civilian health care system? Develop the why of your response.

DENTAL - No, there are sufficient number and specialty mix of civilian dentists in the immediate area. The Dependents Dental Plan (DDP) is available to al eligible active duty dependents. Additionally, emergency treatment is available seven days a week, and services not covered by the DDP are provided on a space-available basis as authorized at the Naval Dental Center. For dependent personnel not enrolled in the DDP, the orthodontist and pediatric dentists assigned to the MCAS Branch Dental Clinic also provide space available service.

MEDICAL - As stated before, Naval Hospital, Beaufort is limited in some specialties which may require referral to other regional MTFs or disengagement to civilian sources. In the Beaufort area, most specialties are available from civilian sources, but, due to the small physician population, the majority of the physicians don't accept CHAMPUS on an outpatient basis. Because of the larger physician population in Savannah and Charleston area, access to various specialties are more readily available and competition among physicians is greater, resulting in increased CHAMPUS acceptance.

55. Complete the table below to indicate the crime rate for your air station for the last three fiscal years. The source for case category definitions to be used in responding to this question are found in NCIS - Manual dated 23 February 1989, at Appendix A, entitled "Case Category Definitions." Note: the crimes reported in this table should include 1) all reported criminal activity which occurred on base regardless of whether the subject or the victim of that activity was assigned to or worked at the base; and 2) all reported criminal activity off base.

Crime Definitions	FY 1991	FY 1992	FY 1993
1. Arson (6A)	1	2	0

Base Personnel - military	0	2	0
Base Personnel - civilian	1	0	0
Off Base Personnel - military	SEE NOTE 1	SEE NOTE 1	SEE NOTE 1
Off Base Personnel - civilian	SEE NOTE 1	SEE NOTE 1	SEE NOTE 1
2. Blackmarket (6C)	0	0	0
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
3. Counterfeiting (6G)	0	1	1
Base Personnel - military	0	1	0
Base Personnel - civilian	0	0	1
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
4. Postal (6L)	4	4	3
Base Personnel - military	2	2	1
Base Personnel - civilian	2	2	2
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0

Crime Definitions	FY 1991	FY 1992	FY 1993
5. Customs (6M)	0	0	0
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	0

Off Base Personnel - civilian	0	0	0
6. Burglary (6N)	243	438	407
Base Personnel - military	5	14	5
Base Personnel - civilian	0	2	15
Off Base Personnel - military	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2
Off Base Personnel - civilian	238	422	387
7. Larceny - Ordnance (6R)	852 (NOTE 3)	871 (NOTE 3)	1048 (NOTE 3)
Base Personnel - military	1	2	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	SEE NOTES 2 & 3	SEE NOTES 2 & 3	SEE NOTES 2 & 3
Off Base Personnel - civilian	851	869	1048
8. Larceny - Government (6S)	28	17	20
Base Personnel - military	21	17	5
Base Personnel - civilian	7	0	15
Off Base Personnel - military	SEE NOTE 3	SEE NOTE 3	SEE NOTE 3
Off Base Personnel - civilian	SEE NOTE 3	SEE NOTE 3	SEE NOTE 3

Crime Definitions	FY 1991	FY 1992	FY 1993
9. Larceny - Personal (6T)	91	95	102
Base Personnel - military	87	91	96
Base Personnel - civilian	4	4	6
Off Base Personnel - military	SEE NOTE 3	SEE NOTE 3	SEE NOTE 3
Off Base Personnel - civilian	SEE NOTE 3	SEE NOTE 3	SEE NOTE 3
10. Wrongful Destruction (6U)	384	620	504
Base Personnel - military	110	111	90
Base Personnel - civilian	12	3	9
Off Base Personnel - military	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2
Off Base Personnel - civilian	262	506	405
11. Larceny - Vehicle (6V)	55	97	101
Base Personnel - military	2	2	1
Base Personnel - civilian	1	0	2
Off Base Personnel - military	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2
Off Base Personnel - civilian	52	95	98
12. Bomb Threat (7B)	8	22	7
Base Personnel - military	SEE NOTE 4	SEE NOTE 4	SEE NOTE 4
Base Personnel - civilian	1	11	2
Off Base Personnel - military	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2
Off Base Personnel - civilian	7	11	5

Crime Definitions	FY 1991	FY 1992	FY 1993
13. Extortion (7E)	0	0	0
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	SEE NOTE 5	SEE NOTE 5	SEE NOTE 5
Off Base Personnel - civilian	0	0	0
14. Assault (7G)	437	462	435
Base Personnel - military	7	3	10
Base Personnel - civilian	13	21	19
Off Base Personnel - military	SEE NOTE 2	SEE NOTE 2	SEE NOTE 3
Off Base Personnel - civilian	417	438	406
15. Death (7H)	11	10	17
Base Personnel - military	0	1	1
Base Personnel - civilian	0	1	2
Off Base Personnel - military	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2
Off Base Personnel - civilian	11	8	14
16. Kidnapping (7K)	2	3	4
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	1
Off Base Personnel - military	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2
Off Base Personnel - civilian	2	3	3

Crime Definitions	FY 1991	FY 1992	FY 1993
18. Narcotics (7N)	6	175	121
Base Personnel - military	3	5	0
Base Personnel - civilian	3	1	2
Off Base Personnel - military	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2
Off Base Personnel - civilian	UNKNOWN SEE NOTE 6	169	119
19. Perjury (7P)	0	4	1
Base Personnel - military	0	2	1
Base Personnel - civilian	0	2	0
Off Base Personnel - military	SEE NOTE 5	SEE NOTE 5	SEE NOTE 5
Off Base Personnel - civilian	SEE NOTE 5	SEE NOTE 5	SEE NOTE 5
20. Robbery (7R)	21	25	32
Base Personnel - military	0	0	1
Base Personnel - civilian	0	0	0
Off Base Personnel - military	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2
Off Base Personnel - civilian	21	25	31
21. Traffic Accident (7T)	797	981	1239
Base Personnel - military	66	82	60
Base Personnel - civilian	5	15	19
Off Base Personnel - military	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2
Off Base Personnel - civilian	726	884	1160

Crime Definitions	FY 1991	FY 1992	FY 1993
22. Sex Abuse - Child (8B)	3	5	8
Base Personnel - military	2	3	4
Base Personnel - civilian	1	2	4
Off Base Personnel - military	SEE NOTE 5	SEE NOTE 5	SEE NOTE 5
Off Base Personnel - civilian	SEE NOTE 5	SEE NOTE 5	SEE NOTE 5
23. Indecent Assault (8D)	6	15	16
Base Personnel - military	1	5	5
Base Personnel - civilian	0	1	0
Off Base Personnel - military	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2
Off Base Personnel - civilian	5	9	11
24. Rape (8F)	8	14	18
Base Personnel - military	1	1	3
Base Personnel - civilian	0	0	0
Off Base Personnel - military	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2
Off Base Personnel - civilian	7	13	15
25. Sodomy (8G)	1	4	1
Base Personnel - military	1	4	1
Base Personnel - civilian	0	0	0
Off Base Personnel - military	SEE NOTE 5	SEE NOTE 5	SEE NOTE 5
Off Base Personnel - civilian	SEE NOTE 5	SEE NOTE 5	SEE NOTE 5

NOTE 1 - Beaufort City Police Department compiled the information from dispatched call logs. There is no distinction between and "Arson" call and a "Fire" call (which may not be the result of arson).

NOTE 2 - Beaufort City Police Department makes no distinction between military or civilian personnel on reports. The number reflects total calls for that type of incident.

NOTE 3 - Beaufort City Police Department does note differentiate larcenies between "Ordnance (6R), Government (6S), or Postal (6T)." The number shown in block #7 reflects all types of larcenies except "Vehicle (6V)."

NOTE 4 - Reflects number of incidents. The calls were traced to off base phone booths, however, a perpetrator was never identified.

NOTE 5 - Beaufort City Police Department has no dispatched call code for type of incident.

NOTE 6 - Beaufort City Police Department has no record for this type incident for FY 1991.

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

R. D. STEARNS
NAME (Please type or print)

Signature RDStearns

COMMANDING OFFICER
Title

Date 2 Aug 94

MCAS BEAUFORT
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief. (MCAS Beaufort Amendments to BRAC '95 Data Calls 1, 16, 33 and 38 dated 3 Aug 1994)

NEXT ECHELON LEVEL (if applicable)

F. MCCORKLE
NAME (Please type or print)

F McCorkle
Signature

Commanding General
Title

09 AUG 1994
Date

Marine Corps Air Bases East
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J.A. BRABHAM
LIEUTENANT GENERAL U.S. MARINE CORPS
DEPUTY CHIEF OF STAFF FOR
INSTALLATIONS AND LOGISTICS
NAME (Please type or print)

Signature

Title

10/14/94
Date

MCAS BEAUFORT DATA CALL 38 PAGE CHANGES

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief. (BRAC '95 BSAT Data Call Amplification)

NEXT ECHELON LEVEL (if applicable)

F. MCCORKLE
NAME (Please type or print)

FMccorkle
Signature

Commanding General
Title

19 Oct 94
Date

Marine Corps Air Bases East
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

R. K. RIGGS
NAME (Please type or print)

R. K. Riggs
Signature

Acting Deputy Chief of Staff
for Installations and Logistics
Title

9 Nov 1994
Date

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

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ACTIVITY COMMANDER

R. D. STEARNS
NAME (Please type or print)

Signature R D Stearns

COMMANDING OFFICER
Title

Date 13 Oct 94

MCAS BEAUFORT
Activity

ENCLOSURE (1)

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DATA CALL: 38

ACTIVITY: MCAS Beaufort

PAGE (S): 13, 24

BSWG REVIEW OFFICIAL

G.W. MOORE MAJOR
NAME (Please type or print)

GWMoore
Signature

LONG RANGE LAND USE PLANNER
Title

5 NOV 94
Date

DATA CALL 38 PAGE CHANGES MCAS BEAUFORT

R

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type of print

Signature

Title

Date

Activity

In certify that the information herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge belief.

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DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J.A. BRABHAM
LIEUTENANT GENERAL U.S. MARINE CORPS
DEPUTY CHIEF OF STAFF FOR
INSTALLATIONS AND LOGISTICS

NAME (Please type of print

Signature

Title

Date 12/1/94

R

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DATA CALL: DATA CALL 38

ACTIVITY: MCAS BEAUFORT

PAGE (S): 7, 7a thru n, 24, 25, 47, 48, 51, 65, 65a, 65b

BSWG REVIEW OFFICIAL

G. W. MOORE, MAJOR
NAME (Please type or print)

LONG RANGE LAND USE PLANNER
Title

BASED ON ACTIVITY DATA PROVIDED & CERTIFIED BY CO MCAS BEAUFORT & COMCABEAST

GWMoore
Signature

1 DEC 94
Date

MCAS BEAUFORT DATA CALL 16 PAGE CHANGES

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief. (BRAC '95 BSAT Data Call Amplification)

NEXT ECHELON LEVEL (if applicable)

F. MCCORKLE
NAME (Please type or print)

FMCCORKLE
Signature

Commanding General
Title

19 Oct 94
Date

Marine Corps Air Bases East
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title

Date

Activity

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DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

R. K. RIGGS
NAME (Please type or print)

R. K. Riggs
Signature

Acting Deputy Chief of Staff
for Installations and Logistics
Title

9 Nov 1994
Date

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I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

R. D. STEARNS
NAME (Please type or print)

Signature R D Stearns

COMMANDING OFFICER
Title

Date 13 Oct 94

MCAS BEAUFORT
Activity

ENCLOSURE (1)

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DATA CALL: 16

ACTIVITY: MCAS Beaufort

PAGE (S): 22, 23, 24, 24a, 26, 26a, 42, 42a

BSWG REVIEW OFFICIAL

G.W. MOORE, MAJOR
NAME (Please type or print)

LONG RANGE LAND USE PLANNER
Title

GW Moore
Signature

5 NOV 94
Date

R

DATA CALL 16 PAGE CHANGES MCAS BEAUFORT

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type of print

Signature

Title

Date

Activity

In certify that the information herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J.A. BRABHAM
LIEUTENANT GENERAL, U.S. MARINE CORPS
DEPUTY CHIEF OF STAFF FOR
INSTALLATIONS AND LOGISTICS

NAME (Please type of print

Signature

Title

12/1/92

Date

CAPACITY ANALYSIS:
DATA CALL WORK SHEET FOR
OPERATIONAL/RESERVE AIR STATION/FACILITY:

_____

Category.....Shore Support of Operating Forces
Sub-category....Operational Air Stations and Reserve Air Stations
Types.....Navy and Marine Corps Operational and Reserve Air Stations and Facilities

******If any responses are classified, attach separate classified annex.*******

General Notes:
1. Highly recommend coordination of environmental inputs with Regional Environmental Coordinators.
2. For any airspace issues, coordinate with area airspace coordinator.
3. Recommend read-through of entire data call before answering individual questions.
4. Items which are Not Applicable should be noted as such.
5. For any projection provided in the data call response, explain how the projection was calculated (i.e., what changed and how you quantified it).
6. All data requested by fiscal year refers to the end of the fiscal year.
7. In answering throughput and capacity questions, assume that all previous BRAC decisions are implemented on schedule.

BRAC 1995 CAPACITY ANALYSIS DATA CALL:
Operational/Reserve Air Stations/Facilities

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DC/6 R

Beaufort

BRAC 1995 CAPACITY ANALYS
Operational/Reserve Air S

AIR STATION/FACILITY - UIC M60169

STATION CAPACITY

1a. For the **main airfield and each auxiliary airfield,** answer the following questions:

Airfield Name MCAS Beaufort SC (Merritt Field)

For each runway, give its designation, length, width, load capacity, lighting configurations, and arresting gear types. For each runway list any approach obstructions or any restrictions on flight patterns.

Runway	Length (ft)	Width (ft)	Max load	Lighting				Arresting Gear Type(s)
				F	P	C	N	
05/23	**12,200'**	**200'**	**828,000**	**X**		**X**		**E-28/E5**
14/32	**8,000'**	**200'**	**948,000**		**X**			**E-28/E5**

F -- Full lighting (runway edge, center, and threshold)
P -- Partial lighting (less than full)
C -- Carrier deck lighting simulated
N -- No lighting

1b. Provide the **composition** (concrete, asphalt, other) and **load bearing capacity** of your aprons, ramps and taxiway.

Apron/ramp/taxiway Location - ID	SF	Comp.	ID Type/Model A/C Prohibited	Comments
E. Apron	**1,440,000**	**Concrete**	**No Acft Prohibited**	**Excellent Cond**
W. Apron	**1,620,000**	**Concrete**	**No Acft Prohibited**	**Excellent Cond**
Parl TW 23	**915,000**	**Asp/Con**	**No Acft Prohibited**	**Excellent Cond**
Parl TW 05	**0**	**Asp/Con**	**No Acft Prohibited**	**Excellent Cond**
Parl TW 14	**600,000**	**Asp/Con**	**No Acft Prohibited**	**Excellent Cond**
Parl TW 32	**0**	**Asp/Con**	**No Acft Prohibited**	**Excellent Cond**

ENCLOSURE (2)

BRAC 1995 CAPACITY ANALYSIS DATA CALL:
Operational/Reserve Air Station/Facility

AIR STATION/FACILITY - UIC M60169

STATION CAPACITY

1a. For the **main airfield and each auxiliary airfield,** answer the following questions:

Airfield Name MCAS Beaufort SC (Merritt Field)

For each runway, give its designation, length, width, load capacity, lighting configurations, and arresting gear types. For each runway list any approach obstructions or any restrictions on flight patterns.

Runway	Length (ft)	Width (ft)	Max load	Lighting				Arresting Gear Type(s)
				F	P	C	N	
05/23	**12,200'**	**200'**	**828,000**	**X**		**X**		**E-28/E5**
14/32	**8,000'**	**200'**	**948,000**		**X**			**E-28/E5**

F -- Full lighting (runway edge, center, and threshold)
P -- Partial lighting (less than full)
C -- Carrier deck lighting simulated
N -- No lighting

1b. Provide the **composition** (concrete, asphalt, other) and **load bearing capacity** of your aprons, ramps and taxiway.

Apron/ramp/taxiway Location - ID	SF	Comp.	ID Type/Model A/C Prohibited	Comments
E. Apron		**Concrete**	**No Acft Prohibited**	**Excellent Cond**
W. Apron		**Concrete**	**No Acft Prohibited**	**Excellent Cond**
Parl TW 23		**Asp/Con**	**No Acft Prohibited**	**Excellent Cond**
Parl TW 05		**Asp/Con**	**No Acft Prohibited**	**Excellent Cond**
Parl TW 14		**Asp/Con**	**No Acft Prohibited**	**Excellent Cond**
Parl TW 32		**Asp/Con**	**No Acft Prohibited**	**Excellent Cond**

1c. Do you have **high speed taxiways**? Discuss number and impact on airfield operations.

No

1d. Are **all runways** with approved instrument approaches served by **hi-speed taxiways**?

N/A

1e. List any restrictions to **runways with approach obstructions** or any **restrictions on flight patterns.** Explain

Aircraft are required to turn to heading 120 degrees when departing RW 14 and 060 degrees when departing RW 05 for noise abatement purposes only.

1f. For the main airfield and each auxiliary and outlying field, discuss any **runway design features** that are specific to particular types of aircraft (i.e., are the airfield facilities designated primarily fixed wing jet, prop, or helo aircraft?)

Primary aircraft served is fixed wing jet. However, capable of supporting all other types of aircraft.

2a. List the **number of flight operations** (take-off, landing, or approach without landing) that the main airfield and all auxiliary fields can support on an hourly basis in both VMC and IMC. Comment on the factors at each field that limit this capacity (e.g., taxiway/runway limitations, airspace, ATC restrictions, environmental restrictions).

Airfield	# Flight Ops/Hr		Comments on Limiting Factors
	IMC	VMC	
Main	***60 per/hr**	***240 per/hr**	**limited only by ATC separation criteria**
Auxiliary _____	**N/A**	**N/A**	
Auxiliary _____	**N/A**	**N/A**	
Auxiliary _____	**N/A**	**N/A**	

***IMC - 60 per hour for flights two. 40 per hour for singles.**
VMC - 240 per hour daylight. 160 night.

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2b. Provide the average number of **(historical) flight operations** per month conducted at this station and the total number of days during which these operations were conducted. If data is not normally recorded, include estimates (and how derived). A flight operation is defined as a take-off, landing, or approach without a landing.

FY	Main Airfield		Auxiliary Field		Auxiliary Field		Auxiliary Field	
	# Ops	# Days	# Ops	# Days	# Ops.	# Days	# Ops.	# Days
1991	**4404**	**350**						
1992	**4667**	**350**						
1993	**4462**	**350**						

2c. What percent of your flight operations at home field are Fleet Carrier Landing Practices (FCLPs)?

23%

2d.. Are you designated as an **authorized divert field** for any non-DoD aircraft? Explain.

No

2e. Is your airfield designated as a **joint use airfield** (i.e. civilian/military, APOE)? If yes, explain mission and identify any special joint use facilities, equipment, or operational practices.

No

2f. Are you a NATO designated facility? If yes, explain mission and identify any special NATO facilities, equipment, or operational practices.

No

2g. What **percentage of total operations are civilian?**

To airfield less than 1%, overhead 52%

2h. Describe the major **civilian air traffic structures** (routes, terminal control areas, approaches, etc.) discuss the present and likely future impact of each on air station operations.

Bft approach control is an intregral part of the National Airspace System providing services along 3VOR airways and 5 civilian satellite airports. CY 93 total operations

2b. Provide the average number of **(historical) flight operations** per month conducted at this station and the total number of days during which these operations were conducted. If data is not normally recorded, include estimates (and how derived). A flight operation is defined as a take-off, landing, or approach without a landing.

FY	Main Airfield		Auxiliary Field		Auxiliary Field		Auxiliary Field	
	# Ops	# Days	# Ops	# Days	# Ops.	# Days	# Ops.	# Days
1991	**151/Da**	**350**						
1992	**160/Da**	**350**						
1993	**153/Da**	**350**						

2c. What percent of your flight operations at home field are Fleet Carrier Landing Practices (FCLPs)?

23%

2d.. Are you designated as an **authorized divert field** for any non-DoD aircraft? Explain.

No

2e. Is your airfield designated as a **joint use airfield** (i.e. civilian/military, APOE)? If yes, explain mission and identify any special joint use facilities, equipment, or operational practices.

No

2f. Are you a NATO designated facility? If yes, explain mission and identify any special NATO facilities, equipment, or operational practices.

No

2g. What **percentage of total operations are civilian**?

To airfield less than 1%, overhead 52%

2h. Describe the major **civilian air traffic structures** (routes, terminal control areas, approaches, etc.) discuss the present and likely future impact of each on air station operations.

Bft approach control is an integral part of the National Airspace System providing

services along 3VOR airways and 5 civilian satellite airports. CY 93 total operations 59,251 in support of the National Airspace System or 52% of total facility operations.

2i. Are there any **air traffic control constraints**/procedures that currently, or may in the future, limit air station operations? If yes, fully explain impact.

No

2j. List the normal **hours of operation** for the main airfield and each auxiliary airfield. Indicate if this schedule varies by month or season. If not 24 hour a day operation, explain (i.e. noise restricted).

24 hour ops is feasible, however, currently there is no requirement or manning to do so.

Operating Schedule	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Main Airfield	**1200-2000**	**0700-2300**	**0700-2300**	**0700-2300**	**0700-2300**	**0700-1800**	**1000-1800**
Aux. Airfield _____	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Aux. Airfield _____	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Aux. Airfield _____	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

3a. Assuming that airfield operations are **not constrained** by operational funding (personnel support, increased overhead costs, etc.), what **additional capacity** (in flight operations per hour) could be gained with the current equipment, physical plant, etc.? Provide details and assumptions for all calculations.

Based on VMC weather, flights of 2 Navy/Marine Corps aircraft of similar performance using reduced runway separation, maximum capacity at 120 knots landing speed is 6 landing operation per minute or 360 operations per hour.

3b. Assume that all planned MILCON in PB 1995 (Presidential budget submission) through FY 1997 and BRACON is completed as scheduled. What **additional operating capacity** would be realized? Provide cost and details of all additional capacity calculations.

NONE

3c. What **additional projects** could be added to provide **additional operating capacity**? At what estimated cost? Provide details and assumptions for all calculations.

Our current operating capacity is 360 operations per hour. An additional parallel r/w would double our capacity to 720 operations per hour (see 3a).

3d. List and explain the **limiting factors** that further funding for personnel, equipment, facilities, etc. cannot overcome (e.g. airspace size/availability, AICUZ restrictions, environmental restrictions, land areas). Provide details of calculations.

None

4. List all **NAVAIDS** with published approaches that support the main airfield and/or your auxiliary airfields. Note any additions/upgrades to be added between now and FY1997.

NAVAID	DESCRIPTION/LOCATION
TACAN	**32 deg 28' 43.6"N/80 deg 43' 03.3"W**
ASR	**32 deg 28' 74"N/80 deg 42' 47.66"W**
PAR	**32 deg 28' 38.323"W/80 deg 42' 18.226"W**
no updates scheduled through FY 97	

BASING

5a. List all **active duty Navy/USMC squadrons/detachments** and the number of aircraft by type, model, and series (T/M/S), that will be permanently stationed/are scheduled to be stationed at this air station at the **end** of the indicated fiscal years.

Squadron/Det	# of Aircraft (PAA)	Aircraft (T/M/S)	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001
VMFA-115	**12**	**F/A-18A**	**X**	**X**	**X**	**X**	**X**
VMFA-122	**12**	**F/A-18A**	**X**	**X**	**X**	**X**	**X**
VMFA-251	**12**	**F/A-18A,C**	**X**	**X**	**X**	**X**	**X**
VMFA-312	**12**	**F/A-18C**	**X**	**X**	**X**	**X**	**X**
VMFA-451	**12**	**F/A-18A**	**X**	**X**	**X**	**?**	**?**
VMFA(AW) 224	**12**	**F/A-18D**	**X**	**X**	**X**	**X**	**X**
VMFA(AW) 332	**12**	**F/A-18D**	**X**	**X**	**X**	**X**	**X**
VMFA(AW) 533	**12**	**F/A-18D**	**X**	**X**	**X**	**X**	**X**

5b. Summarize average **visiting squadron/det loading** on air station operations(i.e. airwing/wing weapons deployment).

Squadron/Det Size (#A/C)	Apron Space Used	Hangar Space Assigned	Maintenance Support	Ave length of stay
Usually 12 acft	Available space	Available space	As required	10 Days
Fixed Wing-Jet or Helo	Available space	Available space	As required	10 Days

5c. If a major percent of flight operations at your air station is from other than permanently stationed squadron/detachments, provide explanation.

N/A

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6a. List all **reserve Navy/USMC squadrons/detachments** and the number of aircraft by type, model, and series (T/M/S), which will be stationed/are scheduled to be stationed at this air station at the **end** of the indicated fiscal years.

Squadron/Det	# of Aircraft (PAA)	Aircraft (T/M/S)	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001
VFA 203	**12**	**F/A-18A**				**X**	**X**

6a. List all **reserve Navy/USMC squadrons/detachments** and the number of aircraft by type, model, and series (T/M/S), which will be stationed/are scheduled to be stationed at this air station at the **end** of the indicated fiscal years.

Squadron/Det	# of Aircraft (PAA)	Aircraft (T/M/S)	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001
VMFA 142	**12**	**F/A-18A**				**X**	**X**
VFA 203	**12**	**F/A-18A**				**X**	**X**

6b. For each **reserve squadron** at your air station, provide the number of **authorized billets** and the number of personnel actually assigned to the squadron for the past three fiscal years. Provide this information in the format below for both Selected Reservists (SELRES) and Training and Administration of Reserves (TAR) Navy Reservists/Full-Time Support (FTS) Marine Corps reservists. Explain differences between authorized and actual manning in the remarks section (i.e. not enough qualified reservists in the area). **N/A**

Squadron:	FY 1991				FY 1992				FY 1993			
	Auth		Actual		Auth		Actual		Auth		Actual	
	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS
Pilot												
NFO												
Other Officer												
Enlisted												

Remarks:

Squadron:	FY 1991				FY 1992				FY 1993			
	Auth		Actual		Auth		Actual		Auth		Actual	
	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS
Pilot												
NFO												
Other Officer												
Enlisted												

Remarks:

Squadron:	FY 1991				FY 1992				FY 1993			
	Auth		Actual		Auth		Actual		Auth		Actual	
	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS
Pilot												
NFO												
Other Officer												
Enlisted												

Remarks:

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7. List all **Station aircraft** by number, type, model, and series (T/M/S), which will be parked or stationed/are scheduled to be stationed at this air station at the **end** of the indicated fiscal years.

Squadron/ Custodian	# of Aircraft (PAA)	Aircraft (T/M/S)	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001
MCAS Bft	**1**	**UC-12B**	**X**	**X**	**X**	**X**	**X**
MCAS Bft	**3**	**HH-46D**	**X**	**X**	**X**	**X**	**X**

***NOTE - F/A-18 aircraft will be reduced to 84 after FY 1998 with planned deactivation of VMFA-451. During FY-99 F/A-18 aircraft will increase to 108 with addition of 2 reserve squadrons. (See 6a)**

8. List all **DoD and non-DoD aircraft** not previously listed, by custodian, including number, type, model, and series (T/M/S) of aircraft, which will be parked or stationed/are scheduled to be stationed at this air station at the **end** of the indicated fiscal years. **N/A**

N/A

Service/ Agency/ Custodian	# of Aircraft (PAA)	Aircraft (T/M/S)	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001

7. List all **Station aircraft** by number, type, model, and series (T/M/S), which will be parked or stationed/are scheduled to be stationed at this air station at the **end** of the indicated fiscal years.

Squadron/ Custodian	# of Aircraft (PAA)	Aircraft (T/M/S)	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001
MAG-31	**96 See *NOTE**	**F-18A,C,D**	**X**	**X**	**X**	**X**	**X**
MCAS Bft	**1**	**UC-12B**	**X**	**X**	**X**	**X**	**X**
MCAS Bft	**3**	**HH-46D**	**X**	**X**	**X**	**X**	**X**

***NOTE - F/A-18 aircraft will be reduced to 84 after FY 1998 with planned deactivation of VMFA-451. During FY-99 F/A-18 aircraft will increase to 108 with addition of 2 reserve squadrons. (See 6a)**

8. List all **DoD and non-DoD aircraft** not previously listed, by custodian, including number, type, model, and series (T/M/S) of aircraft, which will be parked or stationed/are scheduled to be stationed at this air station at the **end** of the indicated fiscal years. **N/A**

N/A

Service/ Agency/ Custodian	# of Aircraft (PAA)	Aircraft (T/M/S)	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001

9a. List other **operational command or support units** (ie. air wing staffs, MWSG, MWSS, MACG, MASS, etc.) stationed at this installation. For each Unit, give the unit identification number/UIC, mission, and facilities required (currently being used) to support the unit (i.e. equipment parking - 2500 SF; maintenance shop-200 SF; etc.).

Support Unit Identification/ UIC	Mission	Facilities Required	Equipment Laydown Requirement (covered/ uncovered in SF)
MAG-31 00031	***NOTE #1**	**Bldgs: 585 Regimental HQ 13382 sqft; 584; 594 MALS Maint Hangar 84425 sqft; 611 Armory 3900 sqft; 610 Training Tank; 856 Survival Equip Shop 7152 sqft; 857 Ground Spt Equip Shop 3888 sqft; 858 Avionics Shop 4583 sqft; 703; 418; 730; 834 Guided Missile Facility 7815 sqft; 418; 603; 985 Explosive Ordnance 1830 sqft**	**PW Planning**
MALS-31 01086	***NOTE #2**		
MWSS-273 00273	***NOTE #3**	**Bldgs: 1064 Constr/weight hangling equip shop; 1065 Lumber storage 2160 sqft; 1068 Elec/Comm Shop 3489 sqft; 780 Combat Veh Maint Shop 4875 sqft; 555 Warehouse 35461 sqft; 611 Armory; 1066 Equip Holding Shed 1920 sqft; 1067 Dispatcher Bldg 680**	

* MACS-2 00972	*NOTE #4	Bldgs: 661 Auto Organi Shop 4430 sqft; 611,660,1011 Elect/Comm Shop 6326 sqft; 1094 Prod Equip Shop 1640 sqft; 555, 662 Stor Air/Grn Organic Units 9773 sqft; 1171 Controlled Humidity Warehouse 16552 sqft; 660 Sqdn HQ 7246 sqft	
CSSD-23 27140	*NOTE #5	Bldgs: 614 Admin and Stor 10971 sqft; 565 Field Maint Shop 7134 sqft	
NAESU 33203	*NOTE #6	Bldg 596	
VMFA-115 01115 VMFA-122 01122 VMFA-251 01251 VMFA-312 01312 VMFA-451 01415 VMFA(AW)-224 01224 VMFA(AW)-332 01332 VMFA(AW)-533 01533	*NOTE #7 *NOTE #8		
NAWCTSC	*NOTE #9	Bldg 807 100 sqft	
BRANCH MEDICAL CLINIC	*NOTE #10	Bldg 598 13250 sqft	

BRANCH DENTAL CLINIC	*NOTE #11	Bldg 598 8202 sqft	
H&HS 02031	*NOTE #12		
MATCS-28 DETA	*NOTE #13		
NAWCWD	*NOTE #14	Bldg 703 600 sqft	

* MILCON Project P-390 MACS-2/ATC expansion will increase facilities to accommodate expanded mission.

*NOTE #1 - Provide the staff support necessary for the effective command of subordinate squadrons of the Marine Aircraft Group.

*NOTE #2 - Provide aviation logistical support for the subordinate units of the Marine Aircraft Group.

*NOTE #3 - Provide all essential aviation ground support requirements to a designated fixed wing component of an aviation combat element and all supporting of attached elements of the Marine Air Control Group.

*NOTE #4 - Provide air surveillance and control of aircraft and surface-to-air missiles for anti-war warfare in support of the Fleet Marine Forces.

*NOTE #5 - To provide intermediate maintenance support (3d and 4th echelon) for motor transport equipment to include crash fire rescue vehicles and engineer equipment (less utilities organic to Marine Air Control Squadron 2); secondary repairable item support for selected items and class IX repair part support for motor transport and engineer equipment; automated data processing support for all II Marine Expeditionary Force units located aboard Marine Corps Air Station, Beaufort, South Carolina while in garrison.

*NOTE #6 - Provide aviation contracting and engineering technical services in support of Naval Aviation assets.

*NOTE #7 - Intercept and destroy enemy aircraft under all weather conditions and attack and destroy surface targets.

*NOTE #8 - Attack and destroy surface targets, day or night, under all weather conditions; conduct multi-sensor imagery reconnaissance; provide supporting arms coordination; and intercept and destroy enemy aircraft under all weather conditions.

*NOTE #9 - Training device logistics support

*NOTE #10 - Provides medical support to aircraft squadrons and other military members and dependents.

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***NOTE #11 - Provides dental support to aircraft squadrons and other military members, dependents and retirees.**

***NOTE #12 - Maintain and operate facilities to support flight operations, operation and maintenance of assigned aircraft. Provide services and material to support operations of a Marine Aircraft Wing and/or units thereof, and other activities and units as designated by the Commandant of the Marine Corps, in coordination with the Chief of Naval Operations.**

***NOTE #13 - Provide continuous, all-weather Air Traffic Control (ATC) services for an expeditionary airfield and remote field landing sites as part of the Marine Air Command and Control System (MACCS)**

***NOTE #14 - Provide technical advice and assistance in support of Naval Aircraft Weapons Systems and Ordnance items.**

9b. Due to BRAC or other realignments, what increases/decreases in operational command or support units will occur at your installation. Provide expected gains/losses by year through 2001.

(BRAC 93) 1 reserve units from Cecil Field, FL - 111 (9 officer, 102 enlisted) military personnel.

10a. List all **other USN/USNR, USMC/USMCR, and other DoD or non-DoD active and SELRES units** not listed previously, that are scheduled to be stationed at this air station at the **end** of the indicated fiscal years.

Unit	Active or Reserve	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001
IMA Det Beaufort	**RES**	**YES**	**YES**	**YES**	**YES**	**YES**

***NOTE #11 - Provides dental support to aircraft squadrons and other military members, dependents and retirees.**

***NOTE #12 - Maintain and operate facilities to support flight operations, operation and maintenance of assigned aircraft. Provide services and material to support operations of a Marine Aircraft Wing and/or units thereof, and other activities and units as designated by the Commandant of the Marine Corps, in coordination with the Chief of Naval Operations.**

***NOTE #13 - Provide continuous, all-weather Air Traffic Control (ATC) services for an expeditionary airfield and remote field landing sites as part of the Marine Air Command and Control System (MACCS)**

***NOTE #14 - Provide technical advice and assistance in support of Naval Aircraft Weapons Systems and Ordnance items.**

9b. Due to BRAC or other realignments, what increases/decreases in operational command or support units will occur at your installation. Provide expected gains/losses by year through 2001.

(BRAC 93) 3 reserve units from Cecil Field, FL - 111 (9 officer, 102 enlisted) military personnel.

10a. List all **other USN/USNR, USMC/USMCR, and other DoD or non-DoD active and SELRES units** not listed previously, that are scheduled to be stationed at this air station at the **end** of the indicated fiscal years.

Unit	Active or Reserve	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001
IMA Det Beaufort	**RES**	**YES**	**YES**	**YES**	**YES**	**YES**

10b. For each of these other **reserve Navy/Marine Corps** units at your air station, provide the number of **authorized billets** and the number of personnel actually assigned to the squadron for the past three fiscal years. Provide this information in the format below for both Selected Reservists (SELRES) and Training and Administration of Reserves (TAR) Navy reservists/Full-Time Support (FTS) Marine Corps reservists. Explain differences between authorized and actual manning in the remarks section.

NR Activity/Unit:	FY 1991				FY 1992				FY 1993			
	Auth		Actual		Auth		Actual		Auth		Actual	
	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS
Officer	2	0	2	0	2	0	2	0	2	0	2	0
Enlisted	7	0	7	0	7	0	6	0	7	0	5	0

Remarks: **Those applicants who would have otherwise been considered qualified, did not possess an applicable MOS to satisfy our IMA Det billet vacancies during FY-92 and FY-93.**

NR Activity/Unit:	FY 1991				FY 1992				FY 1993			
	Auth		Actual		Auth		Actual		Auth		Actual	
	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS
Officer												
Enlisted												

Remarks:

NR Activity/Unit:	FY 1991				FY 1992				FY 1993			
	Auth		Actual		Auth		Actual		Auth		Actual	
	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS	SELRES	TAR/FTS
Officer												
Enlisted												

11. For all reserve units that train at the air station, summarize the average number of candidate reservists on **waiting lists for reserve billets** (i.e., station/squadron/unit/etc.) during the years indicated.

	Average Personnel on Waiting List		
	FY 1991	FY 1992	FY 1993
Pilot	0	0	0
NFO	0	0	0
Other Officers	0	0	0
Enlisted	0	0	0

TRAINING SUPPORT

12a. Estimate the number of **flight operations** (take-off, landing, touch and go, and approach without landing) per year at your installation that are needed **to maintain required operational readiness** by each squadron/unit assigned to the installation. Provide comments on the basis for these values.

Squadron/ Unit	Aircraft Type	Number of Flight Operations/Yr	Comments
MAG 31	**F/A-18A,C,D**	*** 26,880 T/O per yr/2240 per sqdn; 26,880 landings per yr/3360 per sqdn**	**Consider min flt ops to maint sqdn aircrew prof/safety at 16-20 hrs/mo and augmt prof of 10-12 hrs per/mo**
MCAS Bft	**UC-12B**	**288 T/O and ldgs per yr**	**Mo min flt ops per yr TPC's 8 hr 2 ldgs - T2P 4 hr 2 ldgs**
MCAS Bft	**HH-46D**	**108 inst app per yr/pilot**	**650 T/O and ldgs per yr/pilot**
MCAS Bft	**ATC**	**4050 GCA app/3420 hrs**	**Rqrd for initial controller quals and maint prof**

*** (MAG 31) figures based on 8 sqds Figures do not reflect carrier work up ops.**

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12b. For each **Special Use Airspace (SUA)** or airspace-for-special use routinely used by squadrons/units assigned to your installation (regardless of location[1]), indicate how many hours per year are **required for** each user to maintain **required operational readiness.** Special Use Airspace includes alert areas, military operating areas (MOA), restricted areas, and warning areas which are used for air-to-air, air-to-ground, electronic (EW, ECM), low level training routes (MTRs), and other training.

[1] include RON/domestic deployment training

SUA	Location/ Distance	Types/Uses	Scheduling Authority (UIC)	Squadron/Unit	Training Requirement (types of training)	Yearly Usage Rate (Hrs)
Beaufort MOA/W74-	**0**	**MOA**	**MCAS**	**MAG-31**	**Hornet's Nest**	**16**
W-122A-H	**266NM**	**A-A**	**Oceana Vacapes**	**MAG-31**	**CAS/DACT/EW**	**6400**
W-72	**300NM**	**A-A**	**Oceana Vacapes**	**MAG-31**	**DACT/ACM**	**350**
R5306 (BT 9/11)	**260NM**	**A-G**	**MCAS CPNC**	**MAG-31**	**STRAFE/ECM/ECCM**	**180**
R5306 (G-10)	**240NM**	**A-G**	**MCAS CPNC**	**MAG-31**	**CAS/DAS/MAJOR EXERCISES**	**360**
W-177A/B	**95NM**	**A-A**	**20 OSS SHAW**	**MAG-31**	**Hornet's Nest/Tanking**	**120**
R 6002	**90NM**	**A-G**	**FT PICKET VA**	**MAG-31**	**SIM CAS**	**20**
W-134/157/158	**45NM**	**A-A**	**FAA JACK FL**	**MAG-31**	**A/A**	**11,000**
BULLDOG	**75NM**	**MOA**	**20 OSS SHAW**	**MAG-31**	**A/A**	**50**
W-158	**180NM**	**A-A**	**FACFAC JAX**	**MAG-31**	**DACT**	**75**
R 2907	**225NM**	**A-G**	**FACFAC JAX**	**MAG-31**	**A/G**	**24**
W-174	**300NM**	**A-A**	**FACFAC JAX**	**MAG-31**	**A/A**	**336**

[1] include RON/domestic deployment training

12b. For each **Special Use Airspace (SUA)** or airspace-for-special use routinely used by squadrons/units assigned to your installation (regardless of location[1]), indicate how many hours per year are **required for** each user to maintain **required operational readiness**. Special Use Airspace includes alert areas, military operating areas (MOA), restricted areas, and warning areas which are used for air-to-air, air-to-ground, electronic (EW, ECM), low level training routes (MTRs), and other training.

[1] include RON/domestic deployment training

SUA	Location/ Distance	Types/Uses	Scheduling Authority (UIC)	Squadron/Unit	Training Requirement (types of training)	Yearly Usage Rate (Hrs)
Beaufort MOA/W74	**0**	**MOA**	**MCAS**	**MAG-31**	**Hornet's Nest**	**16**
W-122A-H	**266NM**	**A-A**	**Oceana Vacapes**	**MAG-31**	**CAS/DACT/EW**	**6400**
W-72	**300NM**	**A-A**	**Oceana Vacapes**	**MAG-31**	**DACT/ACM**	**350**
R5306 (BT 9/11)	**260NM**	**A-G**	**MCAS CPNC**	**MAG-31**	**STRAFE/ECM/ECCM**	**180**
R5306 (G-10)	**240NM**	**A-G**	**MCAS CPNC**	**MAG-31**	**CAS/DAS/MAJOR EXERCISES**	**360**
W-177A/B	**95NM**	**A-A**	**20 OSS SHAW**	**MAG-31**	**Hornet's Nest/Tanking**	**120**
R 6002	**90NM**	**A-G**	**FT PICKET VA**	**MAG-31**	**SIM CAS**	**20**
W-134/157/158	**45NM**	**A-A**	**FAA JACK FL**	**MAG-31**	**A/A**	**11,000**
BULLDOG	**75NM**	**MOA**	**20 OSS SHAW**	**MAG-31**	**A/A**	**50**
W-158	**180NM**	**A-A**	**FACFAC JAX**	**MAG-31**	**DACT**	**75**
R 2907	**225NM**	**A-G**	**FACFAC JAX**	**MAG-31**	**A/G**	**24**

[1] include RON/domestic deployment training

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W-168	240NM	A-A	56 TTW MCDILL	MAG-31	A/A	20
W-470	300NM	A-A	3246 EGLIN AFB	MAG-31	A/A	140
W-151	320NM	A-A	3246 EGLIN AFB	MAG-31	A/A	140
QUICK THRUST MOA	75NM	A-G	SAV GA	MAG-31	A/G	20′
W-453	460NM	A-A	FAA HOUST TX	MAG-31	A/A	120
R-3005	75NM	A-G	FAA JACK FL	MAG-31	A/G /CAS/FAC(A)	40
R-2501	2500 NM	A-A/A-G	FAA LA, CA	MAG-31	EXERCISES/A-A/ A/G	630
R-4803N	3000 NM	A-A/A-G	NAS FAL-LON	MAG-31	A-A/ A/G	230
R-4810	3000 NM	A-A/A-G	NAS FAL-LON	MAG-31	A-A/ A/G	230
R-4802	3000 NM	A-A/A-G	FAA OAKLA	MAG-31	A-A/ A/G	230
R-4804	3000 NM	A-A/A-G	FAA OAKLA	MAG-31	A-A/ A/G	230
R-2301	2500 NM	A-G	58 FW LUKE	MAG-31	A/G	630
R-2308	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R-2507	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R-2512	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R-2510	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630

W-174	300NM	A-A	FACFA C JAX	MAG-31	A/A	336
W-168	240NM	A-A	56 TTW MCDIL L	MAG-31	A/A	20
W-470	300NM	A-A	3246 EGLIN AFB	MAG-31	A/A	140
W-151	320NM	A-A	3246 EGLIN AFB	MAG-31	A/A	140
QUICK THRUST MOA	75NM	A-G	SAV GA	MAG-31	A/G	20
W-453	460NM	A-A	FAA HOUST TX	MAG-31	A/A	120
R-3005	75NM	A-G	FAA JACK FL	MAG-31	A/G /CAS/FAC(A)	40
R-2501	2500 NM	A-A/A-G	FAA LA, CA	MAG-31	EXERCISES/A-A/ A/G	630
R-4803N	3000 NM	A-A/A-G	NAS FAL-LON	MAG-31	A-A/ A/G	230
R-4810	3000 NM	A-A/A-G	NAS FAL-LON	MAG-31	A-A/ A/G	230
R-4802	3000 NM	A-A/A-G	FAA OAKLA	MAG-31	A-A/ A/G	230
R-4804	3000 NM	A-A/A-G	FAA OAKLA	MAG-31	A-A/ A/G	230
R-2301	2500 NM	A-G	58 FW LUKE	MAG-31	A/G	630
R-2308	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R-2507	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630

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R-6904 A/B	315NM		VOLK FLD WI	MAG-31	COLD WX TRNG	315
R-3007	75NM	A-G	SAV AIR NAT'L GUARD	MAG-31	A/G	520

Remarks:

12c. For each **Special Use Airspace (SUA)** or airspace-for-special-use complete the following table:

SUA	Location/ Distance	Types/Uses	Scheduling Authority (UIC)	Fiscal Year	Scheduled	Utilized[1]	Operating Limitations[2]
					# Hours	# Hours	
Bft MOA/ W74	0	MOA	MCAS	1991	16	8	
Bft MOA/ W74	0	MOA	MCAS	1992	16	16	
Bft MOA/ W74	0	MOA	MCAS	1993	20	12.75	
R3005	75NM	A/G ORD	FT STEW	1991	DATA NOT AVAIL	DATA NOT AVAIL	
R3007	75NM	A/G ORD	SAV ANG CRTC	1992	"	"	
VR1040	15NM	MTR	MCAS CHERPT	1993	"	"	
VR1041	15NM	MTR	MCAS CHERPT	1991	"	"	
VR10J9	18NM	MTR	SHAW AFB	1992	"	"	
IR018	12NM	MTR	FACS FAC JAX	1993	"	"	
W-122A-H	266NM	A-A	OCEANA VACAPE	1991 1992 1993	6400 6400 6400	"	
W-72	300NM	A-A	OCEANA VACAPE	1991 1992 1993	350 350 350	"	

R-2512	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R-2510	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R-6904 A/B	315NM		VOLK FLD WI	MAG-31	COLD WX TRNG	315
R-3007	75NM	A-G	SAV AIR NAT'L GUARD	MAG-31	A/G	520

Remarks:

12c. For each **Special Use Airspace (SUA)** or airspace-for-special-use complete the following table:

SUA	Location/ Distance	Types/Uses	Scheduling Authority (UIC)	Fiscal Year	Scheduled	Utilized[1]	Operating Limitations[2]
					# Hours	# Hours	
Bft MOA/ W74	0	MOA	MCAS	1991	16	8	
Bft MOA/ W74	0	MOA	MCAS	1992	16	16	
Bft MOA/ W74	0	MOA	MCAS	1993	20	12.75	
R3005	75NM	A/G ORD	FT STEW	1991	DATA NOT AVAIL	DATA NOT AVAIL	
R3007	75NM	A/G ORD	SAV ANG CRTC	1992	"	"	
VR1040	15NM	MTR	MCAS CHERPT	1993	"	"	
VR1041	15NM	MTR	MCAS CHERPT	1991	"	"	
VR10J9	18NM	MTR	SHAW AFB	1992	"	"	
IR018	12NM	MTR	FACS FAC JAX	1993	"	"	

W-122A-H	266NM	A-A	OCEANA VACAPE	1991 1992 1993	6400 6400 6400	"	
W-72	300NM	A-A	OCEANA VACAPE	1991 1992 1993	350 350 350	"	
R5306(BT 9/11)	260NM	A-G	MCAS CPNC	1991 1992 1993	180 180 180	"	
R5306(G-10)	240NM	A-G	MCAS CPNC	1991 1992 1993	360 360 360	"	
W-177A/B	95NM	A-A	20 OSS SHAW	1991 1992 1993	120 120 120	"	
R6002	90NM	A-G	FT PICKET VA	1991 1992 1993	20 20 20	"	
W-134/ 157/158	45NM	A-A	FAA JACK FL	1991 1992 1993	11,000 11,000 11,000	"	
BULL DOG	75NM	MOA	20 OSS SHAW	1991 1992 1993	50 50 50	"	
W-158	180NM	A-A	FACFAC JAX	1991 1992 1993	75 75 75	"	
R2907	225NM	A-G	FACFAC JAX	1991 1992 1993	24 24 24	"	
W-174	300NM	A-A	FACFAC JAX	1991 1992 1993	336 336 336	"	
W-168	240NM	A-A	56 TTW MCDILL	1991 1992 1993	20 20 20	"	
W-470	300NM	A-A	3246 EGLIN AFB	1991 1992 1993	140 140 140	"	

W-151	320NM	A-A	3246 EGLIN AFB	1991 1992 1993	140 140 140	"	
QUICK THRUST MOA	75NM	A-G	SAV GA	1991 1992 1993	20 20 20	"	
W-453	460NM	A-A	FAA HOUSTO TX	1991 1992 1993	120 120 120	"	
R2501	2500 NM	A-A/A-G	FAA LA CA	1991 1992 1993	630 630 630	"	
R4803N	3000 NM	A-A/A-G	NAS FALLON	1991 1992 1993	230 230 230	"	
R4810	3000 NM	A-A/A-G	NAS FALLON	1991 1992 1993	230 230 230	"	
R4802	3000 NM	A-A/A-G	FAA OAKLAN	1991 1992 1993	230 230 230	"	
R4804	3000 NM	A-A/A-G	FAA OAKLAN	1991 1992 1993	230 230 230	"	
R2301	2500 NM	A-G	58 FW LUKE	1991 1992 1993	630 630 630	"	
R2308	2500 NM	A-G	MCAS YUMA	1991 1992 1993	630 630 630	"	
R2507	2500 NM	A-G	MCAS YUMA	1991 1992 1993	630 630 630	"	
R2512	2500 NM	A-G	MCAS YUMA	1991 1992 1993	630 630 630	"	

R2510	2500 NM	A-G	MCAS YUMA	1991 1992 1993	630 630 630	"	
R6904 A/B	315NM		VOLK FLD WI	1991 1992 1993	315 315 315	"	

[1] For the "Utilized" values, provide reasons for hours scheduled, but not utilized (e.g. 40% cancelled due to weather; 10% cancelled for unscheduled range maintenance, etc.).
[2] Provide any comments on operating limitations.

FY 1991 Beaufort MOA/W74 37% cancellation due to weather.
FY 1993 Beaufort MOA/W74 35% cancellation due to weather.

12d. Assuming that the flight training facility is **not constrained by operational funding** (personnel support, increased overhead costs, etc.), with the present equipment, physical plant, etc. , what **additional use of airspace assets** could be realized? Provide details and assumptions for all calculations.

If we renegotiate the LOA, our daily usage could go up to 24 hours per day.

12e. Assume that all planned MILCON in PB 1995 (Presidential budget submission) through FY 1997 and BRACON is completed as scheduled. What **additional operating capacity** would be realized? Provide cost and details of all additional capacity calculations.

NONE

12f. What additional projects could be added to provide additional operating capacity? At what estimated cost? Provide details and assumptions for all calculations.

No drop weapons scoring electronic warfare facility constructed at Townsend Range at an estimated cost of 1.24 million dollars.

12g. List and explain the **limiting factors** that further funding for personnel, equipment, facilities, etc., cannot overcome (e.g., airspace size/availability, AICUZ restrictions, environmental restrictions, land areas).

NONE

12h. In the event that it became necessary to increase base loading at your installation, does the **airspace** overlying and adjacent to your installation have the **capacity** to assume an additional workload? Estimate the percentage of the possible increase. Provide the basis/calculations for these estimates.

Yes. Our airspace has the capacity to increase over 100% per day.

13a. For each **ground/water training facilities/ranges/training areas** routinely used by squadrons/units assigned to your installation (regardless of location[1]), indicate how many hours per year are required for each user to maintain readiness?

All flight physiology training facilities refered as:

Quadrennial flight physiology training requirements are met by attending classes at MCAS Cherry Point or NAS Jacksonville.

[1] include RON/domestic deployment training

Ground Training Facility	Location /Distance	Types/Uses	Scheduling Authority (UIC)	Squadron/Unit	Training Requirement (types of training)	Yearly Usage Rate (Hrs)
R5306 (BT 9/11)	**260 NM**	**A-G**	**MCAS CPNC**	**MAG-31**	**STRAFE**	**180**
R5306 (G-10)	**240 NM**	**A-G**	**MCAS CPNC**	**MAG-31**	**MAJOR EXERCISES**	**360**
R6002	**90 NM**	**A-G**	**FT PICKET VA**	**MAG-31**	**SIM CAS**	**20**
R2907	**225 NM**	**A-G**	**FACSF AJAX**	**MAG-31**	**A/G**	**24**
QUICK THRUST MOA	**80 NM**	**A-G**	**SAV GA**	**MAG-31**	**A/G**	**20**
R3005	**80 NM**	**A-G**	**FAA JAX FL**	**MAG-31**	**A/G**	**40**

12h. In the event that it became necessary to increase base loading at your installation, does the **airspace** overlying and adjacent to your installation have the **capacity** to assume an additional workload? Estimate the percentage of the possible increase. Provide the basis/calculations for these estimates.

Yes. Our airspace has the capacity to increase over 100% per day.

13a. For each **ground/water training facilities/ranges/training areas** routinely used by squadrons/units assigned to your installation (regardless of location[1]), indicate how many hours per year are required for each user to maintain readiness?

[1] include RON/domestic deployment training

Ground Training Facility	Location/ Distance	Types/Uses	Scheduling Authority (UIC)	Squadron/Unit	Training Requirement (types of training)	Yearly Usage Rate (Hrs)
R5306 (BT 9/11)	**260 NM**	**A-G**	**MCAS CPNC**	**MAG-31**	**STRAFE**	**180**
R5306 (G-10)	**240 NM**	**A-G**	**MCAS CPNC**	**MAG-31**	**MAJOR EXERCISES**	**360**
R6002	**90 NM**	**A-G**	**FT PICKET VA**	**MAG-31**	**SIM CAS**	**20**
R2907	**225 NM**	**A-G**	**FACSFA JAX**	**MAG-31**	**A/G**	**24**
QUICK THRUST MOA	**80 NM**	**A-G**	**SAV GA**	**MAG-31**	**A/G**	**20**
R3005	**80 NM**	**A-G**	**FAA JAX FL**	**MAG-31**	**A/G**	**40**
R2501	**2500 NM**	**A-G**	**FAA LA, CA**	**MAG-31**	**A/G**	**630**
R4803M	**3000 NM**	**A-G**	**NAL FALLON**	**MAG-31**	**A/G**	**230**
R4810	**3000 NM**	**A-G**	**NAL FALLON**	**MAG-31**	**A/G**	**230**

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R2501	2500 NM	A-G	FAA LA, CA	MAG-31	A/G	630
R4803M	3000 NM	A-G	NAL FALL ON	MAG-31	A/G	230
R4810	3000 NM	A-G	NAL FALL ON	MAG-31	A/G	230
R4802	3000 NM	A-G	FAA OK	MAG-31	A/G	230
R4804	3000 NM	A-G	FAA OK	MAG-31	A/G	230
R2301	2500 NM	A-G	58 FW LUKE	MAG-31	A/G	630
R2308	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R2507	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R2512	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R2510	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R3007	75 NM	A-G	SAV AIR NAT'L GUAR D	MAG-31	A/G	520
RIFLE RANGE	10 MI	RIFLE REQUAL	PI SC	MAG-31	FIRE WEAPON	44,800 MAN HOURS
PISTOL RANGE	OB STA	PISTOL REQUAL	MCAS BFT	MAG-31	FIRE WEAPON	5,000 MAN HOURS

R4802	3000 NM	A-G	FAA OK	MAG-31	A/G	230
R4804	3000 NM	A-G	FAA OK	MAG-31	A/G	230
R2301	2500 NM	A-G	58 FW LUKE	MAG-31	A/G	630
R2308	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R2507	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R2512	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R2510	2500 NM	A-G	MCAS YUMA	MAG-31	A/G	630
R3007	75 NM	A-G	SAV AIR NAT'L GUARD	MAG-31	A/G	520
RIFLE RANGE	10 MI	RIFLE REQUAL	PI SC	MAG-31	FIRE WEAPON	44,800 MAN HOURS
PISTOL RANGE	OB STA	PISTOL REQUAL	MCAS BFT	MAG-31	FIRE WEAPON	5,000 MAN HOURS
ANN SURV TRNG	180 MI	WATER SURV	NAS JAX	MAG-31	WATER SURV	640 MAN HOURS

Remarks:

13b. For each **ground/water training facility/range/training area** listed above, complete the following table:

Ground Training Facility	Location/ Distance	Types/Uses	Scheduling Authority (UIC)	Fiscal Year	Scheduled	Utilized[1]
					# Hours	# Hours
RIFLE RANGE	PARRIS ISL/10 MI	RIFLE REQUAL	PARRIS ISL	1991	44,000	44,000
RIFLE RANGE	PARRIS ISL/10 MI	RIFLE REQUAL	PARRIS ISL	1992	44,000	44,000

ANN SURV TRNG	180 MI	WATER SURV	NAS JAX	MAG-31	WATER SURV	640 MAN HOURS

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Remarks:

13b. For each **ground/water training facility/range/training area** listed above, complete the following table:

Ground Training Facility	Location/ Distance	Types/Uses	Scheduling Authority (UIC)	Fiscal Year	Scheduled	Utilized[1]
					# Hours	# Hours
RIFLE RANGE	PARRIS ISL/10 MI	RIFLE REQUAL	PARRIS ISL	1991	44,000	44,000
RIFLE RANGE	PARRIS ISL/10 MI	RIFLE REQUAL	PARRIS ISL	1992	44,000	44,000
RIFLE RANGE	PARRIS ISL/10 MI	RIFLE REQUAL	PARRIS ISL	1993	44,000	44,000
PISTOL RANGE	MCAS BFT	PISTOL REQUAL	MCAS BFT	1991	5,000	5,000
PISTOL RANGE	MCAS BFT	PISTOL RQUAL	MCAS BFT	1992	5,000	5,000
PISTOL RANGE	MCAS BFT	PISTOL REQUAL	MCAS BFT	1993	5,000	5,000
WATER SURV	NAS JAX 180 MI	WATER SURV	NAS JAX	1991	640	640
WATER SURV	NAS JAX 180 MI	WATER SURV	NAS JAX	1992	640	640

WATER SURV	NAS JAX 180 MI	WATER SURV	NAS JAX	1993	640	640

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[1] For the "Utilized" values, provide reasons for hours scheduled, but not utilized (e.g. 40% cancelled due to weather; 10% cancelled for unscheduled range maintenance, etc.).

13c. Assuming that the ground training facility/range/training areas are not constrained by operational funding (personnel support, increased overhead costs, etc.), with the present equipment, physical plant, etc. , what **additional capacity** (beyond scheduled) could be gained? Provide details and assumptions for all calculations.

NONE

13d. Assume that all planned MILCON in PB 1995 (Presidential budget submission) through FY 1997 and BRACON is completed as scheduled. What **additional capacity** would be realized? Provide cost and details of all additional capacity calculations.

NONE

13e. What additional projects could be added to provide additional operating capacity? At what estimated cost? Provide details and assumptions for all calculations.

Indoor pistol range; estimated cost $350,000

13f. List and explain the **limiting factors** that further funding for personnel, equipment, facilities, etc., cannot overcome (e.g., zoning restrictions, lack of available space,etc.).

NONE

14a. By facility Category Code Number (CCN), provide the usage requirements for each course of instruction required for all formal schools on your installation. Do not include requirements for maintaining unit readiness, GMT, sexual harassment, etc. Include all applicable 171-XX and 179-xx CCN's.

RIFLE RANGE	PARRIS ISL/10 MI	RIFLE REQUAL	PARRIS ISL	1993	44,000	44,000
PISTOL RANGE	MCAS BFT	PISTOL REQUAL	MCAS BFT	1991	5,000	5,000
PISTOL RANGE	MCAS BFT	PISTOL RQUAL	MCAS BFT	1992	5,000	5,000
PISTOL RANGE	MCAS BFT	PISTOL REQUAL	MCAS BFT	1993	5,000	5,000
WATER SURV	NAS JAX 180 MI	WATER SURV	NAS JAX	1991	640	640
WATER SURV	NAS JAX 180 MI	WATER SURV	NAS JAX	1992	640	640
WATER SURV	NAS JAX 180 MI	WATER SURV	NAS JAX	1993	640	640

[1] For the "Utilized" values, provide reasons for hours scheduled, but not utilized (e.g. 40% cancelled due to weather; 10% cancelled for unscheduled range maintenance, etc.).

13c. Assuming that the ground training facility/range/training areas are not constrained by operational funding (personnel support, increased overhead costs, etc.), with the present equipment, physical plant, etc. , what **additional capacity** (beyond scheduled) could be gained? Provide details and assumptions for all calculations.

NONE

13d. Assume that all planned MILCON in PB 1995 (Presidential budget submission) through FY 1997 and BRACON is completed as scheduled. What **additional capacity** would be realized? Provide cost and details of all additional capacity calculations.

NONE

13e. What additional projects could be added to provide additional operating capacity? At what estimated cost? Provide details and assumptions for all calculations.

Indoor pistol range; estimated cost $350,000

13f. List and explain the **limiting factors** that further funding for personnel, equipment, facilities, etc., cannot overcome (e.g., zoning restrictions, lack of available space, etc.).

NONE

14a. By facility Category Code Number (CCN), provide the usage requirements for each course of instruction required for all formal schools on your installation. Do not include

requirements for maintaining unit readiness, GMT, sexual harassment, etc. Include all applicable 171-XX and 179-xx CCN's.

CCN: _____ **NO FORMAL SCHOOLS AT MCAS BEAUFORT**

Type of Training Facility	School	Type of Training	FY 1993 Requirements			FY 2001 Requirements		
			A	B	C	A	B	C

A = Students per year
B = Number of hours each student spends in this training facility for the type of training received
C = A X B

14b. By Category Code Number (CCN), complete the following table for all **training facilities** aboard the installation. Include all 171-xx, 179-xx CCN's.

For example: In the category 171-10, a type of training facility is academic instruction classroom. If you have 10 classrooms with a capacity of 25 students per room, the design capacity would be 250. If these classrooms are available 8 hours a day for 300 days a year, the capacity in student hours per year would be 600,000.

CCN: _____

Type Training Facility	Total Number	Design Capacity (PN)[1]	Capacity (Student HRS/YR)[2]
2F132 OPERATIONAL FLIGHT TRAINER (OFT)	1	1 SEAT	STUDENTS-993 HOURS-808.3
2E7 WEAPONS TACTICS TRAINER (WTT)	1	2 SEAT	STUDENTS-995 HOURS 756.6
CLASSROOMS	5	50 SEATS	UTILIZED 7,160 HRS
PISTOL RANGE	1	12 TARGETS	994 FIRED/YR
AN15G20 RADAR SIMULATOR	1	2	3792 HOURS

[1] Design Capacity (PN) is the total number of seats available for students in spaces used for academic instruction; applied instruction; and seats or positions for operational trainer spaces and training facilities other than buildings, i.e., ranges. Design Capacity (PN) must reflect current use of the facilities.

[2] Design how the student HRS/YR value in the preceding table was derived.

14c. Assuming that the ground school training facility **is not constrained by operational funding** (personnel support, increased overhead costs, etc.), with the present equipment, physical plant, etc, what additional capacity (in student hours/yr) could be gained? Provide details and assumptions for all calculations.
N/A

14d. List and explain the **limiting factors** that further funding for personnel, equipment, facilities, etc. cannot overcome.
N/A

14e. For facilities with category codes 171-xx, 179-xx, and any other CCN's, provide the amount of adequate, substandard and inadequate **facilities** in terms of square feet and number of students.

Parent UIC	CCN	Facility Type	Adequate		Substandard		Inadequate		Total	
			SF	PN	SF	PN	SF	PN	SF	PN
M6019	171-10	AC.INST.BLDG	9586	190					9586	190
M60169	17-20	AP.INST.BLDG	17119	114	41354 SEE NOTE 1	276	1757 SEE NOTE 2	12	60230	402
M60169	171-35	OP.TRAIN.BLDG	27756	SEE NOTE 3					27756	SEE NOTE 3
M60169	171-45	MOCKUP/TRAIN CTR	1056	N/A					1056	
M60169	179-10	A/C GUN BOMB & ROC KET RANGE	1 EACH	N/A					1 EACH	
M60169	179-40	SMALL ARMS RANGE	1 EACH	N/A					1 EACH	
M60169	179-50	TRAIN CRS	2 EACH	N/A					2 EACH	
M60169	179-55	COMBAT TRAIN TANK	1 EACH	N/A					1 EACH	
M60169	176-60	PARADE & DRILL FIELD	5 AC	N/A					5 AC	

[2] Design how the student HRS/YR value in the preceding table was derived..

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14c. Assuming that the ground school training facility **is not constrained by operational funding** (personnel support, increased overhead costs, etc.), with the present equipment, physical plant, etc, what additional capacity (in student hours/yr) could be gained? Provide details and assumptions for all calculations.

N/A

14d. List and explain the **limiting factors** that further funding for personnel, equipment, facilities, etc. cannot overcome.

N/A

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Parent	CCN	Facility Type	Adequate		Substandard		Inadequate		Total	
UIC										

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your Baserep.

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14e. For facilities with category codes 171-xx, 179-xx, and any other CCN's, provide the amount of adequate, substandard and inadequate **facilities** in terms of square feet and number of students.

Parent UIC	CCN	Facility Type	Adequate		Substandard		Inadequate		Total	
			SF	PN	SF	PN	SF	PN	SF	PN
M60169	171-10	AC.INST.BLDG	9586	190					9586	190
M60169	171-20	AP.INST.BLDG	17119	114	41354 SEE NOTE 1	276	1757 SEE NOTE 2	12	60230	402
M60169	171-35	OP.TRAIN.BLDG	27756	SEE NOTE 3					27756	SEE NOTE 3
M60169	171-45	MOCK UP/TRAIN CTR	1056	N/A					1056	
M60169	179-10	A/C GUN BOMB&ROCKET RANGE	1 EACH	N/A					1 EACH	
M60169	179-40	SMALL ARMS RANGE	1 EACH	N/A					1 EACH	
M60169	179-50	TRAIN CRS	2 EACH	N/A					2 EACH	
M60169	179-55	COMBAT TRAIN TANK	1 EACH	N/A					1 EACH	
M60169	176-60	PARADE&DRILL FIELD	5 AC	N/A					5AC	

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your Baserep.

[2] Design how the student HRS/YR value in the preceding table was derived..

14c. Assuming that the ground school training facility **is not constrained by operational funding** (personnel support, increased overhead costs, etc.), with the present equipment, physical plant, etc, what additional capacity (in student hours/yr) could be gained? Provide details and assumptions for all calculations.

N/A

14d. List and explain the **limiting factors** that further funding for personnel, equipment, facilities, etc. cannot overcome.

N/A

14e. For facilities with category codes 171-xx, 179-xx, and any other CCN's, provide the amount of adequate, substandard and inadequate **facilities** in terms of square feet and number of students.

N/A

Parent UIC	CCN	Facility Type	Adequate		Substandard		Inadequate		Total	
			SF	PN	SF	PN	SF	PN	SF	PN

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these

deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your Baserep.

SHIP BERTHING CAPACITY

15a. For each **Pier/Wharf** at your facility list the following **structural characteristics.** Indicate the additional controls required if the pier is inside a Controlled Industrial Area or High Security Area. Provide the average number of days per year over the last eight years that the pier was out of service (OOS) because of maintenance, including dredging of the associated slip:

Pier/ Wharf & Age[1]	CCN[2]	Moor Length (ft)	Design Dredge Depth[3] (ft) (MLLW)	Slip Width[4] (ft)	Pier Width (ft)[5]	CIA/Security Area? (Y/N)[6]	ESQD Limit[7]	# Days OOS for maint.
Fuel Pier 1957 *(see note)	151-40	350	14	N/A	varies	N	N/A	0

original age and footnote a list of MILCON improvements in the past 10 years.
[2]Use NAVFAC P-80 for category code number.
[3]Comment if unable to maintain design dredge depth
[4]Water distance between adjacent finger piers.

[5]Indicate if RO/RO and/or Aircraft access. Indicate if on-pier structure limits open pier space.
[6]Describe the additional controls for the pier.
[7]Net explosive weight. List all ESQD waivers that are in effect with expiration date.

***NOTE - 1987 extension, MILCON Project**

15b. For each **Pier/Wharf** at your facility list the following ship support characteristics:

Pier/ Wharf	OPNAV 3000.8 (Y/N)	Shore Pwr (KVA) & 4160V (KVA)	Comp. Air Press. & Capacity[1]	Potable Water (GPD)	CHT (GPD)	Oily Waste[1] (gpd)	Steam (lbm/hr & PSI)[2]	Fendering limits[3]
Fuel Pier		12.5 KV	NO	950 GPM *(see NOTE)		NO	NO	NONE

[1]List only permanently installed facilities.
[2]Indicate if the steam is certified steam.
[3]Describe any permanent fendering arrangement limits on ship berthing.

***NOTE - Fire protection at ops only. No ship service available.**

15c. For each pier/wharf listed above state today's normal loading, the maximum capacity for berthing, maximum capacity for weapons handling evolutions, and maximum capacity to conduct intermediate maintenance.

Pier/ Wharf	Typical Steady State Loading[1]	Ship Berthing Capacity	Ordnance Handling Pier Capacity[2]	IMA Maintenance Pier Capacity[3]
Fuel Pier	100/sqft	One fuel barge	N/A	N/A

[1]Typical pier loading by ship class with current facility ship loading.

[2]List the maximum number of ships that can be moored to conduct ordnance handling evolutions at each pier/berth without berth shifts. Consider safety, ESQD and access limitations.

[3]List the maximum number of ships that can be serviced in maintenance availabilities at each pier without berth shifts because of crane, laydown, or access limitations.

15d. For each pier/wharf listed above, based on Presidential Budget 1995 budgeted infrastructure improvements in Presidential Budget 1995 through FY1997 and the BRAC 91 and 93 realignments, state the expected normal loading, the maximum capacity for berthing, maximum capacity for weapons handling evolutions, and maximum capacity to conduct intermediate maintenance.

Pier/ Wharf	Typical Steady State Loading[1]	Ship Berthing Capacity	Ordnance Handling Pier Capacity[2]	IMA Maintenance Pier Capacity[3]
Fuel Pier	100/sqft	One fuel barge	N/A	N/A

[1]Typical pier loading by ship class with current facility ship loading.

[2]List the maximum number of ships that can be moored to conduct ordnance handling evolutions at each pier/berth without berth shifts. Consider safety, ESQD and access limitations.

[3]List the maximum number of ships that can be serviced in maintenance availabilities at each pier without berth shifts because of crane, laydown, or access limitations.

15e. How much pier space is required to berth and support ancillary craft (tugs, barges, floating cranes, etc.) currently at your facility? Indicate if certain piers are uniquely suited to support these craft.

1000 SF boat house and boat lift at pier to support spill contingency plan.

15f. What is the average pier loading in ships per day due to visiting ships at your base. Indicate if it varies significantly by season.

Only fuel barges regularly use the pier approximately once per week.

15g. Given no funding or manning limits, what modifications or improvements would you make to the waterfront infrastructure to increase the cold iron ship berthing capacity of your installation? Provide a description, cost estimates, and additional capacity gained.

N/A

15h. Describe any unique limits or enhancements on the berthing of ships at specific piers at your base.

Located on intracoastal waterway.

FACILITIES

16a. Using the types (and mix) of aircraft currently stationed at your installation, project the additional number of these aircraft (maintain approximate current mix/ratio of A/C) that could be based and parked on your **current parking aprons.**
Provide two estimates:

1. Using NAVFAC P-80 standard measures
2. Using real world planning factors to accommodate a surge demand for space (maintaining safe operating procedures).

Aircraft Type	Current # of Aircraft Parked/Stationed	Maximum Additional Capacity (# of Aircraft)		Total	
		NAVFAC	Surge	NAVFAC	Surge
F/A-18	**96 (See Note #1)**	**30 (see NOTE #2)**	**87 (see NOTE #3)**	**114 (see NOTE #2)**	**190 (See Note #3)**
HH-46	**3**	**0 (see NOTE #4)**	**6**	**3**	**9**
UC-12	**1**	**1**	**2**	**2**	**3**

Provide the **details of your calculations**, including your assumptions on the minimum separation between aircraft, parking angle, folding of aircraft wings and any obstructions

that may limit the placement of aircraft on the parking apron spaces. Indicate if taxiway aprons are used in the projection.

NOTE #1 - Number is based on aircraft assigned. One squadron is always UDP.
NOTE #2 - Existing parking and hangars full simultaneously.
NOTE #3 - Existing parking extended to include Cala Pad, 45 deg parking, wings up (provides 23% increase over wings down), std. parking dimension and separation, NAVFAC safety criteria.
NOTE #4 - Maintenance limited to three helo.

16b. List current **usage of parking apron area** in SF, being used by the following categories of Squadron/Aircraft. The six categories listed correspond to the categories described above in questions 5 ,6, 7, 8, 9, and 10. Category Code Number (CCN) from P-80. Provide an estimate for FY 2001.

Parking Apron Location/ Designator	Apron Area in SF (CCN 113-20) and Apron Access Area in SF (CCN 113-40						
	Active SQD/Det A/C	Reserve SQD/Det A/C	USN/USMC Station A/C	DoD or non-DoD A/C	Other USN(R) USMC(R), DoD/non-DOD	Other units not covered and transient A/C	
CC 113-10 (see NOTE #1)	**1,728,000**		**90,000**			**316,800**	
CC 113-40	**24,000**		**19,800**			**N/A**	

NOTE #1 - 480,000 SF aircraft parking apron at Hangar 594 (MALS-31) being utilized for tactical van pad.

16c. Assume that all planned MILCON in PB 1995 (Presidential budget submission) through FY 1997 and BRACON is completed as scheduled. What **additional parking capacity** would be realized? Provide cost and details of all additional capacity calculations.

NONE

16d. What additional projects could be added to provide parking space? At what estimated cost? Provide details and assumptions for all calculations.

Projects can be developed for construction in presently undeveloped areas to provide berthing for 10 additional squadrons (120 additional aircraft). This would provide 450,000 additional sqyd of parking/taxiways (based on 45,000 sqyd per squadron) at a cost of 18.0 million.

16e. List and explain the **limiting factors** that further funding for personnel, equipment, facilities, etc., cannot overcome (e.g., AICUZ restrictions, environmental restrictions, land areas, etc.).

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A/C parking aprons and hangars are limited by space for expansion in the built-up area. Undeveloped areas suitable for sitting A/C squadrons support facilities will accept 10 additional squadrons (120 additional aircraft) without impact to wetlands or land use criteria.

17a. List the **hangars** at the air station. Identify by (P-80) type, year built, dimensions.

Hangar ID/#	Type I, II or (O)ther	Year Built	Hangar Deck Dimensions	Limiting Height	Current Usage	In SF CC 211-05			
						Adequate	Substandard	Inadequate	Total
414	I	1956	250x91	24' DOOR	F/A-18	43451			43451
416	I	1956	250x91	24' DOOR	F/A-18	43662			43662
418	II	1956	242x160	40' DOOR	F/A-18	41663			41663
728	I	1964	160x82	27' DOOR	F/A-18	13284			13284
729	I	1964	160x82	27' DOOR	F/A-18	13176			13176
594	II	1959	166x247	40' DOOR	MALS-31	47277			47277

NOTE 1 - 15,192 SF CC 211-21 ENGINE MAINTENANCE. P-394 MOVES ENG. MAINT. TO NEW FACILITY IN FY-96. HANGER EXPANDED TO SUPPORT 2 A/C SQUADRONS.

BSAT stated that supporting documentation was required for the previously revised data.

IN RESPONSE, THE FOLLOWING DATA AND INFORMATION WERE PROVIDED ON 11/14/94:

a) Hangar 728 was renovated with an additional F/A-18D Aircraft, and 15,192 SF of CC211-21.

b) The Engine Maintenance Shop relocated to Bldg 1084 from Hangar 418 during FY-95 MILCON Project P-394.

c) F/A-18D Support Facilities: Hangar 418 has expanded to accommodate two A/C squadrons. Reported numbers reflect the changes now taking place in the hangar spaces; the P-164 will reflect changes only after all construction is complete.

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your Baserep.

A/C parking aprons and hangars are limited by space for expansion in the built-up area. Undeveloped areas suitable for sitting A/C squadrons support facilities will accept 10 additional squadrons (120 additional aircraft) without impact to wetlands or land use criteria.

17a. List the **hangars** at the air station. Identify by (P-80) type, year built, dimensions.

Hangar ID/#	Type I, II or (O)ther	Year Built	Hangar Deck Dimensions	Limiting Height	Current Usage	In SF				
						Adequate	Substandard	Inadequate	Total	
414	**I**	**1956**	**250x91**	**24'**	**F/A-18**	**67207**			**67207**	I-1
416	**I**	**1956**	**250x91**	**24'**	**F/A-18**	**67310**			**67310**	I-1
418	**II**	**1956**	**242x160**	**40'**	**F/A-18/Eng Maint**	**58667**		**15192***	**73859**	II-1
728	**I**	**1964**	**160x82**	**27'**	**F/A-18**	**13284**		**10436****	**23720**	I-1
729	**I**	**1964**	**160x82**	**27'**	**F/A-18**	**13176**		**10436****	**23612**	I-1
594	**II**	**1959**	**166x247**	**40'**	**MALS-31**	**86039**			**86039**	II-0

*** Area inadequate to support eng maint; move to new facility MILCON P-394 (FY-96)**
**** Seismically and area inadequate; replace MILCON P-394 (FY-96)**

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your Baserep.

17b. For each **hangar** provide **space allocation** information listed in table below. Indicate if OPS/ADMIN space is in a non-contiguous building, Provide subtotal for each hangar.

Hangar #/ID/Type	SQD/Mod# Assignment[1]	Ops + Admin Spaces SF/ Module	Maint Shops SF/ Module (O Level)	Hangar Deck SF/Module	A/C Line parking spaces[2,3]		
					#/ Module	SF	Elec. Pwr.
414	**VMFA 251/Hgr 1/Mod A/C**	**2786 (see NOTE #2)**	**9092**	**21725**	**12**	**292K**	**Y**
	VMFA 312/Hgr 2/Mod A/C (see NOTE #1)	**2786**	**9092**	**21725**	**12**	**292K**	**Y**
416	**VMFA 451/Hgr 1/Mod A/C**	**2820 (see NOTE #2)**	**9004**	**21831**	**10**	**270K**	**Y**
	VMFA 115/Hgr 2/Mod A/C (see NOTE #1)	**2820**	**9004**	**21831**	**10**	**270K**	**Y**
418	**VMFA 533/Hgr 1 Mod D (see NOTE #1)**	**9574 (see NOTE #3)**	**7430**	**20831**	**8**	**213K**	**Y**
		9574	**7430**	**20831**	**8**	**213K**	**Y**
728	**VMFA 332/Hgr 1/Mod D**	**5431 (see NOTE #3)**	**5005**	**13284**	**11**	**295K**	**Y**
729	**VMFA 224/Hgr 1/Mod D (see NOTE #1)**	**5431 (see NOTE #3)**	**5005**	**13176**	**12**	**340K**	**Y**

594	MALS-31/Hgr 1 MALS-31/Hgr 2	5334 5334	14046 14046	23638 23638	N/A N/A	N/A N/A	N/A N/A
TOTAL All Mods		51890	89154	202510	79	2185K SF	

NOTE #1 - All aircraft F/A-18
NOTE #2 - Squadron admin non-contiguous
NOTE #3 - Squadron admin contiguous

[1] Provide which SQD/Det was assigned to the specific module at receipt of this Data Call. (i.e., VFA-15, Hgr 1, Mod C)
[2] Dedicated aircraft parking spaces per Module and total square feet (SF) of A/C line parking spaces
[3] Are there A/C line parking spaces supported by permanently installed electric power? (Y/N)

17c. Assume that all planned MILCON in PB 1995 (Presidential budget submission) through FY 1997 and BRACON is completed as scheduled. What **additional hangar capacity** would be realized? Provide cost and details of all additional capacity calculations.

P-394 will modify Hangar 418 from the present configuration of 1 squadron to an adequate 2 squadron hangar. The portion of this MILCON to upgrade is 1.3 million to renovate hangar and .8 million to relocate engine maintenance shop presently located in Hangar 418.

17d. What additional projects could be added to provide more hangar space? At what estimated cost? Provide details and assumptions for all calculations.

Projects can be developed for construction in presently undeveloped areas to provide hangars for 10 additional squadrons (120 additional aircraft) at a cost of 42.35 million. This is based on 5 hangars sized to house 2 squadrons each.

17e. List and explain the **limiting factors** that further funding for personnel, equipment, facilities, etc., cannot overcome (e.g., AICUZ restrictions, environmental restrictions, land areas, lack of expansion space, etc.).

Hangars expansion is limited by space for expansion in the built-up area. Undeveloped areas suitable for sitting A/C squadrons facilities will accept 10 additional squadrons (120 additional aircraft) without impact to wetlands or land use criteria.

17f. List all **squadrons/detachments** normally homeported at this air station that were deployed and **not assigned** hangar/maintenance spaces at receipt of this data call.

Squadron/Detachment	#/Type Aircraft	Deployed Location
VMFA 122	**12**	**MCAS Iwakuni**

17g. List all **squadrons/detachments** normally homeported at this air station that were deployed and **were assigned** hangar/maintenance spaces at receipt of this data call.

Squadron/Detachment	#/Type Aircraft	Hanger Module Assignment
VMFA(AW) 224	**12**	**HANGAR 729**

17h. Using the types (and mix) of **aircraft** currently stationed at your installation, project the maximum additional number of these aircraft (maintain approximate current mix/ratio of A/C) that could be housed and maintained in **your current hangars**. Provide two estimates:

1. Using NAVFAC P-80 standard measures
2. Using real world planning factors to accommodate a surge demand for space (maintaining safe operating procedures).

Aircraft Type	Current # of Aircraft Parked/Stationed	Maximum Additional Capacity (# of Aircraft)		Total (Current + Additional)	
		NAVFAC	Surge	NAVFAC	Surge
F/A-18A,C,D	**96 (See NOTE #1)**	**30 (see NOTE #2)**	**87 (see NOTE #3)**	**114 (See NOTE #2)**	**190 (See NOTE #3)**
HH-46D	**3**	**0 (see NOTE #4)**	**6**	**3**	**9**
UC-12B	**1**	**1**	**2**	**2**	**3**

Provide the **details of your calculations**, including your assumptions on the minimum separation between aircraft, folding of aircraft wings and any obstructions that may limit the placement of aircraft in the hangars.

NOTE #1 - Number is based on aircraft assigned. One squadron is always UDP.
NOTE #2 - Existing parking and hangar full simultaneously.
NOTE #3 - Existing parking extended to include Cala Pad, 45 deg parking, wings up (provides 23% increase over wings down), std. parking dimension and separation, NAVFAC safety criteria.
NOTE #4 - Maintenance limited to three helo.

18. Do you have any of the following **special use facilities** at the Air Station?

CCN	Type of Facility	In SF				# of Units	Year Built
		Adequate	Substandard	Inadequate	Total		
211-01	**Aircraft Acoustical Enclosure**					**0**	
211-02	**Nose Hangar**					**0**	
211-03	**Corrosion Control Hangar**					**0**	
211-75	**Parachute/Survival Equipment Shop**	**7152**			**7152**	**1**	**1969**
211-81	**Engine Test Cell**	**2617**			**2617**	**1**	**1959**
211-88	**Power Check Pad with Sound Suppression**	**D**				**0**	
211-89	**Power Check Pad without Sound Suppression**	**5 ea**	**1 ea**	**3 ea**	**9 ea**	**9 ea**	**1977**
211-96	**Maintenance, Aircraft Spares Storage**					**0**	
116-10	**Airfield Washrack Pavement**	**14454**				**2**	**1976**
116-15	**Aircraft Rinse Facility**	**8190-SF**				**1 ea**	**1990**
214-30	**Refueling Vehicle Shop**	**4875**				**1 ea**	**1958**
218-60	**Aircraft Ground Support Equipment**	**5723**				**1 ea**	**1985**
	Other						

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your Baserep.

19a. Using the types (and mix) of aircraft currently stationed at your installation, project the maximum number of these aircraft that could be supported with your present **AIMD/MALS facility.**

Aircraft Type	Current # of Aircraft	Additional # of Aircraft	Total
F/A-18A,C,D	**96 See *NOTE**	**12**	**108**

		Limited by personnel hangar/ramp space	
HH-46D	**3**	**No AIMD on site**	
UC-12B	**1**	**Contract Maintenance**	

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***NOTE - Number is based on aircraft assigned. One squadron is always UDP.**

Provide the **basis** (including source data) **of your calculations** in detail. Include limiting factors.

19b. Describe any aviation maintenance backlogs that the station currently experiences on a routine basis. List the average backlog times and the reasons for the backlogs (e.g. supply shortfall, insufficient local labor, over tasking of work stations, space limitations).

Items in support of the F404 engine. Backlog times are 30-90 days usually due to contractor production schedule.

19c. Assume that all planned MILCON in PB 1995 (Presidential budget submission) through FY 1997 and BRACON is completed as scheduled. What **additional maintenance capacity** would be realized? Provide cost and details of all additional capacity calculations.

MILCON-P394 provides additional maintenance capacity in the areas of engine maintenance (11,000) SF, MALS-31 van pads, NDI facility, aviation shops, maintenance spaces (8,812 SF) and a four-bay airplane washrack. The cost of this portion of the MILCON is 3.99 million.

19d. What additional projects could be added to provide additional maintenance capacity? At what estimated cost? Provide details and assumptions for all calculations.

Projects can be developed for construction in presently undeveloped area for support of 10 additional squadrons (120 additional aircraft). A total additional 72,500 SF can be constructed at a cost of 6.0 million.

19e. List and explain the **limiting factors** that further funding for personnel, equipment, facilities, etc., cannot overcome (e.g., AICUZ restrictions, environmental restrictions, land areas, etc.).

Aircraft maintenance facility expansion is limited by space for expansion in the built-up area. Undeveloped areas suitable for sitting additional maintenance facilities will support 10 additional squadrons (120 additional aircraft) without impact to wetlands or land use criteria.

20a. For the following **aircraft support facility** category codes, provide the amount of adequate substandard, and inadequate facilities.

For the last revision, BSAT stated that they could not validate all facilities with the P-164.

The response to the BSAT comment is as follows:

a) The present P-164 will not reconcile with responses provided because of updates from an evaluation done by an architectural and engineering firm, BHR Engineering. The evaluation contains current accurate measurements of the facilities aboard Marine Corps Air Station Beaufort. The input to update the Port Hueneme database was completed in October, 1994.

b) Numbers/area reflect current upgrading by FY-94 MILCON Project P-381, Jet Fuel Delivery System Improvements, designed to increase jet A/C fueling capacity and capability.

c) Parking Apron areas were updated as a result of construction, additions and the Engineering Evaluation.

		Limited by personnel hangar/ramp space	
HH-46D	**3**	**No AIMD on site**	
UC-12B	**1**	**Contract Maintenance**	

***NOTE - Number is based on aircraft assigned. One squadron is always UDP.**

Provide the **basis** (including source data) **of your calculations** in detail. Include limiting factors.

19b. Describe any aviation maintenance backlogs that the station currently experiences on a routine basis. List the average backlog times and the reasons for the backlogs (e.g. supply shortfall, insufficient local labor, over tasking of work stations, space limitations).

Items in support of the F404 engine. Backlog times are 30-90 days usually due to contractor production schedule.

19c. Assume that all planned MILCON in PB 1995 (Presidential budget submission) through FY 1997 and BRACON is completed as scheduled. What **additional maintenance capacity** would be realized? Provide cost and details of all additional capacity calculations.

MILCON-P394 provides additional maintenance capacity in the areas of engine maintenance (11,000) SF, MALS-31 van pads, NDI facility, aviation shops, maintenance spaces (8,812 SF) and a four-bay airplane washrack. The cost of this portion of the MILCON is 3.99 million.

19d. What additional projects could be added to provide additional maintenance capacity? At what estimated cost? Provide details and assumptions for all calculations.

Projects can be developed for construction in presently undeveloped area for support of 10 additional squadrons (120 additional aircraft). A total additional 72,500 SF can be constructed at a cost of 6.0 million.

19e. List and explain the **limiting factors** that further funding for personnel, equipment, facilities, etc., cannot overcome (e.g., APCUZ restrictions, environmental restrictions, land areas, etc.).

Aircraft maintenance facility expansion is limited by space for expansion in the built-up area. Undeveloped areas suitable for sitting additional maintenance facilities will support 10 additional squadrons (120 additional aircraft) without impact to wetlands or land use criteria.

20a. For the following **aircraft support facility** category codes, provide the amount of adequate substandard, and inadequate facilities.

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CCN	Facility Type	Unit of Measure	Adequate	Substandard	Inadequate	Total	Number of Units
111-20	**Landing Pads**	**SF**	**9000**			**9000**	**1**
121-10	**Direct Fueling**	**OL/GM**	**9 @ 300 GPM**			**9 @ 300 GPM**	**9**
124-30	**Fuel Storage**	**GA**	**2014K**			**2014K**	**6**
421-xx	**Ammunition Storage**	**CF/TONS**					
425-xx	**Open Ammunition Storage**	**SF**					
113-20	**Parking Aprons**	**SF**	**4050K**			**4050K**	
113-40	**Access Aprons**	**SF**	**288K**			**288K**	
116-56	**Combat Aircraft Ordnance Loading Area**	**SF**	**270K**			**270K**	
	Other						

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your Baserep.

20b. Assume that all planned MILCON in PB 1995 (Presidential budget submission) through FY 1997 and BRACON is completed as scheduled. What **additional operating capacity** would be realized? Provide cost and details of all additional capacity calculations.

MILCON P-385 will provide 2 additional HE magazines for a total of 12,010 SF at a cost of 2.7 million.

Following entry of the above sentence, BSAT stated that the 2.7 million is not in agreement with the 2.3 million in the P-385.

The 11/14/94 response is that the MILCON Project P-385, High Explosive Magazines, has been reprogrammed from FY-96 to FY-99. The three year cost escalation caused by inflation has resulted in an increase from 2.3M to 3.0M.

20c. What additional projects could be added to provide additional operating capacity? At what estimated cost? Provide details and assumptions for all calculations.

CCN	Facility Type	Unit of Measure	Adequate	Substandard	Inadequate	Total	Number of Units
111-20	**Landing Pads**	**SF**	**9000**			**9000**	**1**
121-10	**Direct Fueling**	**OL/GM**	**9 @ 300 GPM**			**9 @ 300 GPM**	**9**
124-30	**Fuel Storage**	**GA**	**2014K**			**2014K**	**6**
421-xx	**Ammunition Storage**	**CF/TONS**					
425-xx	**Open Ammunition Storage**	**SF**					
113-20	**Parking Aprons**	**SF**	**4050K**			**4050K**	
113-40	**Access Aprons**	**SF**	**288K**			**288K**	
116-56	**Combat Aircraft Ordnance Loading Area**	**SF**	**270K**			**270K**	
	Other						

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your Baserep.

20b. Assume that all planned MILCON in PB 1995 (Presidential budget submission) through FY 1997 and BRACON is completed as scheduled. What **additional operating capacity** would be realized? Provide cost and details of all additional capacity calculations.

MILCON P-385 will provide 2 additional HE magazines for a total of 12,010 SF at a cost of 2.7 million.

20c. What additional projects could be added to provide additional operating capacity? At what estimated cost? Provide details and assumptions for all calculations.

Projects can be developed for construction in presently undeveloped area for additional aircraft support facilities to support 10 additional squadrons (120 additional aircraft) at a cost of 32.75 million.

20d. List and explain the **limiting factors** that further funding for personnel, equipment, facilities, etc., cannot overcome (e.g., environmental restrictions, land areas, etc.).

Projects can be developed for construction in presently undeveloped area for additional aircraft support facilities to support 10 additional squadrons (120 additional aircraft) at a cost of 32.75 million.

20d. List and explain the **limiting factors** that further funding for personnel, equipment, facilities, etc., cannot overcome (e.g., environmental restrictions, land areas, etc.).

Additional aircraft support facilities expansion is limited by space for expansion in the built-up area. Undeveloped areas suitable for sitting additional aircraft support facilities will support 10 additional squadrons (120 additional aircraft) without impact to wetlands or land use criteria.

21a. Indicate the **aviation support equipment storage** requirements for **FY1994** by completing the following table. Do not repeat storage of equipment in hangars discussed in questions 17 and 18.

Squadron/Det	Open Storage Reqt/Laydown(SF)	Covered Storage Reqt/Laydown(SF)	General Characterization of Equipment/Supplies stored
MAG-31 (see *NOTE I)	**30,935**	**93,900**	**see NOTE #1**
MWSS-273	**360,000**	**27,290**	**see NOTE #2**
MACS-2	**240,000**	**19,390**	**see NOTE #3**
CSSD-23	**180,000**	**3,940**	**see NOTE #4**
H&HS	**3,575**	**2,630**	**see NOTE #5**

***NOTE I - MAG-31 requirements for FY-94 include MALS-31, VMFA-115, VMFA-251, VMFA-312, VMFA-122, VMFA-451, VMFA(AW)-533, VMFA(AW)-224, VMFA(AW)-332.**

NOTE #1 - The tasks of MAG-31 which require storage space include organizational maintenance on assigned aircraft, 1st echelon maintenance or assigned aviation equipment, intermediate level maintenance, maintenance of ground support equipment, cryogenic products and requisition receipt and storage of aviation support supplies.

NOTE #2 - MWSS-273 storage requirements are for expeditionary tactical equipment used to support Marine Wing deployments worldwide. They include Internal Airfield Communication, Motor Transport Operations, 1st and 2nd Echelon Maintenance, Essential Engineering Services, Aircraft and Ground Refueling, Nuclear, Biological and Chemical Defense Systems, Crash Fire Rescue and Structural Fire Fighting Services, Messing Facilities and Supply.

NOTE #3 - MACS-2 storage space requirements are for expeditionary tactical equipment used to support Marine Wing elements deployed. They include air surveillance and central systems for aircraft and surface to air missiles for anti-air warfare support of the FMF, Communication Equipment, Nuclear Biological and Chemical Defense Systems, Messing Facilities and requisition, receipt and distribution of supplies.

NOTE #4 - CSSD-23 storage space required for tactical embarkation equipment intermediate maintenance, for engineer, weapons and communications-electronics equipment for FMF units

Additional aircraft support facilities expansion is limited by space for expansion in the built-up area. Undeveloped areas suitable for sitting additional aircraft support facilities will support 10 additional squadrons (120 additional aircraft) without impact to wetlands or land use criteria.

21a. Indicate the **aviation support equipment storage** requirements for **FY1994** by completing the following table. Do not repeat storage of equipment in hangars discussed in questions 17 and 18.

Squadron/Det	Open Storage Reqt/Laydown(SF)	Covered Storage Reqt/Laydown(SF)	General Characterization of Equipment/Supplies stored
MAG-31 (see *NOTE I)	**30,935**	**93,900**	**see NOTE #1**
MWSS-273	**360,000**	**27,290**	**see NOTE #2**
MACS-2	**240,000**	**19,390**	**see NOTE #3**
CSSD-23	**180,000**	**3,940**	**see NOTE #4**
H&HS	**3,575**	**2,630**	**see NOTE #5**

***NOTE I - MAG-31 requirements for FY-94 include MALS-31, VMFA-115, VMFA-251, VMFA-312, VMFA-122, VMFA-451, VMFA(AW)-533, VMFA(AW)-224, VMFA(AW)-332.**

NOTE #1 - The tasks of MAG-31 which require storage space include organizational maintenance on assigned aircraft, 1st echelon maintenance on assigned aviation equipment, intermediate level maintenance, maintenance of ground support equipment, cryogenic products and requisition receipt and storage of aviation support supplies.

NOTE #2 - MWSS-273 storage requirements are for expeditionary tactical equipment used to support Marine Wing deployments worldwide. They include Internal Airfield Communication, Motor Transport Operations, 1st and 2nd Echelon Maintenance, Essential Engineering Services, Aircraft and Ground Refueling, Nuclear, Biological and Chemical Defense Systems, Crash Fire Rescue and Structural Fire Fighting Services, Messing Facilities and Supply.

NOTE #3 - MACS-2 storage space requirements are for expeditionary tactical equipment used to support Marine Wing elements deployed. They include air surveillance and central systems for aircraft and surface to air missiles for anti-air warfare support of the FMF, Communication Equipment, Nuclear Biological and Chemical Defense Systems, Messing Facilities and requisition, receipt and distribution of supplies.

NOTE #4 - CSSD-23 storage space required for tactical embarkation equipment intermediate maintenance, for engineer, weapons and communications-electronics equipment for FMF units

deployed from MCAS Beaufort.

NOTE #5 - H&HS storage space requirements include requisitions, receipts, and storage of aviation support supplies for organizational maintenance of assigned aircraft, aviation equipment, ground support equipment and cryogenic products.

21b. Indicate the **aviation support equipment storage** requirements for **FY2001** by completing the following table. Do not repeat storage of equipment in hangars discussed in questions 17 and 18.

Squadron/Det	Open Storage Reqt/Laydown(SF)	Covered Storage Reqt/Laydown(SF)	General Characterization of Equipment/Supplies stored
MAG-31 (see *NOTE II)	**34,801**	**104,625**	**see 21a NOTE #1**
MWSS-273	**360,000**	**27,290**	**see 21a NOTE #2**
MACS-2	**240,000**	**19,390**	**see 21a NOTE #3**
CSSD-23	**180,000**	**3,940**	**see 21a NOTE #4**
H&HS	**3,575**	**2,630**	**see 21a NOTE #5**

***NOTE II - MAG-31 requirements for FY-2001 include MALS-31, VMFA-115, VMFA-251, VMFA-312, VMFA-122, VMFA(AW)-533, VMFA(AW)-224, VMFA(AW)-332. BRAC-1993 Relocation: VFA-203, VMFA-142.**

21c. Utilizing the **general supply storage** category codes listed in the following table, provide the amount of space available, under your plant account, presently classified as adequate, substandard, and inadequate.

CCN	Facility Type	Ave Age	Unit Measure	Adequate	Substandard	Inadequate	Total	Comments
441-xx	General Supply Storage-Covered	25	SF	258076*	44854	35	302965	CC 441 - 10, 12, 20, 30, 35, 72
451-xx	General Supply Storage - Open	Varies	SF	31414	0	358	31772	

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your Baserep.

* CCN 441 - 10 only (General Warehouse, Navy) = 140,045 SF Adequate

21d. List **off base storage areas** utilized due to lack of sufficient storage facilities on station to suppor aviation support unit equipment/supplies storage needs.

NONE

Squadron/Det	Storage: (O)pen or (C)overed	Laydown: SF	Location	Navy (O)wned or (L)eased

*** CCN 441 - 10 only (General Warehouse, Navy) = 140,045 SF Adequate**

21d. List **off base storage areas** utilized due to lack of sufficient storage facilities on station to support aviation support unit equipment/supplies storage needs.

NONE

Squadron/Det	Storage: (O)pen or (C)overed	Laydown: SF	Location	Navy (O)wned or (L)eased

22. In the following table, indicate the space and condition for each **specific facility** category codes indicated. Many of the P-80 Category Code Numbers (CCN's) have assets that are reported in units of measure other than square feet (SF). The only unit of measure desired for this Data Call is SF. Only report the assets in each CCN that are normally reported in SF.

Building Type	NAVFAC (P-80) CCN	Installation space (SF)			
		Adequate	Substandard	Inadequate	Total
Production Facilities	**220-xx**				**0**
RDT & E Facilities	**300-xx**				**0**
Supply Facilities	**400-xx (see NOTE #1)**	**297872**	**44854**	**19224 (see NOTE #2)**	**361950**

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22. In the following table, indicate the space and condition for each **specific facility** category codes indicated. Many of the P-80 Category Code Numbers (CCN's) have assets that are reported in units of measure other than square feet (SF). The only unit of measure desired for this Data Call is SF. Only report the assets in each CCN that are normally reported in SF.

Building Type	NAVFAC (P-80) CCN	Installation space (SF)			
		Adequate	Substandard	Inadequate	Total
Production Facilities	**220-xx**				**0**
RDT & E Facilities	**300-xx**				**0**
Supply Facilities	**400-xx (see NOTE #1)**	**297872**	**44854**	**19224 (see NOTE #2)**	**361950**
Hospital, Medical, Dental	**500-xx**		**2361**	**21704 (see NOTE #3)**	**24065**
Administrative Facilities	**600-xx**	**115492**	**29317**	**12937**	**157746**
Utilities/Grounds Improvements	**800-xx**	**24300**			**24300**
	TOTAL	437664	**76532**	**53865**	**568061**

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your Baserep.

NOTE #1 - All 400 Cat Codes
NOTE #2 - Ordnance magazines
NOTE #3 - FY-96 MILCON P-035 replaces Med/Den Facility

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Hospital, Medical, Dental	500-xx		2361	21704 (see NOTE #3)	24065
Administrative Facilities	600-xx	115492	29317	12937	157746
Utilities/Grounds Improvements	800-xx	23928			24300
	TOTAL	437292	76532	53865	568061

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your Baserep.

NOTE #1 - All 400 Cat Codes
NOTE #2 - Ordnance magazines
NOTE #3 - FY-96 MILCON P-035 replaces Med/Den Facility

23a. Provide the following information on **base infrastructure capacity** and load.

Natural Gas Row - Daily CFH requirement and daily limit specified onthe contract in effect as below:

Natural gas is provied by South Carolina Electric & Gas: 6,606 CCF per day (27,525 CFH) average. Military famility housing receives: 1,377 CCF per day (5,737 CFH) average. There is no limit to the quantity used.

	On Base Capacity	Off base long term contract	Normal Steady State Load	Peak Demand
Electrical Supply (KWH)	10 MVA 115 KV/12.5 KC	YES	5800 kw	7530 kw
Natural Gas (CFH)	(see NOTE #1)	YES	(see NOTE #1)	(see NOTE #1) 15723DT
Sewage (GPD)	1 MIL GPD	NO	500000	750000
Potable Water (GPD)	2 MIL GPD	YES	400000 GPD	600000 GPD
HTHW	240 PSI/BOMBTU	NO	25 MBTUH	40 MBTUH
Long Term Parking	160	N/A		

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	On Base Capacity	Off base long term contract	Normal Steady State Load	Peak Demand
Short Term Parking	**4160**	**N/A**		

NOTE #1 - Natural gas is purchased from local utility

23b. Does the current base infrastructure (i.e., utilities, parking), combined with any upgrades/expansions budgeted through FY1997, or BRACON scheduled through FY1999 provide additional capacity? Explain what additional capacity would be gained.

23a. Provide the following information on base infrastructure capacity and load.

	On Base Capacity	Off base long term contract	Normal Steady State Load	Peak Demand
Electrical Supply (KWH)	10 MVA 115 KV/12.5 KV	YES	5300 kw	7530 kw
Natural Gas (CFH)	(see NOTE #1)	YES	(see NOTE #1) 8904DT	(see NOTE #1) 15723DT
Sewage (GPD)	1 MIL GPD	NO	500000	750000
Potable Water (GPD)	2 MIL GPD	YES	400000 GPD	600000 GPD
HTHW	240 PSI/BOMBTU	NO	25 MBTUH	40 MBTUH
Long Term Parking	160	N/A		
Short Term Parking	4160	N/A		

NOTE #1 - Natural gas is purchased from local utility

23b. Does the current base infrastructure (i.e., utilities, parking), combined with any upgrades/expansions budgeted through FY1997, or BRACON scheduled through FY1999 provide additional capacity? Explain what additional capacity would be gained.

MILCON Project P-390 provides a 2" natural gas extension and a 10" looped water line extension to MACS-2 to provide increased flow of 500 GPM for fire protection and natural gas for heating MACS-2 and MWSS-273 compounds.

Hospital, Medical, Dental	**500-xx**		**2361**	**21704 (see NOTE #3)**	**24065**
Administrative Facilities	**600-xx**	**116468**	**29317**	**12937**	**158722**
Utilities/Grounds Improvements	**800-xx**	**23928**			**23928**
	TOTAL	**438268**	**76532**	**53865**	**568665**

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your Baserep.

NOTE #1 - All 400 Cat Codes
NOTE #2 - Ordnance magazines
NOTE #3 - FY-96 MILCON P-035 replaces Med/Den Facility

23a. Provide the following information on **base infrastructure capacity** and load.

	On Base Capacity	Off base long term contract	Normal Steady State Load	Peak Demand
Electrical Supply (KWH)	**10 MVA 115 KV/12.5 KC**	**YES**	**5800 kw**	**7530 kw**
Natural Gas (CFH)	**(see NOTE #1)**	**YES**	**(see NOTE #1)**	**(see NOTE #1)**
Sewage (GPD)	**1 MIL GPD**	**NO**	**500000**	**750000**
Potable Water (GPD)	**2 MIL GPD**	**YES**	**400000 GPD**	**600000 GPD**
HTHW	**240 PSI/BOMBTU**	**NO**	**25 MBTUH**	**40 MBTUH**
Long Term Parking	**160**	**N/A**		
Short Term Parking	**4160**	**N/A**		

NOTE #1 - Natural gas is purchased from local utility

23b. Does the current base infrastructure (i.e., utilities, parking), combined with any upgrades/expansions budgeted through FY1997, or BRACON scheduled through FY1999 provide additional capacity? Explain what additional capacity would be gained.

MILCON Project P-390 provides a 2" natural gas extension and a 10" looped water line extension to MACS-2 to provide increased flow of 500 GPM for fire protection and natural gas for heating MACS-2 and MWSS-273 compounds.

23c. How will future requirements (both environmental and base loading) on existing facilities (i.e. sewage treatment, water treatment, etc) impact the base infrastructure capacity in FYs 1995 through FY2001? Explain, including an estimate of the adjusted future capacity.

Increased requirements due to BRAC related personnel increases (reserves) will be offset by the planned decommissioning of VMFA-451 in 1998. No additional utility capacity will be required.

24. Provide the **maintenance, repair, and equipment expenditure data**. Project expenditures to FY97. Do not include data on Detachments who have received this Data Call directly. The following definitions apply:

MRP: Maintenance of Real Property Dollars is a budgetary term used to gather the expenses or budget requirements for facility work including recurring maintenance, major repairs, and minor construction (non-MILCON) inclusive of all Major Claimant funded Special Projects. It is the amount of funds spent on or budgeted for maintenance and repair of real property assets to maintain the facility in satisfactory operating condition. For purposes of this Data Call, MRP includes all M1/R1 and M2/R2 expenditures.

CPV: Current Plant Value of Class 2 Real Property is the hypothetical dollar amount to replace a Class 2 facility in kind with today's dollars. Example: the cost today to replace a wood frame barracks with a wood frame barracks.

ACE: Acquisition Cost of Equipment is the total acquisition cost of all "personal property" equipment maintained at your activity which includes the cost of installed equipment directly related to mission execution, such as lab test equipment. Class 2 installed capital equipment that is an integral part of the facility will not be reported as ACE.

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Fiscal Year	MRP ($M)	CPV ($M)	ACE ($M)
FY1985			
FY1986			
FY1987			

FY1988			
FY1989			
FY1990			
FY1991			
FY1992			
FY1993			
FY1994			
FY1995			
FY1996			
FY1997			

*** SEE ATTACHED PAGE**

25a. Provide data on the BOQs and BEQs assigned to your current plant account. The desired unit of measure for this capacity is people housed. Use CCN to differentiate between pay grades, i.e., E1-E4, E5-E6, E7-E9, CWO-O2, O3 and above.

Facility Type, Bldg. # & CCN	Total No. of Beds	Total No. of Rooms	Adequate		Substandard		Inadequate	
			Beds	Sq Ft	Beds	Sq Ft	Beds	Sq Ft
434 72111	**88**	**34**	**0**		**0**		**88**	**100**
435 72111	**88**	**34**	**0**		**0**		**88**	**100**
436 72111	**88**	**34**	**0**		**0**		**88**	**100**
437 72111	**88**	**34**	**0**		**0**		**88**	**100**
438 72111	**88**	**34**	**0**		**0**		**88**	**100**
439 72111	**88**	**34**	**0**		**0**		**88**	**100**
440 72111	**88**	**34**	**0**		**0**		**88**	**100**
441 72111	**88**	**34**	**0**		**0**		**88**	**100**
654 72111	**152**	**52**	**0**		**0**		**152**	**96**
655 72111	**152**	**52**	**0**		**0**		**152**	**96**
656 72111	**152**	**52**	**0**		**0**		**152**	**96**
658 72113	**36**	**18**	**0**		**36**	**138**		
932 72111	**166**	**83**	**166**	**128**	**0**		**0**	

Facility Type, Bldg. # & CCN	Total No. of Beds	Total No. of Rooms	Adequate		Substandard		Inadequate	
			Beds	Sq Ft	Beds	Sq Ft	Beds	Sq Ft
932 72112	35	35	35	256	0		0	
933 72111	126	63	126	128	0		0	
933 72112	30	30	30	256	0		0	
933 72113	25	25	0		25	256	0	
1102 72111	250	125	250	90	0		0	
1102 72112	30	30	30	180	0		0	
1102 72113	20	40	20	360	0		0	
431 72411	55	55	0		55	192	0	
431 72412	63	126	0		63	384	0	
431 72412	2	4	0		2	336	0	

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

a. FACILITY TYPE/CODE:

Buildings #434, 435, 436, 437, 438, 439, 440, 441, 654, 655 and 656 are Bachelor Housing for CCN 72111.

b. WHAT MAKES IT INADEQUATE?

Constructed as open squad bays in 1955-1957. Converted to semi-private rooms with gang showers in 1971-1973. Foundation failure, environmental system deficiencies, electrical and plumbing system replacement requirement, inadequate structural integrity for seismic zone three and modern minimum standards of adequacy mandate replacement. Economic analysis developed in 1990 compares renovation to new construction. Renovation costs comparing the net present values, exceed new construction costs by over $1,000,000.

c. WHAT USE IS BEING MADE OF THE FACILITY?

Bachelor Quarters CCN 72111

d. WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?

Economic analysis indicates upgrade would be cost prohibitive.

e. WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?

Facility condition and economic analysis require replacement for any extended use.

f. CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:

Replacement by new construction programmed. MILCON P-368 and P-369 FY-96.

g. HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

BASEREP not implemented by this Command as of this date but facilities would be rated C3 by that criteria.

25b. Provide data on the BOQs and BEQs projected to be assigned to your plant account in FY 1997. The desired unit of measure for this capacity is people housed. Use CCN to differentiate between pay grades, i.e., E1-E4, E5-E6, E7-E9, CWO-O2, O3 and above.

Facility Type, Bldg. # & CCN	Total No. of Beds	Total No. of Rooms	Adequate		Substandard		Inadequate	
			Beds	Sq Ft	Beds	Sq Ft	Beds	Sq Ft
658 72113	36	18	0		36	138	0	
932 72111	166	83	166	128	0		0	
932 72112	35	35	35	256	0		0	
933 72111	176	88	176	128	0		0	
933 72112	30	30	30	256	0		0	
1102 72111	250	125	250	90	0		0	
1102 72112	30	30	30	135	0		0	
1102 72113	20	40	20	360	0		0	
NOTE I 72111	240	120	240	90	0		0	
NOTE I 72112	24	24	24	180	0		0	
NOTE II 72111	240	120	240	90	0		0	
NOTE II 72112	6	6	6	180	0		0	
NOTE II 72113	9	18	9	360	0		0	
431 72411	55	55	0		55	192	0	
431 72412	63	126	0		63	384	0	
431 72412	2	4	0		2	336	0	

NOTE I - MILCON Project P-368 BEQ Replacement Phase II
NOTE II - MILCON Project P-369 BEQ Replacement Phase III

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

a. FACILITY TYPE/CODE:
b. WHAT MAKES IT INADEQUATE?
c. WHAT USE IS BEING MADE OF THE FACILITY?

d. WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
e. WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
f. CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
g. HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

25c. What **additional BOQ/BEQ requirements**, if any, in FY 2001 have been identified as a result of BRAC I, II, & III and non-BRAC realignments, which are not reflected in the table above.

FY-98 BRAC F/A-18 Navy/Marine Corps reserves increase of 102 enlisted and 9 off will be offset by the planned decommissioning of VMFA-451 in FY-98. No additional BEQ/BOQ assets are foreseen.

26a. For military married **family housing** assigned to your plant account provide the following information:

Type of Quarters	Number of Bedrooms	Total number of units	Number Adequate	Number Substandard	Number Inadequate
Officer	4+	52	52	0	0
Officer	3	135	135	0	0
Officer	1 or 2	15	15	0	0
Enlisted	4+	137	137	0	0
Enlisted	3	693	693	0	0
Enlisted	1 or 2	244	244	0	0
Mobile Homes					
Mobile Home lots		157	157	0	0

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

a. FACILITY TYPE/CODE:
b. WHAT MAKES IT INADEQUATE?
c. WHAT USE IS BEING MADE OF THE FACILITY?
d. WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
e. WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
f. CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
g. HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

26b. What **additional family housing requirements**, if any, in FY 2001 have been identified as a result of BRAC I, II, III and non-BRAC realignments?

7 officer quarters
63 enlisted quarters

2 reserve squadrons from Cecil Field identified in BRAC II using marriage factors of 82% officer and 62% enlisted.

27. For personnel assigned to your base and tenant activities who live in **government quarters other than yours**, within the commuting area, indicate the plant account holder UIC for their quarters.

00263 Parris Island. When permanent personnel assigned to Parris Island receive change of station orders to MCAS Beaufort, they are allowed to continue living in Parris Island quarters.

28a. Provide data on the messing facilities assigned to your current plant account.

Facility Type, CCN and Bldg. #	Total Sq. Ft.	Adequate		Substandard		Inadequate		Avg # Noon Meals Served
		Seats	Sq Ft	Seats	Sq Ft	Seats	Sq Ft	
722-10 Bldg 442	40846	372						500

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

a. FACILITY TYPE/CODE:
b. WHAT MAKES IT INADEQUATE?
c. WHAT USE IS BEING MADE OF THE FACILITY?
d. WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
e. WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
f. CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
g. HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

Current BFR is 21840 SF; existing facility is 40846 SF; facility originally constructed to serve 2 Marine Air Groups vice 1 now served.

28b. Provide data on the messing facilities projected to be assigned to your plant account in FY 1997.

Facility Type, CCN and Bldg. #	Total Sq. Ft.	Adequate		Substandard		Inadequate		Avg # Noon Meals Served
		Seats	Sq Ft	Seats	Sq Ft	Seats	Sq Ft	
NONE								

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

a. FACILITY TYPE/CODE:
b. WHAT MAKES IT INADEQUATE?
c. WHAT USE IS BEING MADE OF THE FACILITY?
d. WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
e. WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
f. CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
g. HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

28c. What additional messing requirements, if any, in FY2001 have been identified as a result of BRAC I, II, and III and non-BRAC realignments, which are not included in the table above.

NONE

29a. Real Estate Resources. Identify in the table below the real estate resources which have the potential to facilitate future development and for which you are the plant account holder or into which, though a tenant, your activity could reasonably expect to expand. Complete a separate table for each individual site, i.e., main base, outlying airfields, special off-site areas, etc. The unit of measure is acres. Developed area is defined as land currently with buildings, roads, and utilities where further development is not possible without demolition of existing improvements. Include in "Restricted" areas that are restricted for future development due to environmental constraints (e.g. wetlands, landfills, archaeological sites), operational restrictions (e.g. ESQD arcs, HERO, HERP, HERF, AICUZ, ranges) or cultural resources restrictions. Identify the reason for the restriction when providing the acreage in the table. Specify any entry in "Other" (e.g. submerged lands).

Real Estate Resources

Site Location: MCAS BEAUFORT

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance	126	67	15	44
Operational	2564	1662 (see NOTE #1)	562	340
Training	183	77	69	37
R & D				
Supply & Storage	157	77	20	60
Admin	143	58	31	54
Housing	434	186	130	118
Recreational	272	144	34	94
Navy Forestry Program	1945	0	536 (see NOTE #2)	1409
Navy Agricultural Outlease Program	152	0	0	152 (see NOTE #3)
Hunting/Fishing Programs	1334	0	N/A	N/A
Other				
Total:	7310 (see NOTE #4 & #5)	2271	1397 (see NOTE #5)	2308

NOTE #1 - Includes R/W primary surface
NOTE #2 - Wetlands (freshwater ponds)
NOTE #3 - APZ
NOTE #4 - Some land use overlaps
NOTE #5 - total land in fee (5735 acres) includes salt marsh wetlands below mean high water that is unavailable for development and claimed by state of South Carolina. Salt marsh wetlands not included in above.

Site Location: LAUREL BAY FAMILY HOUSING

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance	49	44	0	5
Operational MWR	10	5	0	5
Training				
R & D				
Supply & Storage				
Admin				
Housing	892(SEE NOTE #4)	302	355	235(see note #4)
Recreational	68	51	0	17
Navy Forestry Program	586(see note #3)		115 (See NOTE #1)	471(see note #3)
Navy Agricultural Outlease Program				
Hunting/Fishing Programs	514 (see NOTE #2&3)			
Other - Elem Schools	43	28	0	15
Total:	1062 (see NOTE #3&5)	430	355	227

During previous change/update to data for Laurel Bay Family housing, BSAT stated that supporting documentation was required for the changes. This supporting data is now included as Pages 52a through 52i.

NOTE #1 - Wetlands (freshwater)
NOTE #2 - Hunting
NOTE #3 - Acreage overlaps in other categories
NOTE #4 - There are 658 single family ii, additional recreation, 2 additional DOD school sites, maintenance buffer and circulation identified in the master (Build Out) plan.
NOTE #5 - Total land held in fee

Real Estate Resources

Site Location: LAUREL BAY FAMILY HOUSING

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance	49	44	0	5
Operational MWR	10	5	0	5
Training				
R & D				
Supply & Storage				
Admin				
Housing	892(SEE NOTE #4)	302	355	235(see note #4)
Recreational	68	51	0	17
Navy Forestry Program	586(see note #3)		115 (See NOTE #1)	471(see note #3)
Navy Agricultural Outlease Program				
Hunting/Fishing Programs	514 (see NOTE #2&3)			
Other - Elem Schools	43	28	0	15
Total:	1062 (see NOTE #3&5)	430	355	227

NOTE #1 - Wetlands (freshwater)
NOTE #2 - Hunting
NOTE #3 - Acreage overlaps in other categories
NOTE #4 - There are 658 single family homesites, additional recreation, 2 additional DOD school sites, maintenance buffer and circulation identified in the master (Build Out) plan.
NOTE #5 - Total land held in fee

VII. LAUREL BAY FAMILY HOUSING AREA

A. INTRODUCTION

1. PURPOSE

The purpose of this section of the Master Plan is to treat Laurel Bay Family Housing Area (FHA) as a "remote site" of MCAS Beaufort and to provide for efficient and orderly development of the real estate resources so that the current unmet demand for military housing is satisfied. Additionally, two alternative school sites have been identified to allow for school expansion to meet the future loading requirements that 658 new homesites will demand. This plan ensures that road and utility infrastructure support and site improvements have been considered, as well as environmental and wetland issues. The natural beauty of the heavily forested site is to be preserved with the introduction of greenbelts, the creation of parks and recreational areas, and undisturbed wetlands.

2. PLAN CONTENTS

The Laurel Bay FHA "Master Plan" includes a general introduction, existing conditions and site analysis including both natural and man-made assets and constraints, site development containing existing and proposed land use plans, and a proposed site plan. The history, mission, and other introductory information is included in the complex overview and shall not be repeated in this section.

3. PLANNING ASSUMPTIONS

The following assumptions were made by the planning team regarding the development of a master plan for Laurel Bay FHA:

- All planning will follow the guidelines as set forth in the Military Family Housing Handbook.
- There is a current unmet demand of 629 housing units.
- Housing requirements for the current shortfall are identified in the following table:

Rate/Rank	2BR	3BR	4BR	Total
E6 & Lower	530	1	10	541
E7 - E9	38	1	49	88
Total	568	2	59	629

- The Site Plan has been designed to low density standards - three to five dwelling units per acre (average homesite = 80' x 120').
- Areas identified on the Constraints Analysis Map (floodplain, wetlands, and unsuitable soils) were excluded for major development.

by the South Carolina Water Resources Commission (SCWRC), South Carolina Department of Health and Environmental Control (SCDHEC), and South Carolina Coastal Council (SCCC).

COE requires permits for filling wetlands and dredging or construction activities in navigable waters. SCWRC requires permits for any dredging, filling, construction, or alteration activity in, on, or over any navigable waterway of the State. SCDHEC requires water quality certification for dredge, fill, and construction projects pursuant to Section 401 of the Clean Water Act. SCCC requires permits for dredge, fill, and construction projects in the state's "coastal zone" and requires permits from other state and federal agencies to be certified as consistent with the Coastal Zone Management Plan. Without SCCC certification, a permit for a particular activity in question cannot be issued by the permitting agency.

d. Vegetation

Four predominant forest land types currently exist at Laurel Bay FHA. They are, as identified on Plate VII-5, longleaf pine, loblolly pine, loblolly pine/hardwood, and sweetgum/water oak communities. The loblolly and longleaf pine forests dominate the upland forest land types and support a diverse and abundant wildlife population. Loblolly pine/hardwood represents a transition between upland and lowland areas. The sweetgum/water oak community is commonly found in the lowland, jurisdictional areas of Laurel Bay FHA. These forest land types are closely related to vegetative communities, which emphasize commercial timber. To the causal observer, a loblolly pine stand also contains a number of hardwood species which, while not commercially viable, provide important habitat for wildlife. Accordingly, the preservation of each of these vegetative communities is a primary consideration in the master planning for future development at Laurel Bay FHA.

MCAS Beaufort operates an active silviculture program. The Forest Management Plan encompasses 2,463 acres at the Air Station and Laurel Bay FHA and approximately 5,000 acres at Townsend Target Range.

3. MAN-MADE ASSETS AND CONSTRAINTS

a. Historic and Archaeological Perspective

Laurel Bay FHA is thought to be rich in archaeological evidence; however, very little physical investigative work has been completed thus far. There are two known sites which have been located on the property, as indicated in Figure 23.

The first site is a tabby wall and building foundation located in the northwest corner of the property and the second is the Hamilton school site, located just north of Hamilton Elementary School (No. 1). The following documentation describing these two historic sites is excerpted from the report entitled "Historic Preservation Plan."

> "This long feature extends several hundred meters, varying in height from two to three feet. The wall terminates at the foundation of a substantial tabby structure. The foundation has not been precisely measured, but it is at least 20 feet long on a side. It is likely that these features are associated with one of the plantations that formerly comprised the Laurel Bay area".
>
> "The Hamilton school site is a prehistoric site located adjacent to the Hamilton Elementary (No. 1) school in Laurel Bay. The site is reported to be limited in a real extent; located on a high knoll next to the school building. The present investigation failed to yield any surface evidence of prehistoric settlement in this area, however, the Hamilton School Principal reports that students have found pottery sherds, projectile points, and other lithic materials in the area."

An intensive study and assessment of the tabby wall is currently being conducted to determine its eligibility for the National Register of Historic Places.

b. Potable Water

The Laurel Bay FHA potable water system is depicted on Plate VII-6. Potable water to the housing area is supplied by the Beaufort-Jasper Water and Sewer Authority (BJWSA). Laurel Bay FHA

water is provided via a 12-inch main connected to a 250,000-gallon elevated storage tank on site (Figure 24). Fire fighting demands are also met by this tank. Previous problems associated with supply pressure have been eliminated since booster pumps were installed.

It is anticipated that the current potable water supply and quality are, and will continue to be, adequate for accommodating the proposed 658 dwelling units at Laurel Bay FHA. However, to provide adequate water pressure, additional pipe, booster pump, and/or elevated storage tank may be required.

c. Sanitary Sewer

Treatment of Laurel Bay FHA's wastewater, as depicted on Plate VII-7, is via a dedicated treatment plant with a design capacity of 1.00 MGD. Volume currently averages 0.50 MGD. The proposed 658 dwelling units will generate an additional 230,300 gallons per day or 0.23 MGD. The existing treatment plant will have adequate capacity to accommodate this growth.

The existing plant contains a comminutor, bar screen, gravity grit chamber, primary and secondary clarifiers, two trickling filters, aerobic digester, sludge drying beds, flow proportional chlorinator and sampler, chlorine contact chamber, and flow meter. There are no lift stations in the system; the internal sewer system is gravity feed. According to the Utility Systems Assessment (USA), the plant is in good operating condition with the exception of an inflow/infiltration (I/I) problem. An I/I evaluation of the sanitary sewer system, currently underway, will identify and repair problem areas.

Other recommended improvements, which are in the design phase, include constructing a

Figure 24 Laurel Bay FHA's potable water pressure is maintained via a 250,000-gallon elevated storage tank.

C. SITE DEVELOPMENT

1. EXISTING LAND USE

The existing land use plan for Laurel Bay FHA is included as Plate VII-12. There are seven land uses identified, with housing (both single family residential and mobile homes) comprising the largest active land use category. There are two school sites, an industrial area, scattered community support facilities, six recreational areas, and 582 acres of open, undeveloped land. Recreational facilities and access allow residents to enjoy the amenities associated with the Broad River. A small "mini-mall" has started to develop near the main entrance on Laurel Bay Boulevard. The two school sites are separated, with school No. 1 providing easier access for residents of Laurel Bay FHA and school No. 2 providing easier access for off-site personnel. As mentioned previously, a large portion of the site remains in an undeveloped, heavily-forested state. Preserving as much of the natural character of the site as possible is a major priority in planning for new residential home sites.

2. PROPOSED LAND USE

Proposed land uses for Laurel Bay FHA are graphically shown on Plate VII-13. Principal changes to the existing land use plan include the expansion of single family residential housing areas, expanded recreational parks, two additional school site alternatives, and an expanded "mini-mall" development.

Utilizing the Constraints Analysis Map, prime development areas were identified and planned for the addition of 658 single family homesites. Two large residential pods are identified, each developed around a large recreational park. The site plan within the northwest quadrant impacts several small isolated wetland pockets. Care should be taken during construction to avoid disturbing these areas, or, if this is not feasible, the proper permits should be obtained from the SCCC.

Two alternative school sites are shown. The first alternative is located opposite the large recreation complex and, if developed, would combine with existing school No. 2 to form a small school campus. Alternative two is located immediately adjacent to existing school No. 1. If developed, this concept would allow for optimum visibility and access to all residents, both Laurel Bay FHA and off-site commuters. The small "mini-mall" which has begun to develop at Laurel Bay Boulevard and Capehart Drive would be expanded to provide additional community support facilities for residents of Laurel Bay FHA.

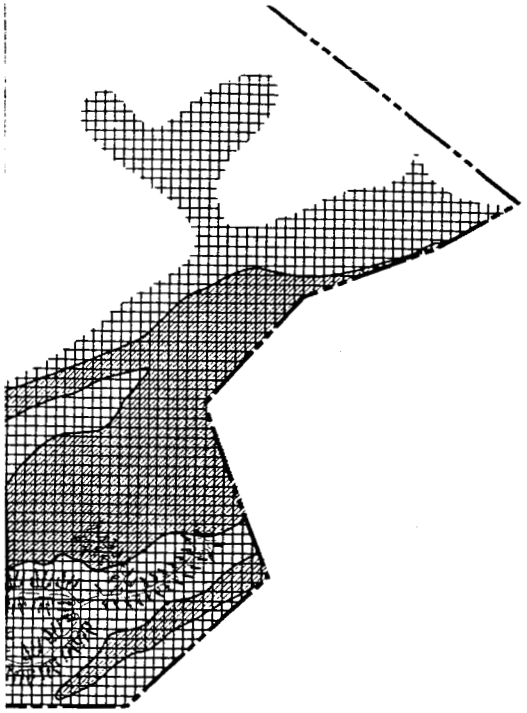
The proposed land use plan preserves much of the natural forested areas and maintains a vegetative buffer around all proposed land uses. The Resident Officer in Charge of Construction (ROICC) industrial compound is currently located adjacent to existing homes in the family housing area. Existing unsightly views of construction trailers detract from the overall quality of the neighborhood. It is recommended that proper screening with fencing and vegetation be implemented to adequately buffer this industrial area from surrounding single family homes.

3. IN-FILL PLAN

Plate VII-14 graphically depicts areas within existing development pods that have room for expansion. Referencing the Constraints Analysis Map, areas which are unconstrained have been "in-filled" with 80-foot by 120-foot lots. An additional 75 lots are possible using these guidelines; however, consequences associated with the construction debris and general disruption of existing established neighborhoods should be considered prior to construction.

4. PROPOSED SITE MAP

The proposed site map is included as Plate VII-15. The street system for the residential subdivisions has been designed to work with the existing roadway layout and street "stub-outs". A minimum 80-foot vegetative buffer has been maintained around all development to allow for a perimeter security patrol road which will encircle Laurel Bay FHA. A vehicular drive has been designed to connect the proposed school site No. 1 with the residential neighborhoods located to the north and south. A new drive is designed for the proposed school site No. 2 which will align with the expanded "mini-mall" entrance on Laurel Bay Boulevard and provide access from the existing Hamilton Elementary School (School No. 1) drive. Recreational areas have been preserved



CONSTRAINTS ANALYSIS

- 100-YEAR FLOOD PLAIN
- UNSUITABLE SOILS
- PROPERTY LINE
- JURISDICTIONAL WETLANDS

0 250 500 1000 2000

SCALE IN FEET

Plate VII-11

MASTER PLAN

MARINE CORPS AIR STATION

LAUREL BAY FAMILY HOUSING AREA

BEAUFORT, SOUTH CAROLINA

Real Estate Resources

Site Location: TOWNSEND TARGET

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance				
Operational	198	198		
Training	1994.47 (see NOTE #1&2)	1994		
R & D				
Supply & Storage				
Admin				
Housing				
Recreational				
Navy Forestry Program	4985.43 (see NOTE #1&2)			
Navy Agricultural Outlease Program				
Hunting/Fishing Programs				
Other - Buffer	2990.96(see not #2)			
Total:	5183.43 (see NOTE #3)	2192		

NOTE #1 - Training area is also kept in timber management.
NOTE #2 - Acreage overlaps in other categories.
NOTE #3 - Total land held in fee

29b. Identify the features of this air station that make it a strong candidate for basing/training other types of aircraft/aircrews and other operational units in the future.

- **Military Operating Area (MOA) overhead MCAS.**
- **Close proximity to numerous training areas.**
- **MCAS airspace not saturated with FAA airways for carriers.**
- **Negligible encroachment**
- **Ability to expand**

30. WEAPONS AND MUNITIONS: Please answer the following questions if your activity performs any stowage or maintenance on any of the following ordnance commodities types:

30a. Provide present and predicted inventories (coordinate with inventory control manager) and maximum rated capability of all stowage facilities at each weapons storage location controlled by this activity. In predicting the out year facility utilization, distribute overall ordnance compliment to the most likely configuration. The maximum rated capability is also an out year projection taking into account any known or programmed upgrades that may increase current stowage capacity. When listing stowage facilities, group by location (e.g. main base, outlying field, special area).

Total Facility Ordnance Stowage Summary

Facility Number	PRESENT INVENTORY		PREDICTED INVENTORY FY 2001		MAXIMUM RATED CAPABILITY	
	TONS	SQ FT	TONS	SQ FT	TONS	SQ FT
419	0.8	413	7	1250	25	1250
420	2.3	688	7	1250	25	1250
421	6.5	1250	7	1250	10	1250
422	0.1	35	0.5	70	7.5	140
423A	0.1	24	0.5	70	1.5	120
423B	0.5	36	0.5	60	1.5	120
424	0	3250	0	5000	0	5000
425A	0.3	120	0.3	120	1	120
425B	0.2	120	0.3	120	1	120
733	18.4	875	20	1000	50	1250
734	24.2	1250	50	1250	50	1250
735	6.3	625	10	750	50	1250

736	0.8	70	2	140	7.5	140
737	0.5	98	2	140	7.5	140
834	1	170	1	170	2	170
835	4.5	750	2	500	6	750
844	0	2400	0	4000	0	4000
846	0	504	0	840	0	840
847	0	336	0	840	0	840
848	1.7	140	2	140	7.5	140
849	1.7	35	2	140	7.5	140
850	2	145	1	85	10	170
851	1.3	170	1	85	10	170
852	0.9	136	1	85	10	170
853	1.3	136	1	85	10	170
854	0.8	127	1	85	10	170
855	0.9	102	1	85	10	170
XXX	0	0	75	5000	75	5000
XXX	0	0	30	2500	75	5000
TOTALS	77.1	14005	225.1	27110	470.5	31300

NOTE: XXX DENOTES BOX "C" MAGAZINE MILCON P-385 FY 96

DATA LISTED IN THE PREDICTED INVENTORY 2001 ARE ESTIMATES. MCAS BEAUFORT HAS LITTLE MEANS OF IDENTIFYING OUT YEAR INVENTORIES. ESTIMATES ARE BASED ON PAST STORAGE HISTORY AND BRAC CONSIDERATIONS.

30b. For each Stowage facility identified in question 1.1 above, identify the type of facility (specify if "igloo", "box", etc.). Identify the type of ordnance commodity (from the list above) which are currently stowed in that facility and all other ordnance types which, given existing restrictions, could be physically accommodated in that stowage facility. Specify below if such additional accommodation would require a modification of the facility (e.g. enhanced environmental controls, ESQD waiver).

- Identify the reason(s) for which this ordnance is stored at your facility from the following list: own activity use (training); own activity use (operational stock); Receipt/Segregation/ Stowage/Issue (RSSI); transhipment/awaiting issue; deep stow (war reserve); deep stow (awaiting Demil); other. Explain each "other" entry in the space provided, including ordnance stowed which is not a DON asset.

Total Facility Ordnance Stowage Summary

Facility Number/Type	Currently Stowed Commodity Type(s)	Reason for Stowage at your Activity	Commodity Type(s) Which Can Be Stowed
419 IGLOO	ROCKETS	TRAINING	ROCKETS, BOMBS, CADS, SMALL ARMS
420 IGLOO	BOMBS, ROCKETS	TRAINING	ROCKETS, BOMBS, CADS, SMALL ARMS
421 IGLOO	PYRO/GERNADE CADS EXPENDABLES	TRAINING	ALL COMPATIBLE TYPES
422 IGLOO	BOMB FUZES	TRAINING	ALL COMPATIBLE TYPES
423A BOX	CADS	TRAINING MAINT	CADS EXPENDABLES
423B BOX	CADS	TRAINING	CADS EXPENDABLES
424 BOX	INERT	TRAINING	ANY INERT
425A BOX	CADS	TRAINING	CADS EXPENDABLES
425B BOX	CADS	TRAINING	CADS EXPENDABLES
733 IGLOO	BOMBS	TRAINING	ALL COMPATIBLE TYPES
734 IGLOO	BOMBS, 20MM AMMO	TRAINING PREPOSITIONED WAR RESERVES (PWR)	ALL COMPATIBLE TYPES
735 IGLOO	20 MM AMMO	TRAINING	ALL COMPATIBLE TYPES
736 IGLOO	DEMOLITIONS	EOD TRAINING	DEMOLITIONS

737 IGLOO	PYRO DEMO	TRAINING	ALL COMPATIBLE TYPES
834 BOX	MISSILES 20MM AMMO	TRAINING	MISSILES 20MM AMMO
835 BOX	MISSILES	PWR	MISSILES
844 BOX	INERT BOMBS	TRAINING	ALL INERT TYPES
846 BOX	INERT ITEMS	TRAINING	ALL INERT TYPES
847 BOX	INERT ITEMS	TRAINING	ALL INERT TYPES
848 IGLOO	DEMOLITIONS	TRAINING	DEMOLITIONS
849 IGLOO	PYRO DEMOLITIONS	TRAINING	ALL COMPATIBLE TYPES
850 IGLOO	MISSILES	PWR	MISSILES
851 IGLOO	MISSILES	PWR	MISSILES
852 IGLOO	MISSILES	PWR	MISSILES
853 IGLOO	DEMOLITIONS	TRAINING	ALL COMPATIBLE TYPES
854 IGLOO	SMALL ARMS	TRAINING	ALL COMPATIBLE TYPES
855 IGLOO	SMALL ARMS	TRAINING	ALL COMPATIBLE TYPES

Additional comments:

30c. Identify the rated category, rated NEW and status of ESQD arc for each stowage facility listed above.

Facility Rated Status

Facility Number / Type	Hazard Rating (1.1-1.4)	Rated NEW	ESQD Arc		
			Established (Y / N)	Waiver (Y / N)	Waiver Expiration Date
419	1.1	65,000	Y	N	NA
420	1.1	200,000	Y	N	NA
421	1.1	190,000	Y	N	NA
422	1.1	15,000	Y	N	NA
423A	1.1	1,500	Y	N	NA
423B	1.1	1,500	Y	N	NA
424	INERT	NA	NA	NA	NA
425A	1.1	1,500	Y	N	NA
425B	1.1	1,500	Y	N	NA
733	1.1	180,000	Y	N	NA
734	1.1	200,000	Y	N	NA
735	1.1	150,000	Y	N	NA
736	1.1	15,000	Y	N	NA
737	1.1	15,000	Y	N	NA
834	1.1	4,000	Y	N	NA
835	1.1	12,000	Y	N	NA
844	INERT	NA	NA	NA	NA
846	INERT	NA	NA	NA	NA
847	INERT	NA	NA	NA	NA
848	1.1	15,000	Y	N	NA
849	1.1	15,000	Y	N	NA
850	1.1	75,000	Y	N	NA
851	1.1	75,000	Y	N	NA
852	1.1	75,000	Y	N	NA
853	1.1	75,000	Y	N	NA

854	1.1	75,000	Y	N	NA
855	1.1	75,000	Y	N	NA

30d. Identify any restrictions which prevent maximum utilization of your facilities. If restrictions are based on facility conditions, specify reason, the cost to correct the deficiency, and identify any programmed projects that will correct the deficiency and/or increase your capability.

MCAS Beaufort has a programmed MILCON (P385) which will provide two Box "C" 5000 SF explosive magazines. The addition of these magazines will permit the adequate storage of MCAS Beaufort's Prepositioned War Reserve (PWR) material.

30e. Identify if your activity performs any of the following functions on any of the ordnance commodities previously listed. Technical support includes planning, financial, administrative, process engineering and SOP support. Within each related function identify each ordnance commodity type for which you provide these services and the total Direct Labor Man Hours (DLMHs) expended (FY 1994); identify only those DLMHs expended by personnel under your command.

Related Ordnance Support

Related Functions	Performed? (Y / N)	Type of Commodity	DLMHs
Maintenance (specify level)	Y	ANY STORED	200
Testing	Y	ANY STORED	120
Manufacturing	N	NA	NA
Outload	Y	ANY STORED	480
Technical Support	Y	ANY STORED	2000

***NOTE: DLMH's ARE ESTIMATED HOURS. AIR STATION ORDNANCE HAS NO REQUIREMENT TO DOCUMENT HOURS BY TYPE OF SUPPORT.**

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

R. D. STEARNS
NAME (Please type or print)

RM Stearns
Signature

COMMANDING OFFICER
Title

Date 7 June 94

MCAS BEAUFORT
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

F. MCCORKLE
NAME (Please type or print)

F McCorkle
Signature

Commanding General
Title

15 JUN 1994
Date

Marine Corps Air Bases East
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

NAME (Please type or print)

Signature

Title

7/19/94
Date

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

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I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

R. D. STEARNS
NAME (Please type or print)

Signature R D Stearns

COMMANDING OFFICER
Title

Date 2 Aug 94

MCAS BEAUFORT
Activity

DATA CALL 16 REVISION
MCAS BEAUFORT

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief. (MCAS Beaufort Amendments to BRAC '95 Data Calls 1, 16, 33 and 38 dated 3 Aug 1994)

NEXT ECHELON LEVEL (if applicable)

F. MCCORKLE
NAME (Please type or print)

F McCorkle
Signature

Commanding General
Title

09 AUG 1994
Date

Marine Corps Air Bases East
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J.A. BRABHAM
LIEUTENANT GENERAL, U.S. MARINE CORPS
DEPUTY CHIEF OF STAFF FOR
INSTALLATIONS AND LOGISTICS
(Please type or print)

Signature

Title

10/24/94
Date

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

R. D. STEARNS
NAME (Please type or print)

Signature RDStearns

COMMANDING OFFICER
Title

Date 2 Aug 94

MCAS BEAUFORT
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief. (MCAS Beaufort Amendments to BRAC '95 Data Calls 1, 16, 33 and 38 dated 3 Aug 1994)

NEXT ECHELON LEVEL (if applicable)

F. MCCORKLE
NAME (Please type or print)

F McCorkle
Signature

Commanding General
Title

09 AUG 1994
Date

Marine Corps Air Bases East
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J. A. BRABHAM
LIEUTENANT GENERAL, U.S. MARINE CORPS
DEPUTY CHIEF OF STAFF FOR
INSTALLATIONS AND LOGISTICS
(Please type or print)

Signature

10/17/94
Date

Title

MCAS BEAUFORT DATA CALL 16 PAGE CHANGES

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief. (BRAC '95 BSAT Data Call Amplification)

NEXT ECHELON LEVEL (if applicable)

F. MCCORKLE
NAME (Please type or print)

FMccorkle
Signature

Commanding General
Title

19 Oct 94
Date

Marine Corps Air Bases East
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

R. K. RIGGS
NAME (Please type or print)

R. K. Riggs
Signature

Acting Deputy Chief of Staff for Installations and Logistics
Title

9 Nov 1994
Date

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

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I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

R. D. STEARNS
NAME (Please type or print)

Signature M Stearns

COMMANDING OFFICER
Title

Date 13 Oct 94

MCAS BEAUFORT
Activity

ENCLOSURE (1)

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DATA CALL: 16

ACTIVITY: MCAS Beaufort

PAGE (S): 22, 23, 24, 24a, 26, 26a, 42, 42a

BSWG REVIEW OFFICIAL

G.W. MOORE, MAJOR
NAME (Please type or print)

LONG RANGE LAND USE PLANNER
Title

GW Moore
Signature

5 NOV 94
Date

R

DATA CALL 16 PAGE CHANGES MCAS BEAUFORT

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type of print

Signature

Title

Date

Activity

In certify that the information herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J.A. BRABHAM
LIEUTENANT GENERAL, U.S. MARINE CORPS
DEPUTY CHIEF OF STAFF FOR
INSTALLATIONS AND LOGISTICS

NAME (Please type of print

Signature

Title

12/2/92

Date

R

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DATA CALL: DATA CALL 16

ACTIVITY: MCAS BEAUFORT

PAGE (S): 32, 37, 37a, 38, 39, 52, 52a thru i

BSWG REVIEW OFFICIAL

G. W. MOORE, MAJOR
NAME (Please type or print)

LONG RANGE LAND USE PLANNER
Title

BASED ON ACTIVITY DATA PROVIDED
& CERTIFIED BY CO MCAS BEAUFORT
& COMCABGRAST

GW MOORE
Signature

1 Dec 94
Date

7

DATA CALL 63
FAMILY HOUSING DATA

Information on Family Housing is required for use in BRAC-95 return on investment calculations.

Installation Name:	**MARINE CORPS AIR STATION BEAUFORT, SC**
Unit Identification Code (UIC):	**60169**
Major Claimant:	**N/A**

Percentage of Military Families Living On-Base:	**43**
Number of Vacant Officer Housing Units:	**0**
Number of Vacant Enlisted Housing Units:	**0**
FY 1996 Family Housing Budget ($000):SEE NOTE 1	**$3,938.00**
Total Number of Officer Housing Units:SEE NOTE 2	**144**
Total Number of Enlisted Housing Units:	**766**

NOTE 1 THE TOTAL FAMILY HOUSING BUDGET IS $5,522,105.00. THE PER UNIT SHARE IS AS FOLLOWS:

MCAS BEAUFORT $3,938,179.00
PARRIS ISLAND $1,536,322.00
NAVAL HOSPITAL $ 47,604.00

NOTE 2 THE TOTAL FAMILY HOUSING INVENTORY IS 1276. CURRENT ISSA's PROVIDE THE FOLLOWING BREAKDOWN:

ACTIVITY	OFFICER	ENLISTED	TOTAL
MCAS BEAUFORT	144	766	910
PARRIS ISLAND	55	300	355
NAVAL HOSPITAL	3	8	11

Note: All data should reflect figures as of the beginning of FY 1996. If major DON installations share a family housing complex, figures should reflect an estimate of the installation's prorated share of the family housing complex.

Enclosure (1)

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief. (BRAC '95 Data Call #63: Family Housing for MCAS Beaufort)

NEXT ECHELON LEVEL (if applicable)

F. MCCORKLE
NAME (Please type or print)

F McCorkle
Signature

Commanding General
Title

12 JUL 1994
Date

Marine Corps Air Bases East
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J.A. BRABHAM
LIEUTENANT GENERAL, U.S. MARINE CORPS
DEPUTY CHIEF OF STAFF FOR
INSTALLATIONS AND LOGISTICS
NAME (Please type or print)

Signature

Title

8/8/94
Date

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

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I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

R. D. STEARNS
NAME (Please type or print)

M Stearns
Signature

COMMANDING OFFICER
Title

5 JULY 94
Date

MCAS BEAUFORT
Activity

Data Call #63

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

1

Activity Identification: Please complete the following table, identifying the activity for which this response is being submitted.

Activity Name:	**MARINE CORPS AIR STATION BEAUFORT, S.C.**
UIC:	**60169**
Major Claimant:	**N/A**

General Instructions/Background:

Information requested in this data call is required for use by the Base Structure Evaluation Committee (BSEC), in concert with information from other data calls, to analyze both the impact that potential closure or realignment actions would have on a local community and the impact that relocations of personnel would have on communities surrounding receiving activities. In addition to Cost of Base Realignment Actions (COBRA) analyses which incorporate standard Department of the Navy (DON) average cost factors, the BSEC will also be conducting more sophisticated economic and community infrastructure analyses requiring more precise, activity-specific data. For example, activity-specific salary rates are required to reflect differences in salary costs for activities with large concentrations of scientists and engineers and to address geographic differences in wage grade salary rates.
Questions relating to "Community Infrastructure" are required to assist the BSEC in evaluating the ability of a community to absorb additional employees and functions as the result of relocation from a closing or realigning DON activity.

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Due to the varied nature of potential sources which could be used to respond to the questions contained in this data call, a block appears after each question, requesting the identification of the source of data used to respond to the question. To complete this block, identify the source of the data provided, including the appropriate references for source documents, names and organizational titles of individuals providing information, etc. Completion of this "Source of Data" block is critical since some of the information requested may be available from a non-DoD source such as a published document from the local chamber of commerce, school board, etc. Certification of data obtained from a non-DoD source is then limited to certifying that the information contained in the data call response is an accurate and complete representation of the information obtained from the source. Records must be retained by the certifying official to clearly document the source of any non-DoD information submitted for this data call.

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

General Instructions/Background (Continued):

The following notes are provided to further define terms and methodologies used in this data call. Please ensure that responses consistently follow this guidance:

Note 1: Throughout this data call, the term **"activity"** is used to refer to the DON installation that is the addressee for the data call.

Note 2: Periodically throughout this data call, questions will include the statement that the response should refer to the **"area defined in response to question 1.b., (page 3)"**. Recognizing that in some large metropolitan areas employee residences may be scattered among many counties or states, **the scope of the "area defined" may be limited to the sum of:**

- **those counties that contain government (DoD) housing units (as identified in 1.b.2)), and,**
- **those counties closest to the activity which, in the aggregate, include the residences of 80% or more of the activity's employees.**

Note 3: Responses to questions referring to **"civilians"** in this data call should reflect **federal civil service appropriated fund employees.**

1. Work Force Data

a. Average Federal Civilian Salary Rate. Provide the projected FY 1996 average gross annual appropriated fund civil service salary rate for the activity identified as the addressee in this data call. This rate should include all cash payments to employees, and exclude non-cash personnel benefits such as employer retirement contributions, payments to former employees, etc.

Average Appropriated Fund Civilian Salary Rate:	**$31,773.10**

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Source of Data (1.a. Salary Rate): DEFENSE CIVILIAN PERSONNEL DATA SYSTEM (DCPDS)/MAJOR SANDERS-COMPTROLLER/JOANNE NIEMIEC-HRO LINDA HOLLOWAY - LAUREL BAY SCHOOLS

b. Location of Residence. Complete the following table to identify where employees live. Data should reflect current work force.

1) Residency Table. Identify residency data, by county, for both military and civilian (civil service) employees working at the installation (including, for example, operational units that are homeported or stationed at the installation). For each county listed, also provide the estimated average distance from the activity, in miles, of employee residences and the estimated average length of time to commute one-way to work. For the purposes of displaying data in the table, any county(s) in which 1% or fewer of the activity's employees reside may be consolidated as a single line entry in the table, titled "Other".

County of Residence	State	No. of Employees Residing in County		Percentage of Total Employees	Average Distance From Base (Miles)	Average Duration of Commute (Minutes)
		Military	Civilian			
Beaufort	SC	3691	*425	98%	10	20
Charleston	SC	14	9	.5	67	90
Colleton	SC	0	15	.4	40	55
Hampton	SC	2	12	.3	25	35
Other	SC	21	16	.9	58	75
Total	SC	3728	477			

= 100%

***CIVILIAN EMPLOYEE TOTAL DOES NOT INCLUDE 184 NON-APPROPRIATED FUND EMPLOYEES.**

As discussed in Note 2 on Page 2, subsequent questions in the data call refer to the "area defined in response to question 1.b., (page 3)". In responding to these questions, the scope

of the "area defined" may be limited to the sum of: a) those counties that contain government (DoD) housing units (as identified below), and, b) those counties closest to the activity which, in the aggregate, include the residences of 80% or more of the activity's employees.

2) Location of Government (DoD) Housing. If some employees of the base live in government housing, identify the county(s) where government housing is located: **Beaufort County, Beaufort, South Carolina.**

Source of Data (1.b. 1) & 2) Residence Data): DCPDS/MRS. JOANNE NIEMIEC-HRO

c. Nearest Metropolitan Area(s). Identify all major metropolitan area(s) (i.e., population concentrations of 100,000 or more people) which are within 50 miles of the installation. If no major metropolitan area is within 50 miles of the base, then identify the nearest major metropolitan area(s) (100,000 or more people) and its distance(s) from the base.

City	County	Distance from base (miles)
SAVANNAH, GA	CHATHAM	47
CHARLESTON, SC	CHARLESTON	58
COLUMBIA, SC	RICHLAND	136
CHARLOTTE, NC	MECKLENBURG	240
JACKSONVILLE, FL	DUVAL	180

Source of Data (1.c. Metro Areas): GREATER BEAUFORT CHAMBER OF COMMERCE AND RAND MCNALLY ROAD ATLAS/MRS. JOANNE NIEMIEC- HRO/MGYSGT COHEE-S-1

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

d. Age of Civilian Work Force. Complete the following table, identifying the age of the activity's civil service work force.

Age Category	Number of Employees	Percentage of Employees
16 - 19 Years	0	0
20 - 24 Years	5	1.05%
25 - 34 Years	79	16.56%
35 - 44 Years	175	36.69%
45 - 54 Years	151	31.65%
55 - 64 Years	63	13.21%
65 or Older	4	.84%
TOTAL	477	100%

Source of Data (1.d.) Age Data): DCPDS/MRS. JOANNE NIEMIEC-HRO/C. DAVIS - LAUREL BAY SCHOOLS

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

e. Education Level of Civilian Work Force

1) Education Level Table. Complete the following table, identifying the education level of the activity's civil service work force.

Last School Year Completed	Number of Employees	Percentage of Employees
8th Grade or less	3	1%
9th through 11th Grade	14	3%
12th Grade or High School Equivalency	166	35%
1-3 Years of College	159	33%
4 Years of College (Bachelors Degree)	87	18%
5 or More Years of College (Graduate Work)	48	10%
TOTAL	477	100%

2) Degrees Achieved. Complete the following table for the activity's civil service work force. Identify the number of employees with each of the following degrees, etc. To avoid double counting, only identify the highest degree obtained by a worker (e.g., if an employee has both a Master's Degree and a Doctorate, only include the employee under the category "Doctorate").

Degree	Number of Civilian Employees
Terminal Occupation Program - Certificate of Completion, Diploma or Equivalent (for areas such as technicians, craftsmen, artisans, skilled operators, etc.)	31
Associate Degree	46
Bachelor Degree	97
Masters Degree	33
Doctorate	2

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Source of Data (1.e.1) and 2) Education Level Data): DCPDS/MRS. JOANNE NIEMIEC-HRO/MGYSGT COHEE-S-1

f. Civilian Employment By Industry. Complete the following table to identify by "industry" the type of work performed by **civil service** employees at the activity. The intent of this table is to attempt to stratify the activity civilian work force using the same categories of industries used to identify private sector employment. Employees should be categorized based on their primary duties. Additional information on categorization of private sector employment by industry can be found in the Office of Management and Budget Standard Industrial Classification (SIC) Manual. However, you do not need to obtain a copy of this publication to provide the data requested in this table.

Note the following specific guidance regarding the "Industry Type" codes in the first column of the table: Even though categories listed may not perfectly match the type of work performed by civilian employees, please attempt to assign each civilian employee to one of the "Industry Types" identified in the table. However, only use the Category 6, "Public Administration" sub-categories when none of the other categories apply. Retain supporting data used to construct this table at the activity-level, in case questions arise or additional information is required at some future time. **Leave shaded areas blank.**

Industry	SIC Codes	No. of Civilians	% of Civilians
1. Agriculture, Forestry & Fishing	**01-09**	1	**.21**
2. Construction (includes facility maintenance and repair)	**15-17**	**100**	**20.97**
3. Manufacturing (includes Intermediate and Depot level maintenance)	**20-39**		
3a. Fabricated Metal Products (include ordnance, ammo, etc.)	**34**	**0**	**0**
3b. Aircraft (includes engines and missiles)	**3721 et al**	**0**	**0**
3c. Ships	**3731**	**0**	**0**
3d. Other Transportation (includes ground vehicles)	**various**	**8**	**1.67**

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Industry	SIC Codes	No. of Civilians	% of Civilians
3e. Other Manufacturing not included in 3a. through 3d.	various	0	0
Sub-Total 3a. through 3e.	20-39	8	1.67
4. Transportation/Communications/Utilities	40-49		
4a. Railroad Transportation	40	0	0
4b. Motor Freight Transportation & Warehousing (includes supply services)	42	23	4.82
4c. Water Transportation (includes organizational level maintenance)	44	0	0
4d. Air Transportation (includes organizational level maintenance)	45	9	1.89
4e. Other Transportation Services (includes organizational level maintenance)	47	0	0
4f. Communications	48	4	.84
4g. Utilities	49	21	4.40
Sub-Total 4a. through 4g.	40-49	57	11.95
5. Services	70-89		
5a. Lodging Services	70	3	.63
5b. Personal Services (includes laundry and funeral services)	72	0	0
5c. Business Services (includes mail, security guards, pest control, photography, janitorial and ADP services)	73	15	3.15
5d. Automotive Repair and Services	75	8	1.67
5e. Other Misc. Repair Services	76	1	.21

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Industry	SIC Codes	No. of Civilians	% of Civilians
5f. Motion Pictures	**78**	**1**	**.21**
5g. Amusement and Recreation Services	**79**	**6**	**1.26**
5h. Health Services	**80**	**0**	**0**
5i. Legal Services	**81**	**3**	**.63**
5j. Educational Services	**82**	**139**	**29.14**
5k. Social Services	**83**	**24**	**5.03**
5l. Museums	**84**	**0**	**0**
5m. Engineering, Accounting, Research & Related Services (includes RDT&E, ISE, etc.)	**87**	**5**	**1.05**
5n. Other Misc. Services	**89**	**5**	**1.05**
Sub-Total 5a. through 5n.:	**70-89**	**210**	**44.03**
6. Public Administration	**91-97**		
6a. Executive and General Government, except Finance	**91**	**21**	**4.40**
6b. Justice, Public Order & Safety (include police, firefighting and emergency management)	**92**	**33**	**6.92**
6c. Public Finance	**93**	**9**	**1.89**
6d. Environmental Quality and Housing Programs	**95**	**38**	**7.96**
Sub-Total 6a. through 6d.		**101**	**21.17**
TOTAL		**477**	**100%**

Source of Data (1.f.) Classification By Industry Data): DCPDS/MRS. JOANNE NIEMIEC-HRO

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

g. Civilian Employment by Occupation. Complete the following table to identify the types of "occupations" performed by **civil service** employees at the activity. Employees should be categorized based on their primary duties. Additional information on categorization of employment by occupation can be found in the Department of Labor Occupational Outlook Handbook. However, you do not need to obtain a copy of this publication to provide the data requested in this table.

Note the following specific guidance regarding the "Occupation Type" codes in the first column of the table: Even though categories listed may not perfectly match the type of work performed by civilian employees, please attempt to assign each civilian employee to one of the "Occupation Types" identified in the table. Refer to the descriptions immediately following this table for more information on the various occupational categories. Retain supporting data used to construct this table at the activity-level, in case questions arise or additional information is required at some future time. **Leave shaded areas blank.**

Occupation	Number of Civilian Employees	Percent of Civilian Employees
1. Executive, Administrative and Management	**46**	**9.64**
2. Professional Specialty		
2a. Engineers	**5**	**1.05**
2b. Architects and Surveyors	**0**	**0**
2c. Computer, Mathematical & Operations Research	**0**	**0**
2d. Life Scientists	**0**	**0**
2e. Physical Scientists	**0**	**0**
2f. Lawyers and Judges	**0**	**0**
2g. Social Scientists & Urban Planners	**0**	**0**
2h. Social & Recreation Workers	**10**	**2.10**
2i. Religious Workers	**0**	**0**
2j. Teachers, Librarians & Counselors	**84**	**17.61**
2k. Health Diagnosing Practitioners (Doctors)	**0**	**0**

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Occupation	Number of Civilian Employees	Percent of Civilian Employees
2l. Health Assessment & Treating (Nurses, Therapists, Pharmacists, Nutritionists, etc.)	0	0
2m. Communications	0	0
2n. Visual Arts	1	.21
Sub-Total 2a. through 2n.:	100	20.97
3. Technicians and Related Support		
3a. Health Technologists and Technicians	0	0
3b. Other Technologists	29	6.08
Sub-Total 3a. and 3b.:	29	6.08
4. Administrative Support & Clerical	108	22.64
5. Services		
5a. Protective Services (includes guards, firefighters, police)	27	5.66
5b. Food Preparation & Service	2	.42
5c. Dental/Medical Assistants/Aides	0	0
5d. Personal Service & Building & Grounds Services (includes janitorial, grounds maintenance, child care workers)	26	5.45
Sub-Total 5a. through 5d.	55	11.53
6. Agricultural, Forestry & Fishing	1	.21
7. Mechanics, Installers and Repairers	43	9.01
8. Construction Trades	59	12.37
9. Production Occupations	18	3.77
10. Transportation & Material Moving	17	3.57

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Occupation	Number of Civilian Employees	Percent of Civilian Employees
11. Handlers, Equipment Cleaners, Helpers and Laborers (not included elsewhere)	1	.21
TOTAL	477	100%

Source of Data (1.g.) Classification By Occupation Data): DCPDS/MRS. JOANNE NIEMIEC-HRO

Description of Occupational Categories used in Table 1.g. The following list identifies public and private sector occupations included in each of the major occupational categories used in the table. Refer to these examples as a guide in determining where to allocate **appropriated fund civil service jobs** at the activity.

1. **Executive, Administrative and Management.** Accountants and auditors; administrative services managers; budget analysts; construction and building inspectors; construction contractors and managers; cost estimators; education administrators; employment interviewers; engineering, science and data processing managers; financial managers; general managers and top executives; chief executives and legislators; health services managers; hotel managers and assistants; industrial production managers; inspectors and compliance officers, except construction; management analysts and consultants; marketing, advertising and public relations managers; personnel, training and labor relations specialists and managers; property and real estate managers; purchasing agents and managers; restaurant and food service managers; underwriters; wholesale and retail buyers and merchandise managers.
2. **Professional Specialty.** Use sub-headings provided.
3. **Technicians and Related Support.** Health Technologists and Technicians sub-category - self-explanatory. Other Technologists sub-category includes aircraft pilots; air traffic controllers; broadcast technicians; computer programmers; drafters; engineering technicians; library technicians; paralegals; science technicians; numerical control tool programmers.
4. **Administrative Support & Clerical.** Adjusters, investigators and collectors; bank tellers; clerical supervisors and managers; computer and peripheral equipment operators; credit clerks and authorizers; general office clerks; information clerks; mail clerks and messengers; material recording, scheduling, dispatching and distributing; postal clerks and mail carriers; records clerks; secretaries; stenographers and court reporters; teacher aides; telephone, telegraph and teletype operators; typists, word processors and data entry keyers.
5. **Services.** Use sub-headings provided.
6. **Agricultural, Forestry & Fishing.** Self explanatory.
7. **Mechanics, Installers and Repairers.**Aircraft mechanics and engine specialists; automotive body repairers; automotive mechanics; diesel mechanics; electronic equipment repairers; elevator installers

and repairers; farm equipment mechanics; general maintenance mechanics; heating, air conditioning and refrigeration technicians; home appliance and power tool repairers, industrial machinery repairers; line installers and cable splicers; millwrights; mobile heavy equipment mechanics; motorcycle, boat and small engine mechanics; musical instrument repairers and tuners; vending machine services and repairers.

8. **Construction Trades.** Bricklayers and stonemasons; carpenters; carpet installers; concrete masons and terrazzo workers; drywall workers and lathers; electricians; glaziers; highway maintenance; insulation workers; painters and paperhangers; plasterers; plumbers and pipefitters; roofers; sheet metal workers; structural and reinforcing ironworkers; tilesetters.
9. **Production Occupations.** Assemblers; food processing occupations; inspectors, testers and graders; metalworking and plastics-working occupations; plant and systems operators, printing occupations; textile, apparel and furnishings occupations; woodworking occupations; miscellaneous production operations.
10. **Transportation & Material Moving.** Busdrivers; material moving equipment operators; rail transportation occupations; truckdrivers; water transportation occupations.
11. **Handlers, Equipment Cleaners, Helpers and Laborers** (not included elsewhere). Entry level jobs not requiring significant training.

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h. Employment of Military Spouses. Complete the following table to provide estimated information concerning **military spouses** who are also employed in the area defined in response to question 1.b., above. **Do not fill in shaded area.**

1. Percentage of Military Employees Who Are Married:	**60%**
2. Percentage of Military Spouses Who Work Outside of the Home:	**38%**
3. Break out of Spouses' Location of Employment (Total of rows 3a. through 3d. should equal 100% and reflect the number of spouses used in the calculation of the "Percentage of Spouses Who Work Outside of the Home".	
3a. Employed "On-Base" - Appropriated Fund:*	**6%**
3b. Employed "On-Base" - Non-Appropriated Fund:	**5%**
3c. Employed "Off-Base" - Federal Employment:	**13%**
3d. Employed "Off-Base" - Other Than Federal Employment**	**76%**

***INCLUDES MILITARY PERSONNEL MARRIED TO MILITARY PERSONNEL**
****INCLUDES DoD SECTION 6 EMPLOYEES**

Source of Data (1.h.) Spouse Employment Data): DCPDS/NAF (J.ZIDAR)/MRS. JOANNE NIEMIEC-HRO AND MGYSGT COHEE-S-1

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2. Infrastructure Data. For each element of community infrastructure identified in the two tables below, rate the community's ability to accommodate the relocation of additional functions and personnel to your activity. Please complete each of the three columns listed in the table, reflecting the impact of various levels of increase (20%, 50% and 100%) in the number of personnel working at the activity (and their associated families). In ranking each category, use one of the following three ratings:

A - Growth can be accommodated with little or no adverse impact to existing community infrastructure and at little or no additional expense.

B - Growth can be accommodated, but will require some investment to improve and/or expand existing community infrastructure.

C - Growth either cannot be accommodated due to physical/environmental limitations or would require substantial investment in community infrastructure improvements.

Table 2.a., "Local Communities": This first table refers to the local community (i.e., the community in which the base is located) and its ability to meet the increased requirements of the installation.

Table 2.b., "Economic Region": This second table asks for an assessment of the infrastructure of the economic region (those counties identified in response to question 1.b., (page 3) - taken in the aggregate) and its ability to meet the needs of additional employees and their families moving into the area.

For both tables, annotate with an asterisk (*) any categories which are wholly supported on-base, i.e., are not provided by the local community. These categories should also receive an A-B-C rating. Answers for these "wholly supported on-base" categories should refer to base infrastructure rather than community infrastructure.

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a. Table A: Ability of Beaufort to meet the expanded needs of the base.

1) Using the **A - B - C** rating system described above, complete the table below.

Category	20% Increase	50% Increase	100% Increase
Off-Base Housing	A	B	B
Schools - Public (NOTE 1)	A	B	C
Schools - Private (NOTE 2 & 3)	A	B	C
Public Transportation - Roadways	A	A	B
Public Transportation - Buses/Subways	A	A	B
Public Transportation - Rail	N/A	N/A	N/A
Fire Protection	A*	A*	A*
Police	A*	B*	B*
Health Care Facilities	A	A	B
Utilities:			
Water Supply	A	A	A
Water Distribution	A*	A*	A*
Energy Supply	A	A	A
Energy Distribution	A*	A*	A*
Wastewater Collection	A*	A*	B*
Wastewater Treatment	A*	B*	B*
Storm Water Collection	A*	A*	B*
Solid Waste Collection and Disposal	A	A	A
Hazardous/Toxic Waste Disposal	A	A	A
Recreational Activities (NOTE 4)	A	B	C

Remember to mark with an asterisk any categories which are wholly supported on-base.

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Note 1: Schools, Public. A new elementary school, Shanklin Elementary, in the Laurel Bay area is under construction and scheduled to open in the fall of 1994. Middle schools and high schools will require substantial monies for land acquisition and construction of new school buildings. (Source of information is Mr. J. C. Wright of the Beaufort County Planning Division.)

Note 2: Schools, Private. Laurel Bay Schools (DoD Section 6 Schools), 100% increase would require construction of an additional school as well as some modifications of the existing schools. Such an undertaking would need to be funded through the Section 6 stateside schools' office in Washington, D.C. It would be necessary for that office to procure MILCON funds, and sufficient time would be needed to plan and design such a project. (Source of information is Dr. Flanagan, Superintendent of DoD Section 6, Laurel Bay Schools.)

Note 3: All of the private schools are capable of handling a 100% increase, with the exception of one school, an additional building is required and service can be provided within two to three years. (Source of information is Mr. J. C. Wright of the Beaufort County Planning Division.)

Note 4: Employees and their families will have residences in Beaufort County. Recreation facilities will be provided, for the most part, by Beaufort County. Local pool facilities, ball fields, recreational areas and youth programs within Beaufort County are limited. It will require a substantial investment by the County to support an increase of 100% in additional employees and families.

2) For each rating of "C" identified in the table on the preceding page, attach a brief narrative explanation of the types and magnitude of improvements required and/or the nature of any barriers that preclude expansion.

Source of Data (2.a. 1) & 2) - Local Community Table): BEAUFORT COUNTY INFRASTRUCTURE SUPPORT STUDY-5/11/94-JOHN BALLENTYNE. AREA MANAGER GREYHOUND LINES, INC.'S LTR 6/27/94-MAJOR YOUNG TMO. MR. WRIGHT-BEAUFORT COUNTY PLANNING BOARD/MGYSGT COHEE-S-1

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b. Table B: Ability of Beaufort County to meet the needs of additional employees and their families relocating into the area.

1) Using the **A - B - C** rating system described above, complete the table below.

Category	20% Increase	50% Increase	100% Increase
Off-Base Housing	A	B	B
Schools - Public **(NOTE 1)**	A	B	C
Schools - Private **(NOTE 2 & 3)**	A	B	C
Public Transportation - Roadways	A	A	A
Public Transportation - Buses/Subways	A	A	A
Public Transportation - Rail	A	A	A
Fire Protection	A*	A*	A*
Police	A*	B*	B*
Health Care Facilities	A	A	B
Utilities:			
Water Supply	A	A	A
Water Distribution	A*	A*	A*
Energy Supply	A	A	A
Energy Distribution	A*	A*	B*
Wastewater Collection	A*	A*	B*
Wastewater Treatment	A*	B*	B*
Storm Water Collection	A*	A*	B*
Solid Waste Collection and Disposal	A	A	A
Hazardous/Toxic Waste Disposal	A	A	A
Recreation Facilities	A	B	B

Remember to mark with an asterisk any categories which are wholly supported on-base.

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Note 1: Schools, Public. A new elementary school, Shanklin Elementary, in the Laurel Bay area is under construction and scheduled to open in the fall of 1994. Middle schools and high schools will require substantial monies for land acquisition and construction of new school buildings. (Source of information is Mr. J. C. Wright of the Beaufort County Planning Division.)

Note 2: Schools, Private. Laurel Bay Schools (DoD Section 6 Schools), 100% increase would require construction of an additional school as well as some modifications of the existing schools. Such an undertaking would need to be funded through the Section 6 stateside schools' office in Washington, D.C. It would be necessary for that office to procure MILCON funds, and sufficient time would be needed to plan and design such a project. (Source of information is Dr. Flannagan, Superintendent of DoD Section 6, Laurel Bay Schools.)

Note 3: All of the private schools are capable of handling a 100% increase, with the exception of one school, an additional building is required and service can be provided within two to three years. (Source of information is Mr. J. C. Wright of the Beaufort County Planning Division.)

2) For each rating of "C" identified in the table on the preceding page, attach a brief narrative explanation of the types and magnitude of improvements required and/or the nature of any barriers that preclude expansion.

Source of Data (2.b. 1) & 2) - Regional Table): Source of Data (2.a. 1) & 2) - Local Community Table): BEAUFORT COUNTY INFRASTRUCTURE SUPPORT STUDY-5/11/94-JOHN BALLENTYNE. AREA MANAGER GREYHOUND LINES, INC.'S LTR 6/27/94-MAJOR YOUNG-TMO/MR. WRIGHT-BEAUFORT COUNTY PLANNING BOARD/MGYSGT COHEE-S-1.

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3. Public Facilities Data:

a. **Off-Base Housing Availability.** For the counties identified in the response to question 1.b. (page 3), in the aggregate, estimate the current average vacancy rate for community housing. Use current data or information identified on the latest family housing market analysis. For each of the categories listed (rental units and units for sale), combine single family homes, condominiums, townhouses, mobile homes, etc., into a single rate:

Rental Units: **5%**

Units for Sale: **1%**

Source of Data (3.a. Off-Base Housing): MRS. SMITH-HOUSING DIRECTOR

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b. **Education.**

1) Information is required on the current capacity and enrollment levels of school systems serving employees of the activity. Information should be keyed to the counties identified in the response to question 1.b. (page 3).

School District	County	Number of Schools			Enrollment		Pupil-to-Teacher Ratio		Does School District Serve Gov't Housing Units? *
		Element-ary	Middle	High	Current	Max. Capacity	Current	Max. Ratio	
Beaufort County School District, Public	Beaufort	13	3	3	14,542	16,274	16-1	25-1	Yes
Private	Beaufort	13	10	8	1,592	2,000	20-1	20-1	Yes
Laurel Bay	Beaufort	2	0	0	1,162	1,525	24-1	30-1	Yes

* Answer "Yes" in this column if the school district in question enrolls students who reside in government housing.

Source of Data (3.b.1) Education Table): MRS. KATHY BROWN-BCSD ATTENDANCE DEPT

2) Are any on-base "Section 6" Schools? If so, identify number of schools and current enrollment.

Yes, two elementary schools. Current enrollment is 1,162.

Source of Data (3.b.2) On-Base Schools): DR. KAY FLANAGAN-SUPERINTENDENT OF LAUREL BAY SCHOOLS/MGYSGT COHEE-S-1

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

3) For the counties identified in the response to question 1.b. (page 3), in the aggregate, list the names of undergraduate and graduate colleges and universities which offer certificates, Associate, Bachelor or Graduate degrees :

PARK COLLEGE

BACHELOR OF SCIENCE:

- **Computer Based Information Systems**
- **Criminal Justice Administration**
- **Business Management**
- **Aviation Management**
- **Computer Info Systems Management**
- **Health Care Management**
- **Human Resources Management**
- **Social Psychology**

ASSOCIATE OF SCIENCE:

- **Computer Science**
- **Criminal Justice Administration**
- **Business Management**
- **Aviation Management**
- **Social Psychology**

UNIVERSITY OF SOUTH CAROLINA AT BEAUFORT

GRADUATE DEGREES:

- **Education Specialist**
- **MA in Teaching**

BACHELOR OF SCIENCE AND ARTS:

- **Business Administration**
- **Nursing**
- **Early Childhood Education**
- **Interdisciplinary Studies**

ASSOCIATE DEGREES:

- **Liberal Arts**
- **Associate of Arts**
- **Associate of Science**

WEBSTER UNIVERSITY - GRADUATE DEGREES

- **MA in Business**
- **MA in Management**
- **Master in Business Administration**

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LIMESTONE COLLEGE

BACHELOR OF SCIENCE AND ARTS:

- **Liberal Studies**
- **Counseling and Human Services**
- **Social Work**
- **General Business**
- **Business Administration/Management**
- **Computer Science**

ASSOCIATE DEGREES:

- **Liberal Studies**
- **Business**
- **Computer Science**

Source of Data (3.b.3) Colleges): MGYSGT COHEE-S-1

4)

For the counties identified in the response to question 1.b. (page 3), in the aggregate, list the names and major curriculums of vocational/technical training schools:

TECHNICAL COLLEGE OF THE LOW COUNTRY

Associates Degrees in 13 Technical Categories:

- **Automotive Technology**
- **Computer Technology**
- **Business/Hospitality**
- **Legal Technology**
- **Criminal Justice**
- **Nursing**
- **General Technology**
- **Building Construction**
- **Tennis Management**
- **Heating and Air Conditioning**
- **Electronics Technology**
- **General Business**
- **Office Systems**

Source of Data (3.b.4) Vo-tech Training): MGYSGT COHEE-S-1

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c. **Transportation.**

1) Is the activity served by public transportation?

	Yes	No
Bus:	X	
Rail:		X
Subway:		X
Ferry:		X

Source of Data (3.c.1) Transportation): GREYHOUND LINES, INC.-MAJOR YOUNG-TMO

2) Identify the location of the nearest passenger railroad station (long distance rail service, not commuter service within a city) and the distance from the activity to the station.

Yemassee, SC	**22 Miles**
Savannah, GA	**45 Miles**
Charleston, SC	**64 Miles**

Source of Data (3.c.2) Transportation): COMMERCIAL SABRE AIRLINE RESERVATION SYSTEM-MAJOR YOUNG-TMO

3) Identify the name and location of the nearest commercial airport (with public carriers, e.g., USAIR, United, etc.) and the distance from the activity to the airport.

Hilton Head, SC	**32 Miles**	**Hilton Head Municipal Airport**
Savannah, GA	**45 Miles**	**Savannah International Airport**
Charleston, SC	**64 Miles**	**Charleston International Airport**

Source of Data (3.c.3) Transportation): COMMERCIAL SABRE AIRLINE RESERVATION SYSTEM-MAJOR YOUNG-TMO

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4) How many carriers are available at this airport?

Hilton Head, SC - Two Carriers (American and USAir)
Savannah, GA - Four Carriers (American, Delta, United and USAir)
Charleston, SC - Five Carriers (American, Continental, Delta, United and USAir)

Source of Data (3.c.4) Transportation: COMMERCIAL SABRE AIRLINE RESERVATION SYSTEM-MAJOR YOUNG-TMO

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5) What is the Interstate route number and distance, in miles, from the activity to the nearest Interstate highway?

SC Highway 21 is immediately accessible from the Air Station and leads directly to Interstate 95. Distance is 22 miles north.

Source of Data (3.c.5) Transportation: SC STATE HIGHWAY PRIMARY SYSTEM MAP DTD 1 JAN 93-MAJOR YOUNG-TMO

6) Access to Base:

a) Describe the quality and capacity of the road systems providing access to the base, specifically during peak periods. (Include both information on the area surrounding the base and information on access to the base, e.g., numbers of gates, congestion problems, etc.)

There are multi-lane newly asphalted highways leading from the activity to the major highways which take you either north or south. There are several traffic lights to control traffic flow and the roads are clearly marked for traffic to proceed safely onto the activity regardless of peak periods or heavy traffic flow. There are 5 access gates to the base.

b) Do access roads transit residential neighborhoods?

No. MCAS Beaufort is located three miles from the city limits of Beaufort in a rural area, surrounded by agriculture, commercial and industrial facilities, and to a lesser extent residential development.

c) Are there any easements that preclude expansion of the access road system?

No.

d) Are there any man-made barriers that inhibit traffic flow (e.g., draw bridges, etc.)?

There is one drawbridge located between the city of Beaufort and Lady's Island that impacts commuters, although a nearby high rise bridge provides an alternate route through Port Royal township.

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Source of Data (3.c.6) Transportation: BEAUFORT COUNTY ECONOMIC DEVELOPMENT BOARD LTR OF 7 JUN 93/BEAUFORT CITY MAP-MAJOR YOUNG-TMO

d. **Fire Protection/Hazardous Materials Incidents.** Does the activity have an agreement with the local community for fire protection or hazardous materials incidents? Explain the nature of the agreement and identify the provider of the service.

Yes, Mutual Aid Agreements are in place with Port Royal, Burton, Lady's Island/St. Helena, Fripp Island, Sheldon, Bluffton, Hilton Head, and Sea Pines Fire Districts and the State Forestry Commission. These agreements are designed to augment fire protection in the event of a major fire or conflagration. Wording in these agreements does not address hazardous material incidents; however, with the only certified hazmat team in the area, we do respond on a "case-by-case" basis when called. Inter-service agreements are in place with MCRD Parris Island, and Naval Hospital, Beaufort. These agreements address fire protection augmentation and hazmat response.

Source of Data (3.d. Fire/Hazmat): FIRE CHIEF-MR. TIPPIN

e. **Police Protection.**

1) What is the level of legislative jurisdiction held by the installation?

MCAS Beaufort and the Laurel Bay Military Housing Area are both areas of exclusive federal jurisdiction.

Townsend Bombing Range consisting of over 5,000 acres of land located in McIntosh County, Georgia is an area in which the federal government exercises proprietary jurisdiction. The Commanding Officer, MCAS Beaufort, is assigned the facilities management responsibility for the Range.

2) If there is more than one level of legislative jurisdiction for installation property, provide a brief narrative description of the areas covered by each level of legislative jurisdiction and whether there are separate agreements for local law enforcement protection.

A Letter of Agreement is currently being staffed concerning respective local law enforcement protection on board Townsend Bombing Range. The document, not yet executed by all parties, provides that Georgia state criminal law applies on board the Range. The McIntosh County Sheriff's Department has the responsibility for enforcement of Georgia law under

the terms of the agreement. The Naval Criminal Investigative Service, Kings Bay Georgia, has the responsibility for investigation of federal offenses committed on board the Range.

3) Does the activity have a specific written agreement with local law enforcement concerning the provision of local police protection?

There is no agreement with local police protection. Local law enforcement has assumed no jurisdictional authority over MCAS property and MCAS Beaufort has not relinquished any jurisdictional authority (except as indicated in 3.e.2.).

4) If agreements exist with more than one local law enforcement entity, provide a brief narrative description of whom the agreement is with and what services are covered.

There are two Memorandum's of Understanding that affect service which MCAS Beaufort provides to the local law enforcement or social services organizations.

- MOU between MCAS Beaufort, Beaufort County, Colleton County, Hampton County, Jasper County and the South Carolina Department of Health and Environmental Control allows for the MCAS Beaufort Explosive Ordnance Division (EOD) and Military Working Dog (MWD) sections to support the civilian community in the event of a bomb threat. MOU dated 940421.

- MOU between MCAS Beaufort, MCRD Parris Island, Beaufort Naval Hospital, Beaufort County Department of Social Services, NCIS and Laurel Bay Schools for the reporting of and information flow concerning child abuse cases. MOU dated 930205.

5) If military law enforcement officials are routinely augmented by officials of other federal agencies (BLM, Forest Service, etc.), identify any written agreements covering such services and briefly describe the level of support received.

Other than the Naval Criminal Investigative Service, military law enforcement is not routinely augmented by other federal enforcement agencies.

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Source of Data (3.e. 1) - 5) - Police): JOINT LAW CENTER-CAPTAIN PINDER/PROVOST MARSHAL-MAJOR GOSSETT

f. **Utilities.**

1) Does the activity have an agreement with the local community for water, refuse disposal, power or any other utility requirements? Explain the nature of the agreement and identify the provider of the service.

Yes. Waste Water - MCAS Beaufort provides treatment of waste water to Shanklin Elementary School under a separate agreement with Beaufort/Jasper Water & Sewer Authority.

Water - Commercial water is provided by the Beaufort/Jasper Water & Sewer Authority, whereby water is purchased at wholesale/industrial rates.

Electricity - Power is provided by South Carolina Electric & Gas Company at industrial rates for the main Air Station and commercial rates for Family Housing.

Gas - Natural gas is provided by South Carolina Electric & Gas Company on a competitive rate with oil for the Air Station and an uninterruptible rate for Family Housing.

Refuse Disposal - Refuse pickup and disposal is provided by contract. The contract is for one year with four option years. The same contractor provides recycle pickup for Family Housing with a 50% rebate on the proceeds.

2) Has the activity been subject to water rationing or interruption of delivery during the last five years? If so, identify time period during which rationing existed and the restrictions imposed. Were activity operations affected by these situations? If so, explain extent of impact.

No.

3) Has the activity been subject to any other significant disruptions in utility service, e.g., electrical "brown outs", "rolling black outs", etc., during the last five years? If so, identify time period(s) covered and extent/nature of restrictions/disruption. Were activity operations affected by these situations? If so, explain extent of impact.

No.

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Source of Data (3.f. 1) - 3) Utilities): SOUTH CAROLINA ELECTRIC & GAS CUSTOMER SERVICE MANAGER-MR. FRED HORTON/BEAUFORT-JASPER. WATER-SEWER AUTHORITY-MR. BILL SMITH, OPERATING MANAGER

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4. **Business Profile.** List the top ten employers in the geographic area defined by your response to question 1.b. (page 3), taken in the aggregate, (include your activity, if appropriate):

Employer	Product/Service	No. of Employees
1. MCAS Beaufort	Military	3,728
2. MCRD Parris Island	Military	2,666
3. Beaufort County School District	Elementary & Secondary Schools	2,000
4. County of Beaufort	Executive/Legislative & General Government	780
5. Beaufort Naval Hospital	Military Medical/Surgical Hosp.	634
6. Hyatt Hotels	Hotel Chain	575
7. Beaufort Memorial Hospital	Medical/Surgical	520
8. Sea Pines Plantation	Medical/Surgical	510
9. The Westin Resort	Hotel	505
10. Technical College of the Low Country	Tech/Vocational	468

Source of Data (4. Business Profile): BEAUFORT EMPLOYMENT SECURITY COMMISSION-MR. CHARLES HANNEMEN/BEAUFORT CHAMBER OF COMMERCE-MS. JOANNE MITCHELL

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5. **Other Socio-Economic Impacts.** For each of the following areas, describe other recent (past 5 years), on-going or projected economic impacts (both positive and negative) on the geographic region defined by your response to question 1.b. (page 3), in the aggregate:

a. Loss of Major Employers: **The number of retail businesses includes employers of one to two persons up to empoyers of larger groups. Loss of any employer in the Beaufort area, regardless of number of employees involved, would have an impact on an economy of Beaufort's size.**

FY89-94 = 32 retail businesses closed.

b. Introduction of New Businesses/Technologies:

FY89-94 = 41 new businesses opened.
State Prison in Jasper County.
Del Webb Community established.
Sewer installed in Industrial Park (can now keep existing industry and recruit new industry).

c. Natural Disasters:

FY89-90 = Hurricane Hugo.

d. Overall Economic Trends:

Beaufort is the fastest growing county in South Carolina. Improvements to the Industrial park, the establishment of a multi-county agreement to attract industry, and a change in public attitude have resulted in an upswing in industrial growth. County officials are aggressively pursuing clean, non-polluting companies. Two major manufacturers are presently considering Beaufort County as a location and would hire an estimated 300 employees. An upscale retirement community has committed to the area and will hire 85 personnel and pump $2 million into its payroll in its first year.

FY89-94 = 5 major movies filmed in Beaufort County

During the 1989-94 time frame all city/county government services consolidated into one area. Construction of Beaufort Memorial Hospital, Beaufort County Library, Beaufort City Hall, Waterfront Park Place was started.

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Source of Data (5. Other Socio/Econ): BEAUFORT CHAMBER OF COMMERCE- MS. JOANNE MITCHELL/BEAUFORT COUNTY ECONOMIC DEVELOPMENT BOARD-CWO-4 BENNETT

6. **Other.** Identify any contributions of your activity to the local community not discussed elsewhere in this response.

MCAS Beaufort continues to be a major contributor to the well-being of the community. MCAS Beaufort personnel are members of, and participants in, the Sea Island Rotary, Beaufort Rotary, Tri-Command Martin Luther King/Black History Month activities, and Chamber of Commerce groups, such as the Military Affairs Committee and Leadership Beaufort. Additionally, MCAS Marines participate in Big Brothers/Big Sisters, Partnership in Education, and Scouting. MCAS Beaufort personnel are members of the Northern Beaufort County Planning Sub-Committee and ex-officio members of the Beaufort County Planning Board and Beaufort/Jasper Water and Sewer Authority.

MCAS personnel are also participating in Beaufort County 2000 Education Improvement, Beaufort County Board of Education Planning Task Force, Beaufort County Board of Education Facilities Task Force, County Council of Beaufort County Strategic Planning Task Force, United Way of Beaufort County, United Way of South Carolina, Leadership Beaufort Forum, and Beaufort County YMCA Community Challenge.

MCAS Beaufort hosts many community activities, i.e., Bi-ennial Air Show/Open House, Battle Color Ceremony, Oktoberfest, Beaufort and Savannah Kennel Clubs Dog Shows, Tri-Command Asian-Pacific Heritage Month Festival, Civilian Appreciation Picnic, Tri-Command American Red Cross Blood Drive, Tri-Command Martin Luther King Humanitarian Awards, and Senior Citizen Tea.

MCAS Beaufort participates in numerous community events, such as Adopt-A-Highway, March of Dimes Walkathon, Beaufort Water Festival, Penn Center Heritage Day, and Gullah Festival.

MCAS Beaufort coordinates an extensive tour program:

1990 - 12 Command visits (organized by Marine Corps District recruiting headquarters to bring in community and school leaders from various sections of the country to tour MCAS Beaufort and MCRD Parris Island and to

also gain a positive impression of the Lowcountry area in general. Additionally in 1990, there were 19 miscellaneous tours.

1991 - 37 Command visits and 29 miscellaneous tours.

1992 - 26 Command visits and 61 miscellaneous tours.

1993 - 15 Command visits and 63 miscellaneous tours.

1994 - 11 Command visits and 14 miscellaneous tours to date.

ADDITIONAL ECONOMIC IMPACT INFORMATION:

- Loss of the three military installations would affect over 10,690 jobs.

- 26% effect on total employment (1 in 4 jobs) in Beaufort County.

- 42% effect on employment (1 in 2.4 jobs) in the Main Impact Area - Northern Beaufort County.

- $295 million annual payroll loss (active military and direct and indirect civilian) in Beaufort County.

- Payroll loss is 37% of total annual payroll of Beaufort County.

- The average civilian salary at the military installations is 42% higher than the average salary in Beaufort County.

- The average civilian salary at the military installations is 94% higher than the average salary in the Main Impact Area - Northern Beaufort County.

- The 4,947 direct and indirect civilian jobs subject to loss are more than four times the number of manufacturing jobs in Beaufort County.

- Females and minorities comprise 71% of the civilian employees at the three military installations.

- Unemployment would increase from 5.0% to 19% in Beaufort County with installation closures.

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

- Unemployment would increase from 6.5% to 32% in the Main Impact Area - Northern Beaufort County with closures.

Source of Data (6. Other): BEAUFORT CHAMPER OF COMMERCE-MS. JOANNE MITCHELL/JOINT PUBLIC AFFAIRS OFFICE-CWO-4 BENNETT

DATA CALL 65 for BEAUFORT

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief. (BRAC '95 Data Call #65: Economic & Community Infrastructure)

NEXT ECHELON LEVEL (if applicable)

F. MCCORKLE
NAME (Please type or print)

FMccorkle
Signature

Commanding General
Title

18 JUL 1994
Date

Marine Corps Air Bases East
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

NAME (Please type or print)
J. A. BRABHAM

Signature

Title
LIEUTENANT GENERAL, U.S. MARINE CORPS
DEPUTY CHIEF OF STAFF FOR
INSTALLATIONS AND LOGISTICS

8/12/94
Date

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

R. D. STEARNS
NAME (Please type or print)

Signature M Stearns

COMMANDING OFFICER
Title

Date 12 June 94

MCAS BEAUFORT
Activity

Data Call #65

ENVIRONMENTAL DATA CALL:
DATA CALL TO BE SUBMITTED TO
ALL NAVY/MARINE CORPS HOST ACTIVITIES

20 APRIL 1994

POINT ID...007 SIC...5171 STORAGE TANK

TANK TYPE...7 UNDERGROUND TANK SIZE.. 567.00 KGAL
VAPOR REC...
TK HEIGHT... FT TK DIAMETER.. FT TK SHAPE....

TK COLOR.... TK PNT COND... YR PAINTED..

TRUE VP..... PSIA REID VP..... PSI
AVE HT VAPOR SP.... FT LIQUID TEMP..... DEG F
FILL TYPE.....2 BOTTOM MAX FILL RATE..... KGAL/MIN

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1957			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....UNDERGROUND TANK

AVG HOURLY...B	MAX HRLY...B	ANNUAL...THROUGHPUT
1.769 KGALS	KGALS	15458.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	1.000		7.7	3 FACTOR TABLE

SCC DESCRIPTION....UNDERGROUND TANK STAND

AVG HOURLY...B	MAX HRLY...B	ANNUAL...CAPACITY
.064 KGALS	KGALS	567.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.000		.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...005 SIC...5171 STORAGE TANK

TANK TYPE...7 UNDERGROUND TANK SIZE.. 210.00 KGAL
VAPOR REC...
TK HEIGHT... FT TK DIAMETER.. FT TK SHAPE....

TK COLOR.... TK PNT COND... YR PAINTED..

TRUE VP..... PSIA REID VP..... PSI
AVE HT VAPOR SP.... FT LIQUID TEMP..... DEG F
FILL TYPE.....2 BOTTOM MAX FILL RATE..... KGAL/MIN

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL
JAN 1954				

% ANNUAL USE DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	NORMAL OPERATING HOURS HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....UNDERGROUND TANK
AVG HOURLY...* MAX HRLY...* ANNUAL...THROUGHPUT
******* ******* ******** KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	1.000		.0	3 FACTOR TABLE

SCC DESCRIPTION....UNDERGROUND TANK STAND
AVG HOURLY...B MAX HRLY...B ANNUAL...CAPACITY
.024 KGALS KGALS 210.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.000		.0	3 FACTOR TABLE

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...007 SIC...5171 STORAGE TANK

DATE ENTERED....17 FEB 1983 SOURCE TYPE....JP5 TANK
DATE REVISED....31 JUL 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		568	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 JP5 TANK #568 LOCATED AT TANK FARM B, NEXT TO FUEL
0011 RECEIVING PIER (CUT AND COVER TANK).
0020 THE FOLLOWING REMARKS ALSO APPLY TO NAPSIS
0021 POINT 008.
0030 FUEL IS PUMPED INTO TANK FROM BARGES. STORED
0031 FUEL IS THEN PUMPED VIA 8 INCH PIPELINE TO
0032 DAY TANKS AS NEEDED.
0040 TWO OFF-LOAD STANDS ARE LOCATED AT PIER: ONE
0041 USES EMCO WHEATON NOZZLE - THE OTHER STAND
0042 IS RARELY USED (NO NOZZLE IN PLACE).
0050 POC: CWO HARVEY, X-7448.
0060 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40399997	UNDERGROUND TANK	
40399999	UNDERGROUND TANK	STAND

ENCLOSURE (2)

POINT ID...006 SIC...5171 STORAGE TANK

TANK TYPE...7 UNDERGROUND TANK SIZE.. 210.00 KGAL
VAPOR REC...
TK HEIGHT... FT TK DIAMETER.. FT TK SHAPE....

TK COLOR.... TK PNT COND... YR PAINTED..

TRUE VP..... PSIA REID VP..... PSI
AVE HT VAPOR SP.... FT LIQUID TEMP..... DEG F
FILL TYPE.....2 BOTTOM MAX FILL RATE..... KGAL/MIN

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1954			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....UNDERGROUND TANK

AVG HOURLY...*	MAX HRLY...*	ANNUAL...THROUGHPUT
*******	*******	******** KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	1.000		.0	3 FACTOR TABLE

SCC DESCRIPTION....UNDERGROUND TANK STAND

AVG HOURLY...B	MAX HRLY...B	ANNUAL...CAPACITY
.024 KGALS	KGALS	210.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.000		.0	3 FACTOR TABLE

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...006 SIC...5171 STORAGE TANK

DATE ENTERED....17 FEB 1983 SOURCE TYPE....JP5 TANK
DATE REVISED....31 JUL 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		402	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 JP5 TANK #402 LOCATED AT TANK FARM C (CUT AND
0011 COVER TANK).
0020 SEE NAPSIS POINT 005 FOR ADDITIONAL REMARKS.
0030 POC: CWO HARVEY, X-7448.
0040 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40399997	UNDERGROUND TANK	
40399999	UNDERGROUND TANK	STAND

ENCLOSURE (2)

BRAC 1995 ENVIRONMENTAL DATA CALL:
All Navy/Marine Corps Host Activities

INDEX

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ENVIRONMENTAL DATA CALL

Responses to the following questions provide data that will allow an assessment of the potential environmental impact associated with the closure or realignment of a Navy shore activity. This criterion consists of:

- Endangered/Threatened Species and Biological Habitat
- Wetlands
- Cultural Resources
- Environmental Facilities
- Air Pollution
- Environmental Compliance
- Installation Restoration
- Land/Air/Water Use

As part of the answers to these questions, a *source citation* (e.g., 1993 base loading, 1993 base-wide Endangered Species Survey, 1993 letter from USFWS, 1993 Base Master Plan, 1993 Permit Application, 1993 PA/SI, etc.) must be included. It is probable that, at some point in the future, you will be asked to provide additional information detailing specifics of individual characteristics. In anticipation of this request, supporting documentation (e.g., maps, reports, letters, etc.) regarding answers to these questions should be retained. Information needed to answer these questions is available from the cognizant EFD Planning and Real Estate Divisions, and Environment, Safety, and Health Divisions; and from the activity Public Works Department, and activity Health Monitoring and Safety Offices.

For purposes of the questions associated with land use at your base is *defined* as *land* (acreage owned, withdrawn, leased, and controlled through easements); *air* (space controlled through agreements with the FAA, e.g., MOAs); *and water* (navigation channels and waters along a base shoreline) *under the control of the Navy.*

Provide a list of the tenant activities with UICs that are covered in this response.

MCAS BEAUFORT UIC: 02030
HQHQRON: 02031

Tenant Operational Command/Supporting Units:

R

00031	MAG-31 Primary UIC
01086	MALS-31
00273	MWSS-273
00972	MACS-2
27140	CSSD-23
33203	NAESU

MAG-31 Squadrons:

01115	VMFA-115
01122	VMFA-122
01224	VMFA(AW)-224
01251	VMFA-251
01312	VMFA-312
01332	VMFA(AW)-332
01451	VMFA-451
01533	VMFA(AW)-533

1. ENDANGERED/THREATENED SPECIES AND BIOLOGICAL HABITAT

1a. For federal or state listed endangered, threatened, or category 1 plant and/or animal species on your base, complete the following table. Critical/sensitive habitats for these species are designated by the U. S. Fish and Wildlife Service (USFWS). A species is present on your base if some part of its life-cycle occurs on Navy controlled property (e.g., nesting, feeding, loafing). Important Habitat refers to that number of acres of habitat that is important to some life cycle stage of the threatened/endangered species that is not formally designated.

Expected estimate of the critical/designated habitat and important habitat provided as follow:

There is no critical/designated habit listed in the federal register for Linderia Melissifolia. Litsea Aestivalis is a state listed species and no critical habitat is listed by the state. Gopherus Polyphemus - no critical/designated habitat for state endangered species.

SPECIES (plant or animal)	Designation (Threatened / Endangered)	Federal/ State	Critical / Designated Habitat (Acres)	Important Habitat (acres)
example: Haliaeetus leucocephalus - bald eagle	*threatened*	*Federal*	*25*	*0*
Lindera melissifolia (Pond Berry)	**Endangered**	**Federal**	**N/A *1**	**N/A**

R

Litsea aestivalis (Pond Spice)	Threatened	State	N/A	N/A
Gopherus polyphemus (Gopher Tortoise)	Endangered	State	N/A *2	N/A *2

*1 - Response to critical/designated and important habitat. So little is known about the species that management is largely a guess; however, it is recognized that hydrology plays.

00031	MAG-31 Primary UIC
01086	MALS-31
00273	MWSS-273
00972	MACS-2
27140	CSSD-23
33203	NAESU

MAG-31 Squadrons:

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1. ENDANGERED/THREATENED SPECIES AND BIOLOGICAL HABITAT

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SPECIES (plant or animal)	Designation (Threatened/ Endangered)	Federal/ State	Critical / Designated Habitat (Acres)	Important Habitat (acres)
example: Haliaeetus leucocephalus - bald eagle	*threatened*	*Federal*	*25*	*0*
Lindera melissifolia (Pond Berry)	**Endangered**	**Federal**	**N/A *1**	**N/A**
Litsea aestivalis (Pond Spice)	**Threatened**	**State**	**N/A**	**N/A**
Gopherus polyphemus (Gopher Tortoise)	**Endangered**	**State**	**N/A *2**	**N/A *2**

***1 - Response to critical/designated and important habitat. So little is known about the species that management is largely a guess; however, it is recognized that hydrology plays**

a role in the plant's habitat requirements. To present time, no in-depth hydroxy study has been conducted at MCAS Beaufort.

***2 - Criteria for critical/important habitat have yet to be determined due to recent discovery on 31 March 1994.**

Source Citation: **Multiple Use Natural Resources Plan for MCAS Beaufort, SC.**

1b.

Have your base operations or development plans been constrained due to: - USFWS or National Marine Fisheries Service (NMFS)? - State required modifications or constraints? If so, identify below the impact of the constraints including any restrictions on land use.	**NO**
Are there any requirements resulting from species not residing on base, but which migrate or are present nearby? If so, summarize the impact of such constraints.	**NO**

1c. If the area of the habitat and the associated species have not been identified on base maps provided in Data Call 1, submit this information on an updated version of Data Call 1 map.

See maps at Enclosure (1).

1d.

Have any efforts been made to relocate any species and/or conduct any mitigation with regards to critical habitats or endangered/threatened species? Explain what has been done and why.	**NO**

et.

Will any state or local laws and/or regulations applying to endangered/threatened species which have been enacted or promulgated but not yet effected, constrain base operations or development plans beyond those already identified? Explain.	**NO**

2. WETLANDS

Note: Jurisdictional wetlands are those areas that meet the wetland definitional criteria

detailed in the Corps of Engineers (COE) Wetland Delineation Manual, 1987, Technical Report Y-87-1, U.S. Army Engineer Waterway Experiment Station, Vicksburg, MS or officially adapted state definitions.

2a.

Does your base possess federal jurisdictional wetlands?	**YES**
Has a wetlands survey in accordance with established standards been conducted for your base?	**YES**
When was the survey conducted or when will it be conducted?	**10/30/91**
What percent of the base has been surveyed?	**100%**
What is the total acreage of jurisdictional wetlands present on your base?	**920 ***

*** Breakdown of Jurisdictional Wetlands:**

MCAS Beaufort.....796 Acres
Laurel Bay.....124 Acres
TOTAL.....920 Acres

Other wetland considerations not reflected in reported total land acquired for AICUZ/APZ is approximately 50 acres.

Townsend Bombing Range, Georgia - Study ongoing. No acreage figures available.

Source Citation: **Wetlands Survey by Environmental Services, Inc.**

2b. If the area of the wetlands has not been identified on base maps provided in Data Call 1, submit this on an updated version of Data Call 1 map.

Provided in Data Call 1.

2c. Has the EPA, COE or a state wetland regulatory agency required you to modify or constrain base operations or development plans in any way in order to accommodate a jurisdictional wetland? **No.** If YES, summarize the results of such modifications or

constraints.

3. CULTURAL RESOURCES

3a.

Has a survey been conducted to determine historic sites, structures, districts or archaeological resources which are listed, or determined eligible for listing, on the National Register of Historic Places? If so, list the sites below.	**YES**

1. Tract Site 38BU927: During initial reconnaissance survey, this site was discovered and determined potentially eligible for the National Register of Historic Places. Data recovery survey determined lack of integrity on-site, thus site was determined not eligible for National Register of Historic Places.

2. A Cultural Resources survey was performed at MCAS Beaufort and Laurel Bay. The work was initiated in FY 93 and concluded in FY 94. Twenty-four (24) sites were recognized as having potential eligibility for listing on the National Register of Historic Places. The sites are as follows:

38BU1324	**38BU1325**	**38BU1326**
38BU1327	**38BU1328**	**38BU1329**
38BU1330	**38BU1331**	**38BU1332**
38BU1333	**38BU1334**	**38BU1335**
38BU1339	**38BU1340**	**38BU1342**
38BU1343	**38BU1344**	**38BU1345**
38BU1347	**38BU1352**	**38BU1357**
38BU1360	**38BU1362**	**38BU1367**

3b.

	YES/NO
Has the President's Advisory Council on Historic Preservation or the cognizant State Historic Preservation Officer required you to mitigate or constrain base operations or development plans in any way in order to accommodate a National Register cultural resource? If YES, list the results of such modifications or constraints below.	**YES**

The State Historic Preservation Officer has constrained timber harvest operations relating to sites 38BU1324 through 38BU1335, 38BU1339 through 38BU1340, 38BU1342 through 38BU1345, 38BU1347, 38BU1352, 38BU1358, 38BU1360, 38BU1362 and 38BU1367, as

listed in section 3a above.

3c.

Are there any on base areas identified as sacred areas or burial sites by Native Americans or others? List below.	**YES**

There are seven (7) known burial sites at MCAS Beaufort, located at:

1. **Pistol Range**
2. **Bachelor Officers Quarters**
3. **Detreaville House**
4. **Wastewater Treatment Plant (in woods to right if facing plant)**
5. **Black (close to Detreaville House)**
6. **Givens (off perimeter road to north, has tabby wall)**
7. **Northwest of Ordnance (near Givens, right on boundary)**

4. ENVIRONMENTAL FACILITIES

Notes: If your facility is permitted for less than maximum capacity, state the maximum capacity and explain below the associated table why it is not permitted for maximum capacity. Under "Permit Status" state when the permit expires, and whether the facility is operating under a waiver. For permit violations, limit the list to the last 5 years.

4a.

Does your base have an operating landfill?					**NO**
ID/Location of Landfill	**Permitted Capacity (CYD)**		**Maximum Capacity (CYD)**	**Contents[1]**	**Permit Status**
	TOTAL	**Remaining**			

[1] Contents (e.g. building demolition, asbestos, sanitary debris, etc)

Are there any current or programmed projects to correct deficiencies or improve the facility.

4b. If there are any non-Navy users of the landfill, describe the user and conditions/agreements.

4c.

Does your base have any disposal, recycling, or incineration facilities for solid waste?					YES
Facility/Type of Operation	**Permitted Capacity**	**Ave Daily Throughput**	**Maximum Capacity**	**Permit Status**	**Comments**
Recycle Building	N/A	N/A	4,298 SqFt	N/A	See Comment 1
Waste Oil Tanks	N/A	N/A	20,000 Gal.	N/A	See Comment 2

List any permit violations and projects to correct deficiencies or improve the facility.

1 - In 1993 MCAS Beaufort processed through this facility: 153,013 pounds of scrap metal; 69,840 pounds of cardboard; 42,727 pounds of office paper; and 3,162 pounds of aluminum cans. Facility is also used for reutilization program for items drawn from DRMO, i.e., soap, paper, generators, etc., with a cost avoidance of $187,670 in 1993.

2 - Waste oil is collected at each squadron, stored in two 10,000 gallon above-ground storage tanks, and sold through DRMO. In 1993 46,891 gallons were sold.

4d.

Does your base own/operate a Domestic Wastewater Treatment Plant (WWTP) ?					YES
ID/Location of WWTP	**Permitted Capacity (MGD)**	**Ave Daily Discharge Rate (MGD)**	**Maximum Capacity (MGD)**	**Permit Status**	**Level of Treatment/Year Built**
MCAS Beaufort	0.75	0.44	2.0	Renewal This Year	Secondary/1955
Laurel Bay	0.75	0.65	2.0	Renewal This Year	Secondary/1956

List permit violations and discuss any projects to correct deficiencies.

Notice of noncompliance of 29 July 1992 from South Carolina Department of Health and Environmental Control (SCDHEC) and enforcement of conference of 12 August 1992 led to compliance schedule for repairs to process equipment and facilities. Contract to execute majority of repairs cited in compliance schedule was awarded 29 March 1993 and is ongoing. Project value is $972,899 and is approximately 70% complete. Both plants are designed for average daily flow of 1.0 MGD.

4e. If you do not have a domestic WWTP, describe the average discharge rate of your base to the local sanitary sewer authority, discharge limits set by the sanitary sewer authority (flow and pollutants) and whether the base is in compliance with their permit. Discuss recurring discharge violations.

N/A

4f.

Does your base operate an Industrial Waste Treatment Plant (IWTP)?					**NO**
ID/Location of IWTP	**Type of Treatment**	**Permitted Capacity**	**Ave Daily Discharge Rate**	**Maximum Capacity**	**Permit Status**

List any permit violations and projects to correct deficiencies or improve the facility.

4g. Are there other waste treatment flows not accounted for in the previous tables? Estimate capacity and describe the system.

32 septic tank systems ranging from 540 gallon to 3,000 gallon capacity. Total capacity all systems is 30,000 gallons.

4h.

Does your base operate drinking Water Treatment Plants (WTP)?					**YES**
ID/Location of WTP	**Operating (GPD)**		**Method of Treatment**	**Maximum Capacity**	**Permit Status**
	Permitted Capacity	**Daily Rate**			
Main Air Station	*	**N/A***	**chlorination**	**5.76 MGD**	*

List permit violations and projects/actions to correct deficiencies or improve the facility.

*** MCAS Beaufort's main complex still maintains a backup emergency water supply plant consisting of three (3) groundwater wells, 12 inch producing 350 GPM, raw collection system, distribution pump house and pre- and post-storage chlorination facilities, and a**

300,000 gallon ground storage tank. Not currently operational. Commercial water is used exclusively for Laurel Bay.

4i. If you do not operate a WTP, what is the source of the base potable water supply. State terms and limits on capacity in the agreement/contract, if applicable.

All water delivered by Beaufort-Jasper Water and Sewer Authority through three (3) mains feeding the Air Station, Laurel Bay and the Ordnance area on the north side of the Air Station. Terms of contract are:

MAIN WATER	TERMS	EXPIRES/ RENEWAL
MCAS (Main Complex	1,000 GPM (No Pressure Specified)	1995
Laurel Bay	1,000 GPM (No Pressure Specified)	1995
Ordnance Area	950 GPM at 25 PSI residual for over 90 minutes	1995

4j.

Does the presence of contaminants or lack of supply of water constrain base operations. Explain.	**NO**

Potable water is purchased from Beaufort-Jasper Water and Sewer Authority. There is a backup system of wells periodically exercised. Air Station owned potable wells are not contaminated.

Backup water supply wells are exercised regularly and have been tested for Phase I National Primary Drinking Water Regulations (NPDWR) with no contaminants above the maximum contaminant level (MCL).

4k.

Other than those described above does your base hold any NPDES or stormwater permits? If YES, describe permit conditions.	**YES**
If NO, why not and provide explanation of plan to achieve permitted status.	

NPDES Permits exist for two wastewater treatment plants. The state provides "contingency determinations" in lieu of permits for federal entities.

NPDES Permit SC0000825 is held to operate WWTP's discussed in 4d above. Permit requires monitoring of BOD, TSS, Total (MCAS) and fecal (Laurel Bay) coliform, and pH. New permit under negotiation adds dechlorination and possibly oil/grease and acute biotoxicity.

4l.

Does your base have bilge water discharge problem?	**NO**
Do you have a bilge water treatment facility?	**NO**

Explain:

4m.

Will any state or local laws and/or regulations applying to Environmental Facilities, which have been enacted or promulgated but not yet effected, constrain base operations or development plans beyond those already identified? Explain.	**YES**

State stormwater regulations require construction of detention ponds/stormwater management practices causing additional land required for facility construction.

State and federal stormwater regulations will require construction of stormwater detention facilities, placing some land (approximately 50 acres) under development for these facilities.

4n. What expansion capacity is possible with these Environmental Facilities? Will any expansions/upgrades as a result of BRACON or projects programmed through the Presidents budget through FY1997 result in additional capacity? Explain.

FY 98 MILCON Project P-386, stormwater detention facilities constructs ponds to preclude construction of multiple ponds at new or existing individual construction sites. The proposed detention facilities will allow for additional BRAC construction.

4o. Do capacity limitations on any of the facilities discussed in question 4 pose a present or future limitation on base operations? Explain.

No. Adequate land is available to size facilities to capture increased run-off due to paving and development related to BRAC. Adequate water and sewer capacity exists to accommodate BRAC scenarios proposed.

5. AIR POLLUTION

5a.

What is the name of the Air Quality Control Areas (AQCAs) in which the base is located? **South Carolina Department of Health and Environmental Control (SCDHEC), Lowcountry District, Beaufort, South Carolina**
Is the installation or any of its OLFs or non-contiguous base properties located in different AQCAs? **No.** List site, location and name of AQCA.

5b. For each parcel in a separate AQCA fill in the following table. Identify with and "X" whether the status of each regulated pollutant is: attainment/nonattainment/maintenance. For those areas which are in non-attainment, state whether they are: Marginal, Moderate, Serious, Severe, or Extreme. State target attainment year.

Site: **MCAS Beaufort, SC/Laurel Bay Housing, SC.** AQCA: **SCDHEC, Low country District, Beaufort, SC.**

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year[1]	Comments[2]
CO	X				
Ozone	X				
PM-10	X				
SO_2	X				
NO_2	X				
Pb	X				

[1] Based on national standard for Non-Attainment areas or SIP for Maintenance areas.
[2] Indicate if attainment is dependent upon BRACON, MILCON or Special Projects. Also indicate if the project is currently programmed within the Presidents FY1997 budget.

5c. For your base, identify the baseline level of emissions, established in accordance with the Clean Air Act. Baseline information is assumed to be 1990 data or other year as specified. Determine the total level of emissions (tons/yr) for CO, NOx, VOC, PM10 for the general sources listed. For all data provide a list of the sources and show your calculations. Use known emissions data, or emissions derived from use of state methodologies, or identify other sources used. "Other Mobile" sources include such items as ground support equipment.

	Emission Sources (Tons/Year)				
Pollutant	Permitted Stationary	Personal Automobiles	Aircraft Emissions	Other Mobile	Total
CO	**3**	**data not available**	**data not available**	**data not available**	**3**
NOx	**14.5**	**data not available**	**data not available**	**data not available**	**14.5**

VOC	**17.06**	**data not available**	**data not available**	**data not available**	**17.06**
PM10	**1.4**	**data not available**	**data not available**	**data not available**	**1.4**

Source Document: **Navy Air Pollution Source Information System (NAPSIS), 1989 (GEOMET TECHNOLOGIES, INC.). List/Calculations in Enclosure (2).**

5d. For your base, determine the total FY1993 level of emissions (tons/yr) for CO, NOx, VOC, PM10 for the general sources listed. For all data provide a list of the sources and show your calculations. Use known emissions data, or emissions derived from use of state methodologies, or identify other sources used. "Other Mobile" sources include such items as ground support equipment. **See Enclosure (2).**

	Emissions Sources (Tons/Year)				
Pollutant	Permitted Stationary	Personal Automobiles	Aircraft Emissions	Other Mobile	Total
CO	**127.7**	**data not available**	**data not available**	**data not available**	**127.7**
NOx	**59.9**	**data not available**	**data not available**	**data not available**	**59.9**
VOC	**24.1**	**data not available**	**data not available**	**data not available**	**24.1**
PM10	**8.1**	**data not available**	**data not available**	**data not available**	**8.1**

Source Document: **Air Emissions Inventory FY 1993 (RADIAN CORPORATION). List/Sample Calculations at Enclosure (2). Please note calculations for ACTUAL emissions.**

5e. Provide estimated increases/decreases in air emissions (Tons/Year of CO, NOx, VOC, PM10) expected within the next six years (1995-2001). Either from previous BRAC realignments and/or previously planned downsizing shown in the Presidents FY1997

budget. Explain.

No increases or decreases are planned for air emissions within the next six years. Emission sources are expected to remain the same.

5f. Are there any critical air quality regions (i.e. non-attainment areas, national parks, etc.) within 100 miles of the base?

Yes. A small portion of Charleston County, SC (approximately 70 miles north of MCAS Beaufort) does not meet secondary standards for lead. Also, the Cape Romain Wildlife Refuge and the Wolf Island National Wildlife Refuge are within 100 air miles of MCAS Beaufort.

Source: SCDHEC; U. S. Fish and Wildlife

5g. Have any base operations/mission/functions (i.e.: training, R&D, ship movement, aircraft movement, military operations, support functions, vehicle trips per day, etc.) been restricted or delayed due to air quality considerations. Explain the reason for the restriction and the "fix" implemented or planned to correct.

No.

5h. Does your base have Emission Reduction Credits (ERCs) or is it subject to any emission offset requirements? If yes, provide details of the sources affected and conditions of the ERCs and offsets. Is there any potential for getting ERCs?

No.

6. ENVIRONMENTAL COMPLIANCE

6a. Identify compliance costs, currently known or estimated that are required for permits or other actions required to bring existing practices into compliance with appropriate regulations. Do not include Installation Restoration costs that are covered in Section 7 or recurring costs included in question 6c. For the last two columns provide the two year totals for those FY's.

Program	Survey Com-pleted?	Costs in $K to correct deficiencies					
		FY1994	FY1995	FY1996	FY1997	FY98-99	FY00-01
Air	YES	50	20	0	0	0	0
Hazardous Waste	YES	148	245	241	1,000	0	0
Safe Drinking Water Act	N/A	20	0	1,100	500	3,000	0
PCBs	YES	0	54	54	54	0	0
Other (non-PCB) Toxic Substance Control Act	N/A	0	0	0	0	0	0
Lead Based Paint	NO	0	0	0	0	0	0
Radon	YES	0	0	0	100	0	0
Clean Water Act	NO	1,815	3,082	3,102	0	2,000	0
Solid Waste	NO	0	40	0	0	0	0
Oil Pollution Act *	NO	0	0	0	50	0	0
USTs	YES	62	220	0	300	200	100
Other **EPCRA** **CULTURAL RESOURCES**	 NO NO	 0 0	 100 167	 0 0	 0 0	 0 0	 0 0
Total		2,095	3,928	4,497	2,004	5,200	100

*** Projects in FY 94 and 95 under CWA also address OPA: Repairs to Fuels System and Study.**

Provide a separate list of compliance projects in progress or required, with associated cost and estimated start/completion date. **See Below.**

AIR:

*** 6016957941 Title V Permit: $50,000. Completion date August 1994.**
Permit Modeling: $20,000. Estimated completion date December 1994.

HAZARDOUS WASTE (HW):

6016915423, Hazardous Waste Management Plan/Waste Streams:
In progress. $130K FY 94 estimated completion September 1994.
6016951058, Modification to HW Storage Areas, response to NOD.
Design $18K FY 94, Construction $170K FY 95.
Estimated completion of design August 94.
6016965927, Subpart X Permit Application $75K FY 95.
Start date dependent on EPA final ruling concerning EOD operations.
Update HW Storage Center, design $241K FY 96, construction $1,000K FY97.
Project validated 1994.

SAFE DRINKING WATER ACT:

6016955970, Install Backflow Preventors:
FY 94 $20K design.
FY 96 $1,100K install preventors at critical points in potable water system.
Estimated completion of design September 1994.
Water Treatment Plant Repairs:
Repairs to backup potable water supply system. FY 97 $500K.
Estimated start of design December 1997, if validated.
Separate Fire Main Water Line to Hangers:
FY 99 $3,000K. Estimated start of design 1999.

PCB'S:

Replace PCB and PCB contaminated transformers at Laurel Bay and Main Air Station.
Survey completed in 1993 indicating locations - primarily Laurel Bay.
Phased removal starting in FY 95 $54K each fiscal year through FY 97.
Estimated start date December 1994.

RADON:

Mitigation of Buildings:
Testing of all buildings in December 1993 recommended further testing of several.
FY 97 $100K to repair.

*Project numbers from CMC (Code LFL) COMPTRAK system, i.e., 6016957941.

CLEAN WATER ACT:

6016935863, Repairs to Wastewater Treatment Plants:
Funded in FY 93, FY 94 modifications to include repairs to sludge digestors and grit chamber, and install dechlorination systems for FY 94 $545k.
Estimated completion date December 1994.
6016947587 and 6016991675, Repairs/Replacement of Oil/Water Separators in Response to

EPA
Inspection:
Design funded FY 94 $84K.
Estimated completion of design June 30, 1994.
FY 95 $600K construction requested.
6016956612, Stormwater Pollution Prevention Plan:
FY 94 $100K funded.
Estimated completion date November 1994.
6016969795, Operations Manual Plan for Fueling Pier:
Required also by U. S. Coast Guard.
FY 94 $25K funded.
Estimated completion date October 1994.

6016962654, Repairs to CFR Fire Training Site:
Multimedia compliance, primarily CWA.
FY 94 $34K design funded.
FY 95 $256K requested for construction.
Estimated design completion August 1994.
6016927215, Oil and Hazardous Substance Spill Contingency Plan:
FY 94 $50K.
Estimated completion September 1994.
6016927701, Study of Aircraft Fuel System:
Complete evaluation of fueling facilities to include conditions.
FY 94 $210K funded by Defense Fuels Supply System.
Estimated start date August 1994.
6016932277, Repair JP-5 Fuel System:
Replace/repair valves, controls, equipment.
FY 94 design $90K funded by Defense Fuels.
FY 95 $882 for construction.
Estimated start design August 1994.
Estimated start of construction is March 1995.
6016965545, TV/Clean/Repair Wastewater Collection System in Pine Grove Housing Area:
FY 95 $20K for design and FY 96 $150K for implementation.
Estimated completion of design is 1995.
6016948007, Repair Storm Drainage and Station Roads:
FY 94 $36K funded to initiate design.
FY 96 $576K for construction.
Estimated completion of design December 1994.
6016941352, Additional Fire Booster Pumps: Prevention of contamination via non-potable water sources:
FY 96 $277K requested.
Estimated start date June 1996.
6016928753, Cross-Connection Control Repairs/Replacement:
Identified in 1993 study.
FY 95 $1,100K requested.
Estimated completion date July 1996.
Wastewater Treatment Plant (WWTP) Laboratory Addition:
New NPDES permit requires more testing.
FY 95 $200k requested.

Estimated start date October 95.

Modifications to Main Station Wastewater Treatment Plant:
New NPDES permit requires more extensive pretreatment of waste with oil/grease.
FY 96 $1,500K requested.
Estimated design start date is October 95.

Wastewater Treatment Plant Improvements:
New NPDES permits for Laurel Bay and Main Station will require modifications.
FY 96 $2,000K.
Estimated start date is October 95.

Stormwater Detention Facilities P386:
FY 98 $2,000K.
Stormwater management plan this year will help identify Scope of Project.

Stormwater Containment and Run-Off Detention at MWSS-273:
$237K, FY 95.
Estimated design completion is August 94.
Estimated start October 95.

6016994678, Day Tanks Mobile Tanker Secondary Containment, FY 96
$24K design, FY 96 $162K construction.
If funded by Defense Fuels, estimated design start January 1995.

Replacement of River Boom used at Fueling Pier for Fuel Barge:
FY 97, $50K.

SOLID WASTE:

Solid Waste Management Plan:
25% reduction required by South Carolina in each county.
FY 95 $40K.

OIL POLLUTION ACT: Replacement of River Boom used at Fueling Pier for Fuel Barge.
FY 97, $50K.

UNDERGROUND STORAGE TANKS:

Non-DERA UST's (To be performed by the Savannah District, U. S. Army Corps of Engineers):
Perform contamination assessment at five (5) POL contaminated UST sites.
Also retrieve ground water samples from four (4) other potentially contaminated sites, and soil and ground water samples from a fifth (5th) potentially contaminated site.
Estimated Cost: $318,000
Estimated Start Date: 28 April 1994
Estimated Completion Date: 30 March 1995

FY 94 $62,000 sent to Corps of Engineers, Savannah for UST (non-DERA) contamination assessment.

For FY 95, an additional $220,000 will be sent to Savannah COE to complete the contamination assessment for the non-DERA UST's.

For FY 97, $1,300 UST registration. Assuming three (3) out of five (5) contaminated sites requiring some form of active clean-up at $100K per site = $300K in clean-up costs (probably distributed of FY 96, FY 97).

FY 99: $100K contingency, assuming some additional remediation or investigation will be required.

FY 2001: $100K contingency. See assumption for FY 99.

OTHER - EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT (EPCRA):

Completion of Hazardous Material Inventory per EPCRA requirements:
FY 95 $100K to acquire data base program to manage/maintain inventory of toxins. Estimated start date is December 1994.

6b. Does your base have structures containing asbestos? **Yes.*** What % of your base has been surveyed for asbestos? **90%** Are additional surveys planned? **Yes **** What is the estimated cost to remediate asbestos ($K) **0 ***.** Are asbestos survey costs based on encapsulation, removal or a combination of both? **Both**

*** All known friable asbestos has been removed from all buildings. Any remaining asbestos is encapsulated (floor tile).**

**** Asbestos surveys are routinely conducted by A/E during building renovations.**

***** Any renovation projects will include either removal or encapsulation for non-friable asbestos remaining in buildings.**

6c. Provide detailed cost of recurring operational (environmental) compliance costs, with funding source.

Funding Source	FY1992	FY1993	FY1994	FY1995	FY1996	FY1997	FY98-99	FY00-01
O&MN								

	HA							
	PA							
	Other O&MN (specify)							
Other (specify) O&MMC*								
CP- Personnel**	161	281	557	597	615	633	1,304	1,343
CR								
HD-HW Disposal	205	144	210	180	220	230	460	460
HD-Permit				50				
HM- Recycle	15	28	30	31	32	33	68	70
Contract								
01-POL Spill		5						
01-UST			1	1	1	1	2	2
01-WWTP				30	30	30	60	60
01- Curbside Recycling		31	33	35	36	38	80	164
01-Water			9	9	9	10	20	20
01-Waste- water fees			7	7	7	7	14	15
PL-Study	1							
TN				10	15	15	31	32
DFSC			1	1	1	1	1	1
TOTAL:	382	489	848	951	966	998	2,040	2,167

*** Codes from COMTRAK guide Table C-18 and Table C-8. See Enclosure (3).**
**** Includes salaries of all civilian personnel in environmental section.**
FY 94 is LOA authorization. Lag time in hiring - ACTUAL COST $426K.

6d. Are there any compliance issues/requirements that have impacted operations and/or development plans at your base.

None.

7. INSTALLATION RESTORATION

7a.

Does your base have any sites that are contaminated with hazardous substances or petroleum products?	**YES**
Is your base an NPL site or proposed NPL site?	**NO**

7b. Provide the following information about your Installation Restoration (IR) program. Project list may be provided in separate table format. Note: List only projects eligible for funding under the Defense Environmental Restoration Account (DERA). Do not include UST compliance projects properly listed in section VI.

Site # or name	Type site [1]	Groundwater Contaminated?	Extends off base?	Drinking Water Source?	Cost to Complete ($M)/Est. Compl. Date	Status[2]/Comments
Tank Farm C (401/402)	**UST**	**YES**	**NO**	**NO**	**$300K/*1 April 1997**	**Proposed Clean Passive Bioremediation**
Laurel Bay Marine Corps Exchange Service Station	**UST**	**YES**	**NO**	**NO**	**$300K/April 1997**	**Proposed Clean Passive Bioremediation**
Marine Corps Exchange (Bldg 629)	**UST**	**YES**	**NO**	**NO**	**$75K/ December 1997**	**Proposed Clean-up Via Passive Bioremediation/Air Sparging**
Fuel Pier (567/568)	**UST**	**YES**	**NO**	**NO**	**$300K/July 1997**	**Contamination Assessment Completed**
DayTanks/SS SWMU #7**	**UST/ RCRA-CA**	**YES**	**NO**	**NO**	**$500K/ January 1998**	**To be assessed as UST. Proposed removal from SWMU Listing**

SWMU Nos. 1 and 2	RCRA-CA	Unknown	Unknown	NO	$7.4M/ *2 December 2025	RFI @1
SWMU #3	RCRA-CA	Unknown	Unknown	No	$2M/ December 2026	RFI
SWMU #5	RCRA-CA	Unknown	Unknown	No	$5.6M/ December 2025	RFI
SWMU Nos. 6 and 14	RCRA-CA	Unknown	Unknown	No	$834K/ December 2026	RFI
SWMU #8	RCRA-CA	Unknown	Unknown	No	$22.7M/ December 2026	RFI
SWMU #9	RCRA-CA	Unknown	Unknown	No	$823K/ December 2026	RFI
SWMU #12	RCRA-CA	No	No	No	$384K/ December 2025	RFI, Proposed NFA @2
SWMU #18	RCRA-CA	Unknown	Unknown	No	$1.3M/ December 2026	RFI
SWMU #23	RCRA-CA	Unknown	Unknown	No	$2M/ December 2027	RFI

SWMU #57	RCRA-CA	Unknown	Unknown	No	$943K/ December 2026	RFI
SWMU #4	RCRA-CA	Unknown	Unknown	No	$50K/ N/A	RFI-CS @3
SWMU #16	RCRA-CA	Unknown	Unknown	No	$50K/ N/A	RFI-CS, Proposed NFA
SWMU #17	RCRA-CA	Unknown	Unknown	No	$50K/ N/A	RFI-CS
SWMU #67	RCRA-CA	Unknown	Unknown	No	$50K/ N/A	RFI-CS, Proposed NFA
AOC-C	RCRA-CA	Unknown	Unknown	No	$50K/ N/A	RFI-CS
ACO-K	RCRA-CA	Unknown	Unknown	No	$50K/ N/A	RFI-CS
AOC-P	RCRA-CA	Unknown	Unknown	No	$50K/ N/A	RFI-CS
SWMU#7	RCRA-CA	Yes	No	No	$804K/ December 2025	RFI, Proposed for UST Program

** Solid Waste Management Unit

*1 - SOUTHNAVFACENGCOM Estimates, May 1994

*2 - USMC RCRA Corrective Budget Estimate Out-Brief, Prepared by ECG, Inc., January 1992.

@1 - RFI: RCRA Facility Investigation

@2 - NFA: No Further Action

@3 - RFI-CS: RFI Confirmatory Study

For DERA-eligible UST projects, figures estimated by FY 95 by SOUTHNAVFACENGCOM. Assumptions:

a. Tank Farm C and Laurel Bay Marine Corps Exchange may require some form of "active" remediation.
b. Marine Corps Exchange (bldg. 629) may also require active remediation. The assumption here is some form of air spraying system.
c. Similar assumptions for the Fuel Pier.

d. $500K figure for Day Tanks incorporates at $200K for investigation and at $300K for active remediation.

Completion dates are estimated assuming two (2) year working window.

Figures for all IR sites, except #23 are taken from USMC RCRA Corrective Action Budget Estimates prepared by ECG, Inc., for HQMC, December 1992. Out-brief conducted January 1992. Estimated completion dates are also taken from the same source and arrive at a 30 year time frame.

SWMU's 1 and 2 are budgeted together, as are SWMU's 8 and 16. It is also assumed that the earliest work will start about December 1995. SWMU #5 is also included here, in the event it must be retained as an IR site, pending site investigation under the UST Program.

Completion dates are not included for CS sites. Estimated budget figures for these sites assume only their costs related to the CS work. This $50K is a better total cost per site than the $20K indicated in the ECG, Inc., report. Information per Charlie Block, SOUTHNAVFACENGCOM. These figures are, in effect, "worst case" costs.

1 Type site: CERCLA, 'RCRA corrective action (CA), UST or other (explain)

[2] Status = PA, SI, RI, RD, RA, long term monitoring, etc.

7c. Have any contamination sites been identified for which there is no recognized/accepted remediation process available? List.

Not at this time; however, RCRA Facility Investigation (RFI) has not yet been approved or implemented.

7d.

Is there a groundwater treatment system in place?	**NO**
Is there a groundwater treatment system planned?	**YES***

***Groundwater treatment is dependent on presence and extent of contamination.**

State scope and expected length of pump and treat operation.

While at this point it is unknown if or to what extent groundwater may be contaminated, pump and treat methodologies are generally not effective in remediating source contamination to any great extent. Bioremediation, bioventing, air sparging or a variety of other groundwater treatment methods are known to be more effective, efficient, and less expensive. However, if a pump and treat alternative was selected, it may possibly incorporate multiple withdrawal wells at each identified site (worse case) and have an operational life span of at least 30 years.

7e.

Has a RCRA Facilities Assessment been performed for your base?	**YES**

7f. Does your base operate any conforming storage facilities for handling **hazardous materials**? If YES, describe facility, capacity, restrictions, and permit conditions.

Yes.

BLDG #	BUILDING TYPE	SQ FT	RESTRICTIONS
615	Flammable Storage	10,125	None
663	Flammable Storage	300	None
921	Flammable Storage	180	None
1013	Flammable Storage	135	None
1014	Flammable Storage	135	None
1015	Flammable Storage	135	None
1016	Flammable Storage	135	None
1017	Flammable Storage	135	None
1018	Flammable Storage	135	None
1019	Flammable Storage	135	None

1020	**Flammable Storage**	**135**	**None**
1021	**Flammable Storage**	**135**	**None**
1022	**Flammable Storage**	**135**	**None**
1107	**Hazardous Material Storage**	**10,150**	**None**
1116	**Hazardous Material Storage**	**400**	**None**
1133	**Hazardous Material Storage**	**288**	**None**

Presently, there are no known rules or regulations in the state of South Carolina which require a permit for hazardous materials storage buildings.

7g. Does your base operate any "Conforming Storage" facilities for handling **hazardous waste**? If YES, describe facility, capacity, restrictions, and permit conditions.

Yes. The South Carolina DHEC, in conjunction with the U. S. EPA, issued the Air Station a hazardous waste permit for the operation of a 13,200 gallon container storage facility and a 10,000 gallon storage tank effective October 31, 1991 to October 31, 1996.

The SCDHEC permit portion encompasses and brings into regulation the plans submitted with the original permit application, which include:

- **waste analysis plan**
- **hazardous waste management plan**
- **requirements for individual generators on the Air Station**
- **Station-wide requirements for maintaining environmental compliance**
- **requirements for operation of temporary hazardous waste storage units and off-base disposal of hazardous waste**
- **hazardous waste contingency plan**
- **closure plan**

The EPA portion of the permit covers the requirements of the 1984 Hazardous and Solid Waste Amendments (HSWA). The EPA permit is divided into five (5) parts: a cover permit; a section on standard conditions applicable to this particular facility; a section requiring waste minimization certification; and a section detailing the land disposal restrictions to be complied with.

Restrictions and permit requirements are detailed in the attached SCDHEC and EPA permits, Enclosure 4.

MCAS Beaufort's NREAO personnel operate the permitted hazardous waste container storage facility and hazardous waste tank bulk storage facility.

Hazardous Waste Container Storage Facility:

- six (6) bays = 986 sqft
- aisle space = 440 sqft
- spill containment curbs = 174 sqft

Hazardous Waste Bulk Storage:

- 10,000 gallons (one tank) horizontal
- 16,046 gallons containment

MCAS Beaufort operates a thermal treatment device to deactivate small arms ammunition. This device, a "bullet popper," is similar to other deactivation units which EPA has ruled to be incinerators under the Resource Conservation and Recovery Act (RCRA). However, MCAS Beaufort only processes small arms ammunition which are defined as Class C by DoT (49 CFR 173.101). Small arms are not required to be labeled explosive by DoT (49 CFR 193.101(c)d) in transportation and are in Class 1.45 in the United Nations Storage Classification. Class 1.45 materials are considered inert for purposes of storage. Therefore, MCAS Beaufort did not include the "bullet popper" in the Part A and B permit application on the basis that it does not process a reactive hazardous waste. However, when EPA promulgates the Subpart X regulations, MCAS Beaufort may have to apply for a permit to continue using the "Bullet Popper." MCAS Beaufort EOD supports the Marine Corps Recruit Depot processing their small arms ammunition at MCAS Beaufort.

7h. Is your base responsible for any non-appropriated fund facilities (exchange, gas station) that require cleanup? If so, describe facility/location and cleanup required/status.

1. Marine Corps Exchange (Bldg. 629) Service Station - Contamination assessment completed. Site being considered for clean-up via passive bioremediation or air sparging.

2. Laurel Bay Marine Corps Exchange Service Station - Contamination assessment completed. Site presently being assessed for clean-up via passive bioremediation.

7i.

Do the results of any radiological surveys conducted indicate limitations on future land use? Explain below.	**NO**

Radon survey - Comprehensive survey of all on-housing facilities, only three (3) spaces (B.1075 and 2 vaults), require mitigation within five (5) years. (Lowest threat to mitigate category).

Naval Surface Warfare Center, Dahlgren, Virginia, conducted Electromagnetic

R

Naval Surface Warfare Center, Dahlgren, Virginia, conducted Electromagnetic Radiation Survey at MCAS Beaufort in January 1994 with no limitations indicated for possible future land use.

7j. Have any base operations or development plans been restricted due to Installation Restoration considerations?

Not at this time.

7k. List any other hazardous waste treatment or disposal facilities not included in question 7b above. Include capacity, restrictions and permit conditions.

None.

8. LAND / AIR / WATER USE

8a. List the acreage of each real estate component controlled or managed by your base (e.g., Main Base - 1,200 acres, Outlying Field - 200 acres, Remote Range - 1,000 acres, remote antenna site - 5 acres, Off-Base Housing Area - 25 acres).

Parcel Descriptor	Acres	Location
Main Site (MCAS)	5,844	Beaufort, SC
Laurel Bay Family Housing	1,062	Beaufort, Sc
Townsend Bombing Range	5,183	Townsend, GA
Shellman Bluff Antenna	51*	Shellman Bluff, GA
TACTS Towers, SE	0*	Offshore

***BRAC 93 planned turnover of facility to MCAS Beaufort from Cecil Field, Florida.**

8b. Provide the acreage of the land use categories listed in the table below:

LAND USE CATEGORY	ACRES
Total Developed: (administration, operational, housing, recreational, training, etc.)	**Main Air Station: 3,844** **Laurel Bay: 480** **Townsend: 198***
Total Undeveloped (areas that are left in their natural state but are under specific environmental development constraints, i.e.: wetlands, endangered species, etc.)	Wetlands: **Main Air Station: 847** **Laurel Bay: 124** **Townsend: ****

Radiation Survey at MCAS Beaufort in January 1994 with no limitations indicated for possible future land use.

7j. Have any base operations or development plans been restricted due to Installation Restoration considerations?

Not at this time.

7k. List any other hazardous waste treatment or disposal facilities not included in question 7b above. Include capacity, restrictions and permit conditions.

None.

8. LAND / AIR / WATER USE

8a. List the acreage of each real estate component controlled or managed by your base (e.g., Main Base - 1,200 acres, Outlying Field - 200 acres, Remote Range - 1,000 acres, remote antenna site - 5 acres, Off-Base Housing Area - 25 acres).

Parcel Descriptor	Acres	Location
Main Site (MCAS)	**5,844**	**Beaufort, SC**
Laurel Bay Family Housing	**1,062**	**Beaufort, Sc**
Townsend Bombing Range	**5,183**	**Townsend, GA**
Shellman Bluff Antenna	**51***	**Shellman Bluff, GA**
TACTS Towers, SE	**0***	**Offshore**

***BRAC 93 planned turnover of facility to MCAS Beaufort from Cecil Field, Florida.**

8b. Provide the acreage of the land use categories listed in the table below:

LAND USE CATEGORY	ACRES
Total Developed: (administration, operational, housing, recreational, training, etc.)	**3,844**
Total Undeveloped (areas that are left in their natural state but are under specific environmental development constraints, i.e.: wetlands, endangered species, etc.)	Wetlands: **920**
	All Others:

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		All Others: 0
Total Undeveloped land considered to be without development constraints, but which may have operational/man caused constraints (i.e.: HERO, HERF, HERP, ESQD, AICUZ, etc.) TOTAL		**Main Air Station: 1,302** **Laurel Bay: 0** **Townsend: 4,985*****
Total Undeveloped land considered to be without development constraints		**Main Air Station: 1,017** **Laurel Bay: 582** **Townsend: 0**
Total Off-base lands held for easements/lease for specific purposes		**Main Air Station 684- Agriculture, Aviation, Road Access** **Laurel Bay: 0** **Townsend: 0**
Breakout of undeveloped, restricted areas. Some restricted areas may overlap:	ESQD	**Main Air Station: 740** **Laurel Bay: N/A** **Townsend: N/A**
	HERF	**N/A**
	HERP	**N/A**
	HERO	**Main Air Station: 293** **Laurel Bay: N/A** **Townsend: N/A**
	AICUZ	**Main Air Station: Noise Zone 3 - 441** **Laurel Bay: N/A** **Townsend: N/A**
	Airfield Safety Criteria	**Main Air Station: Primary Surface: 1211 AC APZ 1: 502 AC** **Laurel Bay: N/A** **Townsend: N/A**
	Other	

*** Built up area consists of bombing targets, cleared areas and admin/ maintenance structures.**
**** Wetlands Survey in progress.**
***** Buffer.**

8c. How many acres on your base (includes off base sites) are dedicated for training purposes (e.g., vehicular, earth moving, mobilization)? This

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does not include buildings or interior small arms ranges used for training purposes. **22 Acres**

8d. What is the date of your last AICUZ update? **01/MAR/94**. Are any waivers of airfield safety criteria in effect on your base? **Yes.** Summarize the conditions of the waivers below.

Flightline support buildings/structures on or near flightline that penetrate the 7:1 transitional zone.

8e. List the off-base land use *types* (e.g, residential, industrial, agricultural) and *acreage* within Noise Zones 2 & 3 generated by your flight operations and whether it is compatible/incompatible with AICUZ guidelines on land use.

Acreage/Location/ID	Zones 2 or 3	Land Use	Compatible / Incompatible
1,866 Acres	2	Residential	Comp*
2,079 Acres	2	Industrial/ Commercial	Comp
10,875 Acres	2	Agriculture	Comp
4,176 Acres	2	Open Water	Comp
166 Acres	2	Recreation	Comp

*** 15 acres, mobile homes near end of runway 32 incompatible.**

Total Undeveloped land considered to be without development constraints, but which may have operational/man caused constraints (i.e.: HERO, HERF, HERP, ESQD, AICUZ, etc.) TOTAL		**1,302**
Total Undeveloped land considered to be without development constraints		**1,017**
Total Off-base lands held for easements/lease for specific purposes		**684-Agriculture, Aviation, Road Access**
Breakout of undeveloped, restricted areas. Some restricted areas may overlap:	ESQD	**740**
	HERF	**N/A**
	HERP	**N/A**
	HERO	**293**
	AICUZ	**Noise Zone 3 - 441**
	Airfield Safety Criteria	**Primary Surface: 1211 AC APZ 1: 502 AC**
	Other	

8c. How many acres on your base (includes off base sites) are dedicated for training purposes (e.g., vehicular, earth moving, mobilization)? This does not include buildings or interior small arms ranges used for training purposes. **22 Acres**

8d. What is the date of your last AICUZ update? **01/MAR/94**. Are any waivers of airfield safety criteria in effect on your base? **Yes.** Summarize the conditions of the waivers below.

Flightline support buildings/structures on or near flightline that penetrate the 7:1 transitional zone.

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Acreage/Location/ID	Zones 2 or 3	Land Use	Compatible/ Incompatible
1,866 Acres	**2**	**Residential**	**Comp***
2,079 Acres	**2**	**Industrial/ Commercial**	**Comp**

10,875 Acres	**2**	**Agriculture**	**Comp**
4,176 Acres	**2**	**Open Water**	**Comp**
166 Acres	**2**	**Recreation**	**Comp**

*** 15 acres, mobile homes near end of runway 32 incompatible.**

8f. List the navigational channels and berthing areas controlled by your base which require maintenance dredging? Include the frequency, volume, current project depth, and costs of the maintenance requirement.

Navigational Channels/ Berthing Areas	**Location / Description**	**Maintenance Dredging Requirement**			
		Frequency	Volume (MCY)	Current Project Depth (FT)	Cost ($M)
Aviation Fuel Pier	**Atlantic Intra-Coastal Water-way, Brickyard Creek, MCAS Beaufort**	**Once per 10 years**	**.04 mil cy**	**12**	**$0.04M**

8g. Summarize planned projects through FY 1997 requiring **new channel or berthing area** dredged depths, include location, volume and depth.

None.

8h.

Are there available **designated dredge disposal areas** for maintenance dredging material? List location, remaining capacity, and future limitations.	**Yes. At Fuel Pier. 100,000 cy, limited to existing footprint from prior disposal.**
Are there available **designated dredge disposal areas** for new dredge material? List location, remaining capacity, and future limitations.	**No. Upland areas only.**
Are the dredged materials considered contaminated? List known contaminants.	**No.**

8.i. List any requirements or constraints resulting from consistency with **State Coastal Zone Management Plans.**

Stormwater run-off.
Construction or activity below the SCCC critical line, i.e., marginal areas near and below Mean High Water.

8j. Describe any **non-point source pollution problems affecting water quality** ,e.g.: coastal erosion.

None known at this time.

8k.

If the base has a cooperative agreement with the US Fish and Wildlife Service and/or the State Fish and Game Department for conducting a hunting and fishing program, does the agreement or these resources constrain either current or future operations or activities? Explain the nature and extent of restrictions.	**NO**

MCAS Beaufort does not have a current Fish and Wildlife cooperative agreement.

8l. List any other areas on your base which are indicated as protected or preserved habitat other than threatened/endangered species that have been listed in Section 1 List the species, whether or not treated, and the acres protected/preserved. **None.**

9. WRAPUP

9a. Are there **existing or potential environmental showstoppers** that have affected or will affect the accomplishment of the installation mission that have not been covered in the previous 8 questions?

No.

9b. Are there any **other environmental permits** required for base operations, include any relating to industrial operations.

A Clean Air Act Title V Operating Permit will be submitted by October 1995 for MCAS Beaufort.
Army Corps of Engineers, Section 404, Dredge and Fill, as required.
Army Corps of Engineers, Section 10, Structures in Navigable Waters, as required.
Bird Predation, issued by U. S. Fish and Wildlife Service, 1/19/94 - 12/31/94. Authorizes taking of migratory birds. Permit needed for Bird Aircraft Strike Hazard Program.

9c. Describe any **other environmental or encroachment restrictions** on base property not covered in the previous 8 sections.

9d. List **any future/proposed laws/regulations or any proposed laws/regulations** which will constrain base operations or development plans in any way. Explain.

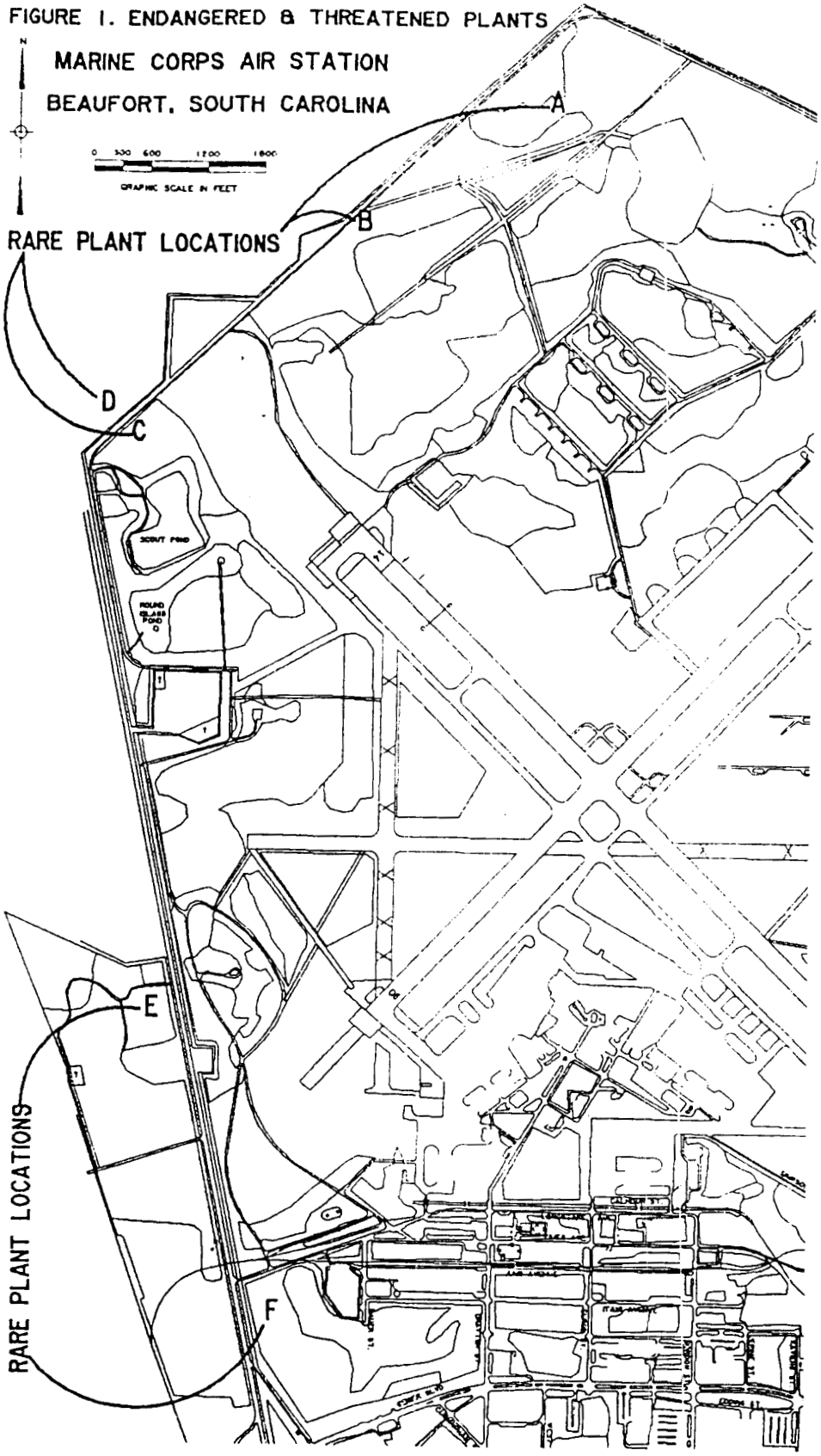
1. Proposed regulation of above-ground storage tanks (AST's): Should such regulation be enacted all AST's presently in use would have to be retrofitted in order to meet compliance. Deadline for compliance would likely be phased-in over several years, as is the case for underground storage tanks (UST's).

2. Possibility exists that field-constructed ("cut and cover") tanks may also be regulated under these or similar proposed legislation. Again, existing facilities would likely have to be retrofitted to achieve compliance. Greatest impact under either of these scenarios would be for new construction or expansion of Fuel Farm facilities.

FIGURE 1. ENDANGERED & THREATENED PLANTS

MARINE CORPS AIR STATION

BEAUFORT, SOUTH CAROLINA



KEY

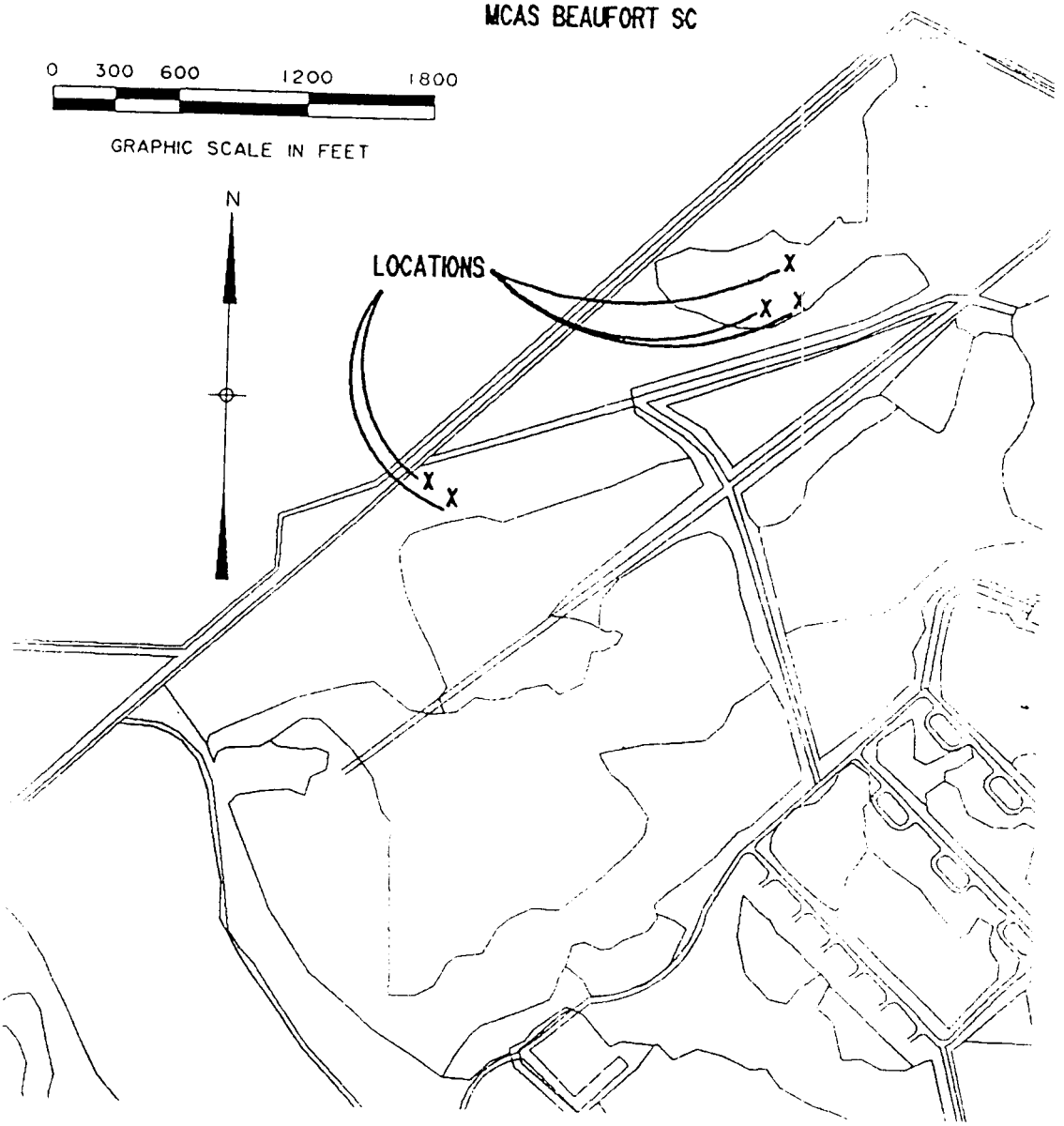
SPECIES	SITE
LINDERA MELISSIFOLIA	A,B
LITSEA AESTIVALIS	B,C,D,E,F

ENCLOSURE ( ) 2

FIGURE 2

LINDERA MELISSIFOLIA SUBPOPULATIONS

MCAS BEAUFORT SC



ENCLOSURE (1)

Table 2-1. VOC Sources at MCAS-Beaufort, SC

NAPSIS Point No.	Bldg. No.	Description	VOC Emission Rate lb/h	lb/d	ton/yr
017	620	Gas Station-Gov't vehicles	--	12.9(1)	2.4
018	621	Truck load stand		2.5(1)	0.5
019	628	Truck load stand		<<1	0.01
023	629	Gas Station-Exch. Mainside		28.7(1)	5.2
025	865	JP-5 Storage Tank		<<1	0.05
028		Gas Station-Laurel Bay		35.3(1)	6.4
029		East side fueling pit		<<1	0.1
030		West side fueling pit		<<1	0.1
031	1059	Paint booth	0.1	0.18	<0.1
032	1040	Paint booth	6.5	6.5	0.8
036		Paint booth (portable)	1.9	1.9	0.5
VOC1	VFMA 415	Aircraft painting	0.9	1.9	0.2
VOC2	VFMA 215	Aircraft painting	2.9	5.8	0.7

(1) Annual rate divided by 365 days

1989 NAPSIS
EMISSIONS INVENTORY

ENCLOSURE (2)

VOC CALCULATION WORKSHEET

GAS STATION

	Emission Factors (from AP-42) Gasoline lb/1,000 gal throughput
A. Storage Tank Filling	
Submerged fill	7.3
Splash fill	11.5
Balanced submerged fill	0.3
B. Underground Tank Breathing	1.0
C. Vehicle Refueling Operation	
Displacement loss--uncontrolled	11.0
Displacement loss--controlled	1.1
Spillage	0.7

Station throughput 234,900 gal/yr (from NAPSIS survey)

Emission factors 17.3 (A) + 1.0 (B) + 11.7 (C) = 20.0 lb/1,000 gal

Sum of emission factors x throughput (10^3 gal) = 4,698 lb/yr

Activity MCAS Beaufort

Building 620

NAPSIS Point 017

VOC Calculation Worksheet
Fuel Loading Losses

Type of Fuel Loaded Diesel & Gasoline

Loading Loss--L_L = 12.46 $\frac{SPM}{T}$ (lb/1,000 gal loaded)

S = 0.6 (Table 4.4.1) AP-42 (dedicated tank)

P = true vapor pressure (psia) (Table 4.3-2) AP-42

M = molecular weight of vapors (Table 4.3-2) AP-42

T = temperature (°R) of liquid loaded

Diesel P = 0.011 M = 130 T = 530

Gasoline P = 6.2 M = 66 T = 530

Diesel G_L (1,000 gal loaded) 124.9 per year

Gasoline G_L (1,000 gal loaded) 156.6 per year

(S) (P) (M) (G_L)

Diesel $12.46 \times \frac{0.6 \times 0.011 \times 130 \times 124.9}{530} = 2.5$ lb/yr

Gasoline $12.46 \times \frac{0.6 \times 6.2 \times 66 \times 156.6}{530} = 903.9$ lb/yr

Activity MCAS Beaufort

Building 621

NAPSIS Point 018

ENCLOSURE (2)

VOC Calculation Worksheet
Fuel Loading Losses

Type of Fuel Loaded JP-5

Loading Loss--$L_L = 12.46 \frac{SPM}{T}$ (lb/1,000 gal loaded)

S = 0.6 (Table 4.4.1) AP-42 (dedicated tank)

P = true vapor pressure (psia) (Table 4.3-2) AP-42

M = molecular weight of vapors (Table 4.3-2) AP-42

T = temperature (°R) of liquid loaded

P = 0.011 M = 130 T = 530

G_L (1,000 gal loaded) 1,236.6 per year

$$12.46 \times \frac{\overset{(S)}{0.6} \quad \overset{(P)}{0.011} \quad \overset{(M)}{130} \quad \overset{(G_L)}{1{,}236.6}}{\underset{(T)}{530}} = 24.9 \text{ lb/yr}$$

Activity MCAS Beaufort

Building 628

NAPSIS Point 019

ENCLOSURE (27)

VOC CALCULATION WORKSHEET

GAS STATION

	Emission Factors (from AP-42) Gasoline lb/1,000 gal throughput
A. Storage Tank Filling	
Submerged fill	7.3
Splash fill	11.5
Balanced submerged fill	0.3
B. Underground Tank Breathing	1.0
C. Vehicle Refueling Operation	
Displacement loss--uncontrolled	11.0
Displacement loss--controlled	1.1
Spillage	0.7

Station throughput 432,698 gal/yr (from NAPSIS survey)

Emission factors 11.5 (A) + 1.0 (B) + 11.7 (C) = 24.2 lb/1,000 gal

Sum of emission factors x throughput (10^3 gal) = 10,471 lb/yr

Activity MCAS Beaufort

Building 629 Exchange Gas Station-Mainside

NAPSIS Point 023

ENCLOSURE (2D)

VOC Calculation Worksheet

Petroleum Storage Tanks
(floating roof)

Total evaporative losses = $L_T = L_R + L_W + L_F + L_D$

Type of Fuel Stored JP5

$L_R = K_S V^n p^* D M_V K_C$

K_S = 1.2 (lb-mole/(ft (mi/h)^n yr))

V = 9 mi/h

n = 1.5

p^* = 0.0002

D = 35 ft

M_V = 130 lb/lb-mole

K_C = 1.0

P = 0.011 psia

P_A = 14.7 psia

$$p^* = \frac{P/P_A}{[1 + (1 - P/P_A)^{0.5}]^2} =$$

$$P/P_A = \frac{0.011}{14.7} (0.0007)$$

$$p^* = \frac{(0.0007)}{[1 + (1 - 0.0007)^{0.5}]^2} = 0.0002$$

L_R = 1.2 x 27 x 0.0002 x 35 x 130 x 1.0 = 29.48

Activity MCAS Beaufort SC

Building No. 865

NAPSIS Point 025

ENCLOSURE (2)

VOC Calculation Worksheet
Petroleum Storage Tanks
(floating roof)

$$L_W = \frac{(0.943)\ Q\ C\ W_L}{D} \left[1 + \frac{N_C\ F_C}{D} \right]$$

Q = 244,438 bbl/yr (throughput)

C = 0.0015 bbl/1000 ft^2

W_L = 7.0 lb/gal

D = 35.0 ft

N_C = 0

F_C = 1.0 ft

$$L_W = \frac{(0.943)\ 244438 \times 0.0015 \times 7.0}{35} \quad 1 + \frac{0 \times 1}{35} = \underline{69.15 \text{ lb/yr}}$$

$$L_F = F_F\ P^*\ M_V\ K_C$$

F_F = 100 lb-mole/yr

p^* = 0.0002 (determined at equation for L_R)

M_V = 130 lb/lb-mole

K_C = 1.0

$$L_F = \underline{100} \times \underline{0.0002} \times \underline{130} \times \underline{1} = \underline{2.6} \text{ lb}$$

$$L_D = K_D\ S_D\ D^2\ p^*\ M_V\ K_C$$

This equation becomes zero for welded seam decks

Total Losses = $L_T = L_R + L_W + L_F + L_D$

$$L_T = \underline{29.5} + \underline{69.2} + \underline{2.6} + \underline{0} = \underline{101.3} \text{ lb}$$

Activity MCAS Beaufort, SC

Building No. 865

NAPSIS Point 025

ENCLOSURE (2)

VOC CALCULATION WORKSHEET

GAS STATION

	Emission Factors (from AP-42) Gasoline lb/1,000 gal throughput
A. Storage Tank Filling	
Submerged fill	7.3
Splash fill	11.5
Balanced submerged fill	0.3
B. Underground Tank Breathing	1.0
C. Vehicle Refueling Operation	
Displacement loss--uncontrolled	11.0
Displacement loss--controlled	1.1
Spillage	0.7

Station throughput 531,978 gal/yr (from NAPSIS survey)

Emission factors 115 (A) + 1.0 (B) + 11.7 (C) = 24.2 lb/1,000 gal

Sum of emission factors x throughput (10^3 gal) = 12,874 lb/yr

Activity MCAS Beaufort

Building Laurel Bay gas station

NAPSIS Point 028

ENCLOSURE (2)

VOC Calculation Worksheet
Fuel Loading Losses

Type of Fuel Loaded JP-5

Loading Loss--L_L = 12.46 $\frac{SPM}{T}$ (lb/1,000 gal loaded)

S = 0.6 (Table 4.4.1) AP-42 (dedicated tank)

P = true vapor pressure (psia) (Table 4.3-2) AP-42

M = molecular weight of vapors (Table 4.3-2) AP-42

T = temperature (°R) of liquid loaded

P = 0.011 M = 130 T = 530

G_L (1,000 gal loaded) 12,366.4 per year

$$12.46 \times \frac{\overset{(S)}{0.6} \quad \overset{(P)}{0.011} \quad \overset{(M)}{130} \quad \overset{(G_L)}{12{,}366.4}}{\underset{(T)}{530}} = 249 \text{ lb/yr}$$

Activity MCAS Beaufort

Building East side refueling pit

NAPSIS Point 029

ENCLOSURE (2)

VOC Calculation Worksheet
Fuel Loading Losses

Type of Fuel Loaded JP-5

Loading Loss--L_L = 12.46 $\frac{SPM}{T}$ (lb/1,000 gal loaded)

S = 0.6 (Table 4.4.1) AP-42 (dedicated tank)

P = true vapor pressure (psia) (Table 4.3-2) AP-42

M = molecular weight of vapors (Table 4.3-2) AP-42

T = temperature (°R) of liquid loaded

P = 0.011 M = 130 T = 530

G_L (1,000 gal loaded) 12,366.4 per year

$$12.46 \times \frac{\overset{(S)}{0.6} \quad \overset{(P)}{0.011} \quad \overset{(M)}{130} \quad \overset{(G_L)}{12{,}366.4}}{\underset{(T)}{530}} = 249 \text{ lb/yr}$$

Activity MCAS Beaufort

Building West side refueling pit

NAPSIS Point 030

ENCLOSURE (2)

VOC CALCULATION WORKSHEET

Activity MCAS--Beaufort Building 1059 Point 031

Type of Point Paint Spray Booth

Material used--type and quantity (per unit-time) x time units/yr =

1. Epoxy polyamide primer 6 gal/yr (total parts A & B)
2. Epoxy polyamide 3 gal/yr
3.
4.
5.
6.
7.
8.

Material 1 lb/gal 8.95 ; VOC 4.9 lb/gal

Material 2 lb/gal 8.48 ; VOC 4.8 lb/gal

Material 3 lb/gal _____ ; VOC _____ lb/gal

Material 4 lb/gal _____ ; VOC _____ lb/gal

Material 5 lb/gal _____ ; VOC _____ lb/gal

Time that process is operating 2 hours per (day, week, month)

Operating hours per year = 2 x 5 x 52 = 520

ENCLOSURE (2)

Activity MCAS--Beaufort Point 031

VOC emission rate = 0.09 lb/h 0.18 lb/d 0.02 tpy

Material	VOC lb/gal	x	gal/yr	x	$\frac{1}{h/yr}$	=	VOC lb/h
1) Epoxy polyamide primer	4.9		6		$\frac{1}{520}$		0.06
2) Epoxy polyamide	4.8		3		$\frac{1}{520}$		0.03

ENCLOSURE (2)

GEOMET

VOC CALCULATION WORKSHEET

Activity MCAS--Beaufort Building 1040 Point 032

Type of Point Paint Spray Booth

Material used--type and quantity (per unit-time) x time units/yr =

1. Epoxy polyamide 5 gal/mo x 12 mo/yr = 60 gal/yr
2. Epoxy polyamide primer 5 gal/mo x 12 mo/yr = 60 gal/yr
3. Enamel 10.0 gal/mo x 12 mo/yr = 120 gal/yr
4. Enamel thinner (mineral spirits) 2.5 gal/mo x 12 mo/yr = 30 gal/yr
5. Epoxy thinner 5 gal/mo x 12 mo/yr = 60 gal/yr
6.
7.
8.

Material 1 lb/gal 8.48 ; VOC 4.8 lb/gal

Material 2 lb/gal 8.95 ; VOC 4.9 lb/gal

Material 3 lb/gal 9.9 ; VOC 3.87 lb/gal

Material 4 lb/gal 6.55 ; VOC 6.55 lb/gal

Material 5 lb/gal 7.4 ; VOC 7.4 lb/gal

Time that process is operating 5 hours per (day, week, month)

Operating hours per year = 5 x 52 = 260

ENCLOSURE (2)

Activity MCAS--Beaufort Point 032

VOC emission rate = 6.5 lb/h

Material	VOC lb/gal	x	gal/yr	x	$\frac{1}{h/yr}$	=	VOC lb/h
1) Epoxy polyamide	4.8		60		$\frac{1}{260}$		1.11
2) Epoxy polyamide primer	4.9		60		$\frac{1}{260}$		1.13
3) Enamel	3.87		120		$\frac{1}{260}$		1.79
4) Enamel thinner	6.55		30		$\frac{1}{260}$		0.76
5) Epoxy thinner	7.4		60		$\frac{1}{260}$		1.71

ENCLOSURE (2)

VOC CALCULATION WORKSHEET

Activity MCAS--Beaufort Building Portable paint spray booth Point 036

Type of Point Portable paint spray booth

Material used--type and quantity (per unit-time) x time units/yr =

1. Epoxy polyamide 5 gal/mo x 12 mo/yr = 60 gal/yr
2. Thinner 8010 00181 8080 5 gal/mo x 12 mo/yr = 60 gal/yr
3. Mineral spirits 3 gal/mo x 12 mo/yr = 36 gal/yr
4.
5.
6.
7.
8.

Material 1 lb/gal 8.48 ; VOC 4.8 lb/gal

Material 2 lb/gal 7.4 ; VOC 7.4 lb/gal

Material 3 lb/gal 6.55 ; VOC 6.55 lb/gal

Material 4 lb/gal _____ ; VOC _____ lb/gal

Material 5 lb/gal _____ ; VOC _____ lb/gal

Time that process is operating 10 hours per (day, week, month)

Operating hours per year = 10 x 52 = 520 hr/yr

ENCLOSURE (2)

Activity MCAS--Beaufort Point 036

VOC emission rate = 1.85 lb/h

Material	VOC lb/gal	x	gal/yr	x	$\frac{1}{h/yr}$	=	VOC lb/h
1) Epoxy polyamide	4.8		60		$\frac{1}{520}$		0.55
2) Thinner	7.4		60		$\frac{1}{520}$		0.85
3) Mineral spirits	6.55		36		$\frac{1}{520}$		0.45

ENCLOSURE (2)

VOC CALCULATION WORKSHEET

Activity MCAS--Beaufort Building VFMA 415 Point VOC-1

Type of Point Aircraft painting in hangar

Material used--type and quantity (per unit-time) x time units/yr =

1. Epoxy polyamide 4 gal/mo x 12 mo/yr = 48 gal/yr
2. Thinner-synthetic 4 gal/yr x 12 mo/yr x .5 recovered = 24 gal/yr
3. MEK 30 gal/yr x 0.5 recovered = 15 gal/yr
4.
5.
6.
7.
8.

Material 1	lb/gal	8.48 ;	VOC	4.8	lb/gal
Material 2	lb/gal	6.6 ;	VOC	6.6	lb/gal
Material 3	lb/gal	6.7 ;	VOC	6.7	lb/gal
Material 4	lb/gal	;	VOC		lb/gal
Material 5	lb/gal	;	VOC		lb/gal

Time that process is operating 10 hours per (day, week, month)

Operating hours per year = 10 x 52 = 520 h/hr

ENCLOSURE (2)

Activity MCAS--Beaufort VFMA 415 Point VOC-1

VOC emission rate = 0.93 lb/hr

Material	VOC lb/gal	x	gal/yr	x	$\frac{1}{h/yr}$	=	VOC lb/h
1) Epoxy polyamide	4.8		48		$\frac{1}{520}$		0.44
2) Synthetic thinner	6.6		24		$\frac{1}{520}$		0.30
3) MEK	6.7		15		$\frac{1}{520}$		0.19

ENCLOSURE (2)

VOC CALCULATION WORKSHEET

Activity MCAS--Beaufort Building VFMA 251 Point VOC-2

Type of Point Aircraft painting in hangar

Material used--type and quantity (per unit-time) x time units/yr =

1. Epoxy polyamide 10 gal/mo x 12 mo/yr = 120 gal/yr
2. Acrylic lacquer spray can 100 can/mo x 13 oz(wt) = 1200 can/yr
3. Naphtha 2 gal/mo x 0.5 recovered x 12 mo/yr = 12 gal/yr
4. Lacquer thinner 2.5 gal/mo x 0.5 recovered x 12 mo/yr = 15 gal/yr
5. Trichlorotrifluoroethane 5 gal/mo x 0.5 recovered x 12 mo/yr = 30 gal/yr
6.
7.
8.

Material 1	lb/gal	8.48 ;	VOC	4.8	lb/gal
Material 2	lb/can	0.81 ;	VOC	0.61	lb/can
Material 3	lb/gal	7.3 ;	VOC	7.3	lb/gal
Material 4	lb/gal	6.7 ;	VOC	6.7	lb/gal
Material 5	lb/gal	13.1 ;	VOC	13.1	lb/gal

Time that process is operating 10 hours per (day, week, month)

Operating hours per year = 10 x 52 = 520 hr/yr

ENCLOSURE (2)

Activity MCAS--Beaufort Point VOC-2

VOC emission rate = 2.87 lb/h

Material	VOC lb/gal	x	gal/yr	x	$\frac{1}{h/yr}$	=	VOC lb/h
1) Epoxy polyamide	4.8		120		$\frac{1}{520}$		1.1
2) Acrylic lacquer	0.61 lb/can		1200 can/yr		$\frac{1}{520}$		1.41
3) Naphtha	7.3		12		$\frac{1}{520}$		0.17
4) Lacquer thinner	6.7		15		$\frac{1}{520}$		0.19
5) Trichlorotri-fluoroethane	Exempt VOC						

ENCLOSURE (2)

NAPSIS Points MCAS Beaufort, SC

Point No.	Building No.	SIC	Description	Action
001	426	4961	Boiler No. 1	Updated
002	426	4961	Boiler No. 2	Updated
003	431	4961	Boiler	Updated
004	554	4961	Boiler	Updated
005	401	5171	JP-5 storage tank	Updated
006	402	5171	JP-5 storage tank	Updated
007	568	5171	JP-5 storage tank	Updated
008	567	5171	JP-5 storage tank	Updated
009	551	5171	JP-5 storage tank	Updated
011	1004	9711	Firefighting pit	Updated
012	603	3721	Jet engine test cell	Updated
015	403	5172	JP-5 load stand	Updated
016	903	5172	JP-5 defueling tank	Not updated
017	620	5541	Gov't. vehicle gas station	Updated
018	621	5172	Truck load stand	Updated
019	628	5172	Truck load stand	Updated
021	627	5172	Truck load stand	Not updated
022	427	5172	Load stand	Not updated
023	629	5541	Exchange gas station	Updated
025	865	5171	JP-5 storage tank	Updated
026	1106	4953	Classified waste incinerator	Added
027	625	9999	Carpentry shop	Added
028	---	5541	Laurel Bay gas station	Added
029	---	5172	Aircraft refueling pit--East Side	Added
030	---	5172	Aircraft refueling pit--West Side	Added
031	1059	3479	Paint spray booth	Added
032	1040	3479	Paint spray booth	Added
033	1064	9999	Carpentry shop	Added
034	623	5171	JP-5 storage tank	Added
035	624	5171	JP-5 storage tank	Added

1989 NAPSIS
Emissions Inventory

GEOMET

ENCLOSURE (2)

FACSO RPT/SYM NO. 9593/F5558R01 NAPSIS WORKING COPY DATE 20 DEC 89
EFD....SOUTHDIV UIC...M60169

--ACTIVITY INFORMATION--

UIC....M60169 MCAS BEAUFORT SC EFD....SOUTHDIV

COUNTRY....US UNITED STATES
STATE.....45 SOUTH CAROLINA
COUNTY....013 BEAUFORT

MAJOR CLAIMANT....MARCORPS
EPA REGION.....04
AQCR NUMBER.....058

POLLUTANTS IN NON-ATTAINMENT..

ACTIVITY CONTACT....JOHN ROBINSON
EFD CONTACT.....DAVE PORTER
UST CONTACT.....

ACTIVITY PHONE....803 522 7317
EFD PHONE.....A/V 563 0689
UST PHONE.....

TRANSPORTATION PLAN REQD.....NO
I AND M PLAN REQD.....NO
AIR EPISODE PLAN REQD.....NO

TRANSPORTATION PLAN COMPL.....N/A
I AND M PLAN COMPL.....N/A
AIR-EPISODE PLAN COMPL.....N/A

REMARKS:

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...001 SIC...4961 HEAT & STEAM PLANT BOILER

DATE ENTERED....17 FEB 1983 SOURCE TYPE....INTERNATIONAL BOILER
DATE REVISED....31 JUL 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		426	

PERMIT/REGIS REQD...YES

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 INTERNATIONAL BOILER #1 - ONE OF TWO BOILERS IN
0011 BUILDING 426 (HEATING PLANT).
0015 BOILER SERIAL #: 3718-05-882.
0020 TYPICALLY ONLY ONE RUNS AT A TIME - ALTERNATE
0021 BOILER USED EACH MONTH.
0030 PRIMARY FUEL IS NATURAL GAS - BACKUP IS NO.6 OIL.
0040 EXPORT HOT WATER.
0050 POINT OF CONTACT (POC): JACK DEMPSEY, X-7539.
0060 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
10300401	RESIDUAL OIL	GRADE 6
10300602	NATURAL GAS	10-100 MBTU/HR

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...004 SIC...4961 HEAT & STEAM PLANT BOILER

DATE ENTERED....17 FEB 1983 SOURCE TYPE....BURNHAM BOILER
DATE REVISED....20 DEC 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		554	

PERMIT/REGIS REQD...YES

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 BURNHAM BOILER LOCATED AT BUILDING 554 (O-CLUB).
0020 BOILER MODEL #: 3P-40-50 LB.
0030 BOILER USED ALL YEAR.
0040 PRIMARY FUEL IS NATURAL GAS (AS OF 1989) -
0041 ALTERNATE IS NO. 2 OIL.
0050 ANNUAL THROUGHPUT DATA IS NOT YET AVAILABLE FOR
0051 NATURAL GAS (USE BEGAN IN 1989).
0060 POC: JACK DEMPSEY, X-7539.
0070 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
10300501	DISTILLATE OIL	GRADES 1 & 2
10300603	NATURAL GAS	<10 MBTU/HR

ENCLOSURE (2)

POINT ID...001 SIC...4961 HEAT & STEAM PLANT BOILER

CAPACITY.... 51.3 MBTU

STACK HEIGHT..... 72 FT
STACK TEMP..... 270 DEG F
STACK VELOCITY.... FT/MIN
% EXCESS AIR.....16.5

RD STACK DIAM.....48.0 INCHES
REC STACK DIM..... BY FT
EX FLOW RATE..... ACFM
COMMON STK SRCE.....

BURNER MFG.....COEN
BOILER MFG.....INTERNATIONAL
BOILER NUM.....1
BOILER USE.....HW

BURNER TYPE...GAS RING
BOILER TYPE...WATER TUBE
BOILER MODEL..TJW-C-40

SERIAL NUM.....

NAT BOARD NUM.....

INSPECTION DATE....
FUEL ATOMIZATION...
OP PRESSURE.....180 PSI
FIRING TYPE.....C FRONT

DESIGN PRESSURE.....400 PSI
DRAFT.....D FORCED

SCC	SCC DESC-1	SCC DESC-2	% SULFUR	% ASH	HEAT CONTENT
10300401	RESIDUAL OIL	GRADE 6	2.23	.0	150
10300602	NATURAL GAS	10-100 MBTU/HR			

ENCLOSURE (2)

POINT ID...004 SIC...4961 HEAT & STEAM PLANT BOILER

CAPACITY.... 10.0 MBTU

STACK HEIGHT..... 18 FT
STACK TEMP..... 350 DEG F
STACK VELOCITY.... FT/MIN
% EXCESS AIR..... 4.9

RD STACK DIAM.....10.0 INCHES
REC STACK DIM..... BY FT
EX FLOW RATE..... ACFM
COMMON STK SRCE.....

BURNER MFG.....WHIRL POWER
BOILER MFG.....BURNHAM
BOILER NUM.....1
BOILER USE.....

BURNER TYPE...GAS RING
BOILER TYPE...WATER TUBE
BOILER MODEL..

SERIAL NUM.....15090

NAT BOARD NUM.....

INSPECTION DATE....
FUEL ATOMIZATION...
OP PRESSURE..... 40 PSI
FIRING TYPE.....C FRONT

DESIGN PRESSURE.....150 PSI
DRAFT.....D FORCED

SCC	SCC DESC-1	SCC DESC-2	% SULFUR	% ASH	HEAT CONTENT
10300501	DISTILLATE OIL	GRADES 1 & 2			
10300603	NATURAL GAS	<10 MBTU/HR	***	***	*****

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1989			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
48	20	13	19	24.0	7	26

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....RESIDUAL OIL GRADE 6
AVG HOURLY...B MAX HRLY...B ANNUAL...BURNED
KGALS .400 KGALS KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
CO	5.000		.0	3 FACTOR TABLE
NOX	60.000		.0	3 FACTOR TABLE
PART	12.000	S	.0	3 FACTOR TABLE
SOX	159.000	S	.0	3 FACTOR TABLE
THC	1.000		.0	3 FACTOR TABLE

SCC DESCRIPTION....NATURAL GAS 10-100 MBTU/HR
AVG HOURLY...C MAX HRLY...C ANNUAL...BURNED
.017 MCF .058 MCF 75.23 MCF

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
CO	17.000		.6	3 FACTOR TABLE
NOX	180.000		6.8	3 FACTOR TABLE
PART	10.000		.4	3 FACTOR TABLE
SOX	.600		.0	3 FACTOR TABLE
THC	3.000		.1	3 FACTOR TABLE

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1954			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....UNDERGROUND TANK

AVG HOURLY...*	MAX HRLY...*	ANNUAL...THROUGHPUT
*******	*******	******** KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	1.000		.0	3 FACTOR TABLE

SCC DESCRIPTION....UNDERGROUND TANK STAND

AVG HOURLY...B	MAX HRLY...B	ANNUAL...CAPACITY
.024 KGALS	KGALS	210.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.000		.0	3 FACTOR TABLE

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...003 SIC...4961 HEAT & STEAM PLANT BOILER

DATE ENTERED....17 FEB 1983 SOURCE TYPE....BURNHAM BOILER
DATE REVISED....20 DEC 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		431	

PERMIT/REGIS REQD...YES

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 BURNHAM BOILER LOCATED AT BUILDING 431 (BOQ).
0020 BOILER MODEL #: 3P-100-50 LB.
0030 THROUGH 1988 BOILER OPERATED SEVEN MONTHS/YEAR.
0031 EXPECT 1989 AND FUTURE OPERATION TO EXTEND TO
0032 TWELVE MONTHS/YEAR.
0040 PRIMARY FUEL IS NATURAL GAS - BACKUP IS NO.2 OIL.
0050 ANNUAL THROUGHPUT DATA NOT YET AVAILABLE FOR
0051 NATURAL GAS (USE BEGAN IN 1989).
0060 POC: JACK DEMPSEY, X-7539.
0070 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
10300501	DISTILLATE OIL	GRADES 1 & 2
10300603	NATURAL GAS	<10 MBTU/HR

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...006 SIC...5171 STORAGE TANK

DATE ENTERED....17 FEB 1983 SOURCE TYPE....JP5 TANK
DATE REVISED....31 JUL 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		402	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 JP5 TANK #402 LOCATED AT TANK FARM C (CUT AND
0011 COVER TANK).
0020 SEE NAPSIS POINT 005 FOR ADDITIONAL REMARKS.
0030 POC: CWO HARVEY, X-7448.
0040 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40399997	UNDERGROUND TANK	
40399999	UNDERGROUND TANK	STAND

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...005 SIC...5171 STORAGE TANK

DATE ENTERED....17 FEB 1983 SOURCE TYPE....JP5 TANK
DATE REVISED....31 JUL 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		401	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 JP5 TANK #401 LOCATED AT TANK FARM C (CUT AND
0011 COVER TANK).
0015 THE FOLLOWING REMARKS ALSO APPLY TO NAPSIS
0016 POINT 006.
0020 TANK PREVIOUSLY STORED JP4 - IS CURRENTLY EMPTY
0021 (MAY 1989). TANK HAS BEEN CLEANED AND SERVICED
0022 AND IS SCHEDULED TO STORE JP5 STARTING IN THE
0023 SUMMER OF 1989.
0030 EXPECT TO INSTALL PIPELINE BY 1991 OR 1992.
0031 CURRENTLY CAN OFF LOAD FUEL INTO TANKS 401 OR
0032 402 BY TRUCK OR RAIL (FOUR HOOKUPS AVAILABLE
0033 FOR TRUCKS AND FOUR HOOKUPS AVAILABLE FOR
0034 RAIL CARS).
0040 POC: CWO HARVEY X-7448.
0050 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40399997	UNDERGROUND TANK	
40399999	UNDERGROUND TANK	STAND

ENCLOSURE (2)

POINT ID...006 SIC...5171 STORAGE TANK

TANK TYPE...7 UNDERGROUND TANK SIZE.. 210.00 KGAL
VAPOR REC...
TK HEIGHT... FT TK DIAMETER.. FT TK SHAPE....

TK COLOR.... TK PNT COND... YR PAINTED..

TRUE VP..... PSIA REID VP..... PSI
AVE HT VAPOR SP.... FT LIQUID TEMP..... DEG F
FILL TYPE.....2 BOTTOM MAX FILL RATE..... KGAL/MIN

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL
JAN 1984				

% ANNUAL USE DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	NORMAL OPERATING HOURS HRS/DAY	DAYS/WK	WKS/YR
45	21	13	21	24.0	7	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....DISTILLATE OIL GRADES 1 & 2
AVG HOURLY...B MAX HRLY...B ANNUAL...BURNED
.000 KGALS KGALS 4.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
CO	5.000		.0	3 FACTOR TABLE
NOX	22.000		.0	3 FACTOR TABLE
PART	2.000		.0	3 FACTOR TABLE
SOX	144.000	S	.3	3 FACTOR TABLE
THC	1.000		.0	3 FACTOR TABLE

SCC DESCRIPTION....NATURAL GAS <10 MBTU/HR
AVG HOURLY... MAX HRLY... ANNUAL...BURNED
MCF

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
CO	20.000		.0	3 FACTOR TABLE
NOX	120.000		.0	3 FACTOR TABLE
PART	10.000		.0	3 FACTOR TABLE
SOX	.600		.0	3 FACTOR TABLE
THC	8.000		.0	3 FACTOR TABLE

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1957			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....UNDERGROUND TANK

AVG HOURLY...B	MAX HRLY...B	ANNUAL...THROUGHPUT
1.769 KGALS	KGALS	15458.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	1.000		7.7	3 FACTOR TABLE

SCC DESCRIPTION....UNDERGROUND TANK STAND

AVG HOURLY...B	MAX HRLY...B	ANNUAL...CAPACITY
.064 KGALS	KGALS	567.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.000		.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...003 SIC...4961 HEAT & STEAM PLANT BOILER

CAPACITY.... 10.0 MBTU

STACK HEIGHT..... 24 FT
STACK TEMP..... 350 DEG F
STACK VELOCITY.... FT/MIN
% EXCESS AIR..... 4.6

RD STACK DIAM.....10.0 INCHES
REC STACK DIM..... BY FT
EX FLOW RATE..... ACFM
COMMON STK SRCE.....

BURNER MFG.....WHIRL POWER
BOILER MFG.....BURNHAM
BOILER NUM.....1
BOILER USE.....ST

BURNER TYPE...GAS RING
BOILER TYPE...FIRE TUBE
BOILER MODEL..

SERIAL NUM.....15091

NAT BOARD NUM.....

INSPECTION DATE....
FUEL ATOMIZATION...
OP PRESSURE..... 40 PSI
FIRING TYPE.....C FRONT

DESIGN PRESSURE.....150 PSI
DRAFT.....D FORCED

SCC	SCC DESC-1	SCC DESC-2	% SULFUR	% ASH	HEAT CONTENT
10300501	DISTILLATE OIL	GRADES 1 & 2			
10300603	NATURAL GAS	<10 MBTU/HR	***	***	*****

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...008 SIC...5171 STORAGE TANK

DATE ENTERED....17 FEB 1983 SOURCE TYPE....JP5 TANK
DATE REVISED....31 JUL 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		567	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 JP5 TANK #567 LOCATED AT TANK FARM B, NEXT TO FUEL
0011 RECEIVING PIER (CUT AND COVER TANK).
0020 SEE NAPSIS POINT 007 FOR ADDITIONAL REMARKS.
0030 POC: CWO HARVY, X-7448.
0040 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40399997	UNDERGROUND TANK	
40399999	UNDERGROUND TANK	STAND

ENCLOSURE (2 D)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL
JAN 1957				

% ANNUAL USE DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	NORMAL OPERATING HOURS HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....UNDERGROUND TANK

AVG HOURLY...B	MAX HRLY...B	ANNUAL...THROUGHPUT
1.769 KGALS	KGALS	15458.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	1.000		7.7	3 FACTOR TABLE

SCC DESCRIPTION....UNDERGROUND TANK STAND

AVG HOURLY...B	MAX HRLY...B	ANNUAL...CAPACITY
.064 KGALS	KGALS	567.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.000		.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...008 SIC...5171 STORAGE TANK

TANK TYPE...7 UNDERGROUND TANK SIZE.. 567.00 KGAL
VAPOR REC...
TK HEIGHT... FT TK DIAMETER.. FT TK SHAPE....

TK COLOR.... TK PNT COND... YR PAINTED..

TRUE VP..... PSIA REID VP..... PSI
AVE HT VAPOR SP.... FT LIQUID TEMP..... DEG F
FILL TYPE.....2 BOTTOM MAX FILL RATE..... KGAL/MIN

DN... 127

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...009 SIC...5171 STORAGE TANK

DATE ENTERED....17 FEB 1983 SOURCE TYPE....JP5 DAY TANK
DATE REVISED....31 JUL 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		551	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 JP5 DAY TANK #551 LOCATED AT TANK FARM A (CUT AND
0011 COVER TANK).
0020 FUEL PUMPED INTO TANK THROUGH 8 INCH PIPELINE
0021 FROM RECEIVING TANKS AT FUEL PIER (TANK FARM B)
0023 THERE ARE ALSO 8 HOOKUPS AVAILABLE TO OFF-LOAD
0024 FUEL FROM TRUCKS OR RAIL CARS (4 CONNECTIONS
0025 FOR EACH).
0030 TANK IS SURROUNDED BY EARTHEN BERM AND HAS HIGH
0031 LEVEL ALARMS.
0040 FUEL FROM TANK CAN BE PUMPED DIRECTLY TO HOT
0041 REFUELING PITS OR DISPENSED AT TRUCK LOADING
0042 STAND (STRUCTURE 628).
0050 TANK USUALLY KEPT FULL.
0060 POC: CWO HARVEY, X-7448.
0070 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40399997	UNDERGROUND TANK	
40399999	UNDERGROUND TANK	STAND

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL
JAN 1957				

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....UNDERGROUND TANK

AVG HOURLY...B	MAX HRLY...B	ANNUAL...THROUGHPUT
1.769 KGALS	KGALS	15458.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	1.000		7.7	3 FACTOR TABLE

SCC DESCRIPTION....UNDERGROUND TANK STAND

AVG HOURLY...B	MAX HRLY...B	ANNUAL...CAPACITY
.024 KGALS	KGALS	210.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.000		.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...009 SIC...5171 STORAGE TANK

TANK TYPE...7 UNDERGROUND TANK SIZE.. 210.00 KGAL
VAPOR REC...
TK HEIGHT... FT TK DIAMETER.. FT TK SHAPE....

TK COLOR.... TK PNT COND... YR PAINTED..

TRUE VP..... PSIA REID VP..... PSI
AVE HT VAPOR SP.... FT LIQUID TEMP..... DEG F
FILL TYPE.....2 BOTTOM MAX FILL RATE..... KGAL/MIN

DISCLOSURE 13

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...011 SIC...9711 FIRE FIGHTING SCHOOL

DATE ENTERED....17 FEB 1983 SOURCE TYPE....FIREFIGHTING PIT
DATE REVISED....01 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		1004	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 FIREFIGHTING TRAINING PIT LOCATED WEST SIDE OF
0011 AIR FIELD. PIT IS 40 FEET IN DIAMETER.
0020 CFR LIVE FIRE TRAINING WITH FUEL SEPARATOR TO
0021 SEPARATE WATER FROM FUEL - UNUSED FUEL
0022 RECOVERED.
0030 LOCAL AIR POLLUTION AUTHORITIES NOTIFIED PRIOR
0031 TO EVERY BURN.
0040 MCAS STRUCTURAL FIRE FIGHTING SHARES CFR PIT.
0041 PLANS ARE BEING DEVELOPED TO BUILD SEVERAL
0042 TRAINING STRUCTURES IN A FEW YEARS.
0050 FUEL STORED IN 10,000 GALLON ABOVEGROUND TANK.
0060 POC: CW04 SANDERSON, 522-7391.
0070 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
50190098	AUXILIARY FUEL	OTHER

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1982			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	2.0	1	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....AUXILIARY FUEL OTHER
AVG HOURLY...B MAX HRLY... ANNUAL...BURNED
.385 KGALS 40.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
CO	.000		.0	3 FACTOR TABLE
NOX	.000		.0	3 FACTOR TABLE
PART	.000		.0	3 FACTOR TABLE
SOX	.000		.0	3 FACTOR TABLE
THC	.000		.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...011 SIC...9711 FIRE FIGHTING SCHOOL

STACK HEIGHT.....**** FT
STACK TEMP.....**** DEG F
STACK VELOCITY....***** FT/MIN
PLUME HEIGHT.....

RD STACK DIAM....*** INCHES
REC STACK DIM....*** BY *** FT
EX FLOW RATE.....******* ACFM

ENCLOSURE (2 2

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...012 SIC...3721 JET ENGINE TEST CELL

DATE ENTERED....17 FEB 1983 SOURCE TYPE....JET ENGINE TEST CELL
DATE REVISED....01 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		603	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 T6C TEST CELL LOCATED AT BUILDING 603 HAS BEEN
0011 OUT OF SERVICE FOR THE PAST THREE YEARS.
0012 EXPECT TO RESUME USE IN JUNE, 1989.
0020 CURRENTLY ALL TESTING IS DONE AT TWO OPEN AIR
0021 CELLS BUT WILL MOVE INTO BUILDING 603
0022 WHEN OPERATIONAL.
0030 TEST F404 ENGINES - APPROXIMATELY 4-5/WEEK.
0040 ENGINE TEST TIME - 40 MINUTES TO 2 HOURS.
0050 CELL TYPES: OUTDOOR T23 AND T14.
0060 POC: GY JOHNSON.
0070 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
20400101	ENGINE TESTING	TURBOJET TEST

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1956			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	2.0	5	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....ENGINE TESTING TURBOJET TEST

AVG HOURLY...B	MAX HRLY...B	ANNUAL...BURNED
.210 KGALS	KGALS	109.40 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
CO	32.700		1.8	3 FACTOR TABLE
NOX	14.600		.8	3 FACTOR TABLE
PART	11.800		.6	3 FACTOR TABLE
SOX	13.000		.7	3 FACTOR TABLE
THC	46.000		2.5	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...012 SIC...3721 JET ENGINE TEST CELL

TEST CELL ID NUM..... TYPE OF CELL.....
OP LIMITS..... HRS RD STK DIAM..... INCHES
STK HEIGHT..... 52 FT REC STK DIM..... 21 BY 10 FT
STK VELOCITY..... FT/MIN

SCC...20400101 DESC ENGINE TESTING TURBOJET TEST
MODE UTIL %.....
CELL EXHAUST TEMP... DEG F CELL EXHAUST VOL..... DSCFM
FUEL FLOW RATE..... LBS/HR FUEL TYPE.....JP5
ENGINE TEST TIME.... HRS %SULFUR.....

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...015 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

DATE ENTERED....17 FEB 1983 SOURCE TYPE....JP5 LOAD STAND
DATE REVISED....01 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		403	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 JP5 TRUCK LOAD STAND LOCATED AT TANK FARM C NEAR
0011 BUILDING 403.
0020 STAND LOADS FUEL FROM TANKS 401 AND 402 INTO R9
0021 REFUELERS. CURRENTLY (MAY 1989) OUT OF SERVICE
0022 AS TANKS 401 AND 402 ARE EMPTY. EXPECT TO
0023 BEGIN JP5 OPERATIONS DURING SUMMER OF 1989.
0030 FOUR REFUELERS ARE AVAILABLE, EACH HAS 5,000
0031 GALLON CAPACITY AND ARE BOTTOM LOADED. EACH
0032 PUMPS 600 GALLONS/MINUTE.
0040 POC: CWO HARVEY, X-7448.
0050 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40600134	TANK CARS/TRUCKS	KEROSENE-SUBM LD

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1969			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....TANK CARS/TRUCKS KEROSENE-SUBM LD

AVG HOURLY...*	MAX HRLY...*	ANNUAL...TRANSFERRED
*******	*******	******** KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.020		.0	3 FACTOR TABLE

EXHIBIT 22

POINT ID...015 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

NOZZLES/ARMS NUM.....02
MAKE.....
MODEL....
FUEL DELIVERY.....1 AIRCRAFT

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...016 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

DATE ENTERED....17 FEB 1983 SOURCE TYPE....
DATE REVISED....24 JUL 1984 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		903	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 FOR RECLAIMING JP-5 AND RETURN TO TANK #551(DAY
0020 TANK).
0030 POLLUTION CONTROL: 6IN CURBING, SPILL RETAINING
0040 PIT.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40600134	TANK CARS/TRUCKS	KEROSENE-SUBM LD

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1969			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....TANK CARS/TRUCKS KEROSENE-SUBM LD
AVG HOURLY...B MAX HRLY... ANNUAL...TRANSFERRED
.035 KGALS 312.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.020		.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...016 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

NOZZLES/ARMS NUM.....**
MAKE.....****
MODEL....*****
FUEL DELIVERY.....*

EXHIBIT (22)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...017 SIC...5541 GAS STATION

DATE ENTERED....17 FEB 1983 SOURCE TYPE....GOV'T VEHICLE GAS STATION
DATE REVISED....01 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		620	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

```
0010  GOVERNMENT VEHICLE GAS STATION LOCATED AT TANK
0011     FARM D, BUILDING 620.
0015  **** VOC SOURCE: IN COMPLIANCE, VOC EMISSION
0016       RATE - 2.4 TONS/YR. ****
0020  STATION DISPENSES UNLEADED AND DIESEL FUEL TO
0021     ALL TACTICAL AND EMERGENCY VEHICLES.
0022     EMERGENCY VEHICLES FUEL ALL HOURS - OTHER
0023     VEHICLES FUEL 0500 TO 2300.
0030  UNLEADED FUEL IS STORED IN TWO 15,000 GALLON
0031     ABOVEGROUND, BOTTOM FILL TANKS (#622 & #623)
0032     WHICH DROP FUEL INTO ONE 5,000 GALLON
0033     UNDERGROUND, SUBMERGE FILL TANK (#770).
0040  DIESEL FUEL IS STORED IN ONE 15,000 GALLON
0041     ABOVEGROUND, BOTTOM FILL TANK (#624) WHICH
0042     DROPS FUEL INTO ONE 5,000 GALLON UNDERGROUND,
0043     SUBMERGE FILL TANK (#771).
0045  STORAGE TANKS 622, 623, 624, 770 & 771 ARE SHARED
0046     WITH FUEL LOAD STAND 621 (NAPSIS POINT 018).
0050  STATION HAS SIX PUMPS - ONE NOZZLE EACH.  TWO EMCO
0051     NOZZLES AND TWO HUSKY NOZZLES ARE FOR UNLEADED
0052     FUEL.  TWO HUSKY NOZZLES ARE FOR DIESEL FUEL.
0060  POC: CWO HARVEY, X-7448.
0070  END NAPSIS UPDATE APRIL 1989.
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ENCLOSURE (2)

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40600302	GAS RETAIL OPER	SUBMERGED FILL

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1942			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	18.0	7	52

EFD1....VOC EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....GAS RETAIL OPER SUBMERGED FILL

AVG HOURLY...B	MAX HRLY...B	ANNUAL...THROUGHPUT
.062 KGALS	KGALS	408.10 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	18.000		3.7	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...017 SIC...5541 GAS STATION

TYPE OF VAPOR RECOVERY....

NOZZLES	GASOLINE	QUANTITY
NUMBER.. 6	REGULAR.....	KGALS
MAKE....	UNLEADED.....	235 KGALS
MODEL...	PREMIUM.....	KGALS
	DIESEL.....	173 KGALS

TANKS

NUMBER	SIZE	NUMBER	SIZE
3	15	2	5
3	15	2	5

EXHIBIT 12

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...018 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

DATE ENTERED....01 AUG 1989 SOURCE TYPE....TRUCK LOAD STAND
DATE REVISED....01 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		621	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 MOGAS/DIESEL TRUCK LOAD STAND #621 LOCATED
0011 BEHIND BUILDING 620 (UNDERNEATH ROOF -
0012 STRUCTURE 905).
0020 **** VOC SOURCE: IN COMPLIANCE, VOC EMISSION
0021 RATE - 1.6 TONS/YR. ****
0030 STAND HAS TWO NOZZLES - ONE USED FOR DIESEL AND
0031 ONE USED FOR UNLEADED FUEL.
0040 FUEL LOADED INTO 970 (5,000 GALLON) AND M49
0041 (1,200 GALLON) BOTTOM LOAD TANKERS.
0050 FUEL STORAGE TANKS 622, 623, 624, 770 & 771 ARE
0051 SHARED WITH BUILDING 620, GAS STATION (NAPSIS
0052 POINT 017).
0060 POC: CWO HARVEY, X-7448.
0070 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40600131	TANK CARS/TRUCKS	GAS-SUBM LOADING
40600135	TANK CARS/TRUCKS	#2-SUBM LOADING

ENCLOSURE (12)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL
JAN 1958				

% ANNUAL USE DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	NORMAL OPERATING HOURS HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	18.0	7	52

EFD1....VOC EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....TANK CARS/TRUCKS GAS-SUBM LOADING

AVG HOURLY...B	MAX HRLY...B	ANNUAL...TRANSFERRED
.023 KGALS	KGALS	156.60 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	5.000		.4	3 FACTOR TABLE

SCC DESCRIPTION....TANK CARS/TRUCKS #2-SUBM LOADING

AVG HOURLY...B	MAX HRLY...B	ANNUAL...TRANSFERRED
.019 KGALS	KGALS	124.90 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.010		.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...018 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

NOZZLES/ARMS NUM.....02
MAKE.....
MODEL....
FUEL DELIVERY.....3 VEHICLE FAC.

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...019 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

DATE ENTERED....17 FEB 1983 SOURCE TYPE....TRUCK LOAD STAND
DATE REVISED....01 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		628	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 JP5 TRUCK LOAD STAND LOCATED AT TANK FARM A.
0020 **** VOC SOURCE: IN COMPLIANCE, VOC EMISSION
0021 RATE - 0.01 TON/YR. ****
0030 STAND LOADS JP5 FROM TANKS 551 AND 865 INTO R9
0031 REFUELERS - USING 3 INCH NOZZLES.
0040 FOUR REFUELERS ARE AVAILABLE - EACH HAS 5,000
0041 GALLON CAPACITY AND IS BOTTOM LOADED - EACH
0042 PUMPS 600 GALLONS/MINUTE.
0050 APPROXIMATELY 80% OF JP5 IN TANKS 551 AND 865 IS
0051 PUMPED DIRECTLY TO HOT REFUELING PITS VIA 16"
0052 PIPELINE. THE REMAINING 20% IS DISPENSED
0053 VIA THE LOAD STAND.
0060 POC: CWO HARVEY, X-7448.
0070 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40600134	TANK CARS/TRUCKS	KEROSENE-SUBM LD

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL
JAN 1958				

% ANNUAL USE DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	NORMAL OPERATING HOURS HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1....VOC EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....TANK CARS/TRUCKS KEROSENE-SUBM LD
AVG HOURLY...B MAX HRLY...B ANNUAL...TRANSFERRED
.707 KGALS KGALS 6183.20 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.020		.1	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...019 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

NOZZLES/ARMS NUM.....04
MAKE.....EMCO
MODEL....
FUEL DELIVERY.....1 AIRCRAFT

ENCLOSURE (2 D

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...021 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

DATE ENTERED....17 FEB 1983 SOURCE TYPE....
DATE REVISED....24 JUL 1984 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		627	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 DAY TANK.
0020 POLLUTION CONTROL: 6IN CURBING, SPILL RETAINING
0030 PIT.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40600134	TANK CARS/TRUCKS	KEROSENE-SUBM LD

ENCLOSURE (2 D)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL
JAN 1959				

% ANNUAL USE DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	NORMAL OPERATING HOURS HRS/DAY	DAYS/WK	WKS/YR
20	24	34	22	8.0	5	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....TANK CARS/TRUCKS KEROSENE-SUBM LD
AVG HOURLY...B MAX HRLY... ANNUAL...TRANSFERRED
.081 KGALS 170.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.020		.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...021 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

NOZZLES/ARMS NUM.....**
MAKE.....****
MODEL....*****
FUEL DELIVERY.....*

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...022 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

DATE ENTERED....17 FEB 1983 SOURCE TYPE....
DATE REVISED....24 JUL 1984 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		427	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 HEATING PLANT.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40600132	TANK CARS/TRUCKS	CRUDE-SUBM LOAD

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL
JAN 1956				

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
52	36	00	12	24.0	7	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....TANK CARS/TRUCKS CRUDE-SUBM LOAD
AVG HOURLY...B MAX HRLY... ANNUAL...TRANSFERRED
.022 KGALS 188.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	3.000		.3	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...022 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

NOZZLES/ARMS NUM.....**
MAKE.....****
MODEL....*****
FUEL DELIVERY.....*

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...023 SIC...5541 GAS STATION

DATE ENTERED....17 FEB 1983 SOURCE TYPE....EXCHANGE GAS STATION
DATE REVISED....01 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		629	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 EXCHANGE GAS STATION LOCATED AT BUILDING 629.
0020 **** VOC SOURCE: IN COMPLIANCE, VOC EMISSION
0021 RATE - 5.2 TONS/YR. ****
0030 FUEL STORED IN THREE 10,000 GALLON TANKS. ONE
0031 IS CURRENTLY (MAY 1989) OUT OF SERVICE DUE TO
0032 LEAK.
0040 MONITORING WELLS USED AS LEAK DETECTION.
0050 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40600301	GAS RETAIL OPER	SPLASH FILLING

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1970			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	10.0	6	52

EFD1....VOC EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....GAS RETAIL OPER SPLASH FILLING

AVG HOURLY...B	MAX HRLY...B	ANNUAL...THROUGHPUT
.138 KGALS	KGALS	432.70 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	22.200		4.8	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...023 SIC...5541 GAS STATION

TYPE OF VAPOR RECOVERY....K NONE

NOZZLES	GASOLINE	QUANTITY
NUMBER..12	REGULAR.....	56 KGALS
MAKE....OPW	UNLEADED.....	201 KGALS
MODEL...11A	PREMIUM.....	175 KGALS
	DIESEL.....	KGALS

TANKS

NUMBER	SIZE	NUMBER	SIZE
3	10		

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...025 SIC...5171 STORAGE TANK

DATE ENTERED....17 FEB 1983 SOURCE TYPE....JP5 DAY TANK
DATE REVISED....20 DEC 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		865	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

JP5 DAY TANK #865 - ABOVEGROUND TANK LOCATED AT
TANK FARM A.
**** VOC SOURCE: IN COMPLIANCE, VOC EMISSION
RATE - 0.05 TON/YR. ****
FUEL PUMPED INTO TANK THROUGH 8 INCH PIPELINE
FROM RECEIVING TANKS AT FUEL PIER (TANK FARM B)
THERE ARE ALSO EIGHT HOOKUPS TO OFF-LOAD FUEL
FROM TRUCK OR RAILCARS (FOUR CONNECTIONS EACH).
TANK HAS HIGH LEVEL ALARM AND A CONCRETE LINED
BERM. TANK CONSTRUCTED WITH A FIXED ROOF OVER
INTERNAL FLOATING ROOF WITH A SINGLE SEAL.
CLEANED AND COATED IN 1989.
FUEL FARM DAY TANKS CAN BE PUMPED DIRECTLY TO HOT
REFUELING PITS OR DISPENSED AT TRUCK LOADING
STAND (STRUCTURE 628).
TANK FARM B ALSO HAS TWO HAZARDOUS WASTE TANKS
(#941 & #942) WHICH PREVIOUSLY STORED AVGAS.
POC: CWO HARVEY, X-7448.
END NAPSIS UPDATE APRIL 1989.

ENCLOSURE (2)

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40301113	FLOATING ROOF TK	JET KEROSENE
40301119	FLOATING ROOF TK	JET KEROSENE

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1969			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1....VOC EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....FLOATING ROOF TK JET KEROSENE

AVG HOURLY...B	MAX HRLY...B	ANNUAL...CAPACITY
.024 KGALS	KGALS	210.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.200		.0	3 FACTOR TABLE

SCC DESCRIPTION....FLOATING ROOF TK JET KEROSENE

AVG HOURLY...B	MAX HRLY...B	ANNUAL...THROUGHPUT
1.769 KGALS	KGALS	15458.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.000		.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...025 SIC...5171 STORAGE TANK

TANK TYPE...3 COVERED FLOAT ROOF TANK SIZE.. 210.00 KGAL
VAPOR REC...
TK HEIGHT...35.0 FT TK DIAMETER.. FT TK SHAPE....

TK COLOR....WHITE TK PNT COND... YR PAINTED..

TRUE VP..... PSIA REID VP..... PSI
AVE HT VAPOR SP.... FT LIQUID TEMP..... DEG F
FILL TYPE.....2 BOTTOM MAX FILL RATE..... KGAL/MIN

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...026 SIC...4953 INCINERATORS

DATE ENTERED....01 AUG 1989 SOURCE TYPE....WASTE INCINERATOR
DATE REVISED....01 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		1106	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 CONTRABAND AND CLASSIFIED WASTE INCINERATOR (1106)
0011 LOCATED NEXT TO BUILDING 976.
0020 CONSUMAT WASTE DISPOSAL SYSTEM:
0021 DUAL CHAMBER
0022 PROPERTY #: 60169-077197
0023 SERIAL #: 4941.
0030 INCINERATOR HAS ECLIPSE GAS BURNER - USES LP GAS.
0031 USED FOUR TIMES SINCE INSTALLATION - FUTURE
0032 OPERATING SCHEDULE UNCERTAIN.
0040 POC: PROVOST MARSHALL.
0050 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
50200101	INCINERATION-GEN	MULTIPLE CHAMBER

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1989			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25			

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....INCINERATION-GEN MULTIPLE CHAMBER

AVG HOURLY...*	MAX HRLY...*	ANNUAL...BURNED
*******	*******	******** TONS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
CO	10.000		.0	3 FACTOR TABLE
NOX	3.000		.0	3 FACTOR TABLE
PART	7.000		.0	3 FACTOR TABLE
SOX	2.500		.0	3 FACTOR TABLE
THC	3.000		.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...026 SIC...4953 INCINERATORS

CAPACITY.... 75.00 LBS/HR

STACK HEIGHT..... 17 FT
STACK TEMP..... DEG F
STACK VELOCITY.... FT/MIN
MANUFACT MODEL....C18P
ASH DISP METH.....

RD STACK DIAM.....18.0 INCHES
REC STACK DIM..... BY FT
EX FLOW RATE..... ACFM
WASTE BURNED.....TYPE 0

SCC	SCC DESC-1	SCC DESC-2	MAX DAILY	HEAT CONTENT
50200101	INCINERATION-GEN	MULTIPLE CHAMBER	* *******	*****

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...027 SIC...9999 MISC. SOURCE

DATE ENTERED....01 AUG 1989 SOURCE TYPE....CARPENTRY SHOP
DATE REVISED....01 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		625	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 PUBLIC WORKS CARPENTRY SHOP LOCATED AT BUILDING
0011 625. SHOP USED TO BUILD FORMS AND CABINETS.
0020 DUST COLLECTOR VENT: 36 IN DIAMETER X 30 FT HIGH.
0030 DUMPSTER: SIZE - 4 CU YD (EMPTIED WEEKLY).
0040 VENTED EQUIPMENT: PLANER, BAND SAW, SHAPER AND
0041 DEWALT SAW.
0050 ALSO IN BUILDING 625 IA A 20 FT X 25 FT PAINTING
0051 ROOM WITH AN EXHAUST VENT. ROOM IS USED
0052 INFREQUENTLY - MAINLY FOR WOOD STAINING. MOST
0053 PAINTING IS DONE OUTSIDE.
0060 POC: MR. TANNER, X-7037.
0070 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
30703099	MISC WOODWORK OP	SANDING/PLANING

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL

% ANNUAL USE DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	NORMAL OPERATING HOURS HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	2.0	5	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....MISC WOODWORK OP SANDING/PLANING
AVG HOURLY...* MAX HRLY...* ANNUAL...PROCESSED
******* ******* ******** TONS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
CO	.000		.0	3 FACTOR TABLE
NOX	.000		.0	3 FACTOR TABLE
PART	.000		.0	3 FACTOR TABLE
SOX	.000		.0	3 FACTOR TABLE
THC	.000		.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...027 SIC...9999 MISC. SOURCE

% VOC MAT.....**

% VOC PHOTO CHEM CORP....**

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...028 SIC...5541 GAS STATION

DATE ENTERED....02 AUG 1989 SOURCE TYPE....LAUREL BAY GAS STATION
DATE REVISED....02 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1 COMPLIANCE SCHEDULE BLDG# PROP REC#
IN COMPLIANCE

PERMIT/REGIS REQD...

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 LAUREL BAY GAS STATION.
0020 **** VOC SOURCE: IN COMPLIANCE, VOC EMISSION
0021 RATE - 6.4 TONS/YR. ****
0030 STATION HAS THREE PUMPS - TWO NOZZLES EACH.
0040 PREMIUM AND UNLEADED FUEL STORED IN 10,000 GALLON
0041 TANKS. REGULAR LEADED FUEL STORED IN 6,000
0042 GALLON TANK.
0050 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40600301	GAS RETAIL OPER	SPLASH FILLING

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL

% ANNUAL USE DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	NORMAL OPERATING HOURS HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25			

EFD1....VOC EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....GAS RETAIL OPER SPLASH FILLING
AVG HOURLY...B MAX HRLY...B ANNUAL...THROUGHPUT
KGALS KGALS 532.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	22.200		5.9	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...028 SIC...5541 GAS STATION

TYPE OF VAPOR RECOVERY....K NONE

NOZZLES	GASOLINE	QUANTITY
NUMBER.. 6	REGULAR.....	47 KGALS
MAKE....OPW	UNLEADED.....	260 KGALS
MODEL...1A	PREMIUM.....	225 KGALS
	DIESEL.....	KGALS

TANKS

NUMBER	SIZE	NUMBER	SIZE
2	10	1	6
2	10	1	6

ENCLOSURE (22

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...029 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

DATE ENTERED....02 AUG 1989 SOURCE TYPE....REFUELING PIT
DATE REVISED....02 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1 COMPLIANCE SCHEDULE BLDG# PROP REC#
IN COMPLIANCE

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 EAST SIDE AIRCRAFT REFUELING PITS (HOT).
0011 **** VOC SOURCE: IN COMPLIANCE, VOC EMISSION
0012 RATE - 0.1 TON/YR. ****
0020 FOUR PITS TO REFUEL JETS - EACH PIT HAS TWO
0021 NOZZLES. ONE 3 INCH PRESSURE LOCK NOZZLE AND
0022 ONE 1.5 INCH HAND SERVICE, OPEN PRESSURE
0023 NOZZLE.
0030 FUEL IS PUMPED DIRECTLY FROM DAY TANKS VIA A
0031 16 INCH PIPELINE.
0040 POC: CWO HARVEY, X-7448.
0050 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40600139	TANK CARS/TRUCKS	KEROSENE-SPL LD

ENCLOSURE (3)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	UTM COORDINATES VERTICAL

% ANNUAL USE DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	NORMAL OPERATING HOURS HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1....VOC EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....TANK CARS/TRUCKS KEROSENE-SPL LD
AVG HOURLY...B MAX HRLY...B ANNUAL...TRANSFERRED
1.415 KGALS KGALS 12366.40 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.040		.2	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...029 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

NOZZLES/ARMS NUM.....08
MAKE.....
MODEL....
FUEL DELIVERY.....1 AIRCRAFT

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...030 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

DATE ENTERED....02 AUG 1989 SOURCE TYPE....REFUELING PITS
DATE REVISED....02 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1 COMPLIANCE SCHEDULE BLDG# PROP REC#
IN COMPLIANCE

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 WEST SIDE AIRCRAFT REFUELING PITS (HOT).
0020 **** VOC SOURCE: IN COMPLIANCE, VOC EMISSION
0021 RATE - 0.1 TON/YR. ****
0030 FOUR PITS TO REFUEL JETS - EACH PIT HAS TWO
0031 NOZZLES. ONE 3 INCH PRESSURE LOCK NOZZLE AND
0032 ONE 1.5 INCH HAND SERVICE, OPEN PRESSURE
0033 NOZZLE.
0040 FUEL IS PUMPED DIRECTLY FROM DAY TANKS VIA A
0041 16 INCH PIPELINE.
0050 POC: CWO HARVEY, X-7448.
0060 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40600139	TANK CARS/TRUCKS	KEROSENE-SPL LD

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL

% ANNUAL USE DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	NORMAL OPERATING HOURS HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1....VOC EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....TANK CARS/TRUCKS KEROSENE-SPL LD

AVG HOURLY...B	MAX HRLY...B	ANNUAL...TRANSFERRED
1.415 KGALS	KGALS	12366.40 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	.040		.2	3 FACTOR TABLE

...OSURE (2)

POINT ID...030 SIC...5172 LOAD FM TANK/TRUCK/MARINE VESL

NOZZLES/ARMS NUM.....08
MAKE.....
MODEL....
FUEL DELIVERY.....1 AIRCRAFT

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...031 SIC...3479 MISC. INDUST. PROCESS

DATE ENTERED....02 AUG 1989 SOURCE TYPE....PAINT SPRAY BOOTH
DATE REVISED....02 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		1059	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 H&MS 31 PAINT BOOTH LOCATED NEXT TO BUILDING 594.
0020 **** VOC SOURCE: IN COMPLIANCE, VOC EMISSION
0021 RATE - <0.1 TON/YR. ****
0030 DRY FILTER BOOTH - 17 FT WIDE X 34 FT LONG
0031 USED TO PAINT RIMS - PAINT 2 TO 3 HOURS/DAY.
0040 POC: CPL GRAVES (PAINTER) OR CAPT KREBBS (AMO),
0041 X-7699.
0050 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40200101	COAT APPL-GEN	PAINT,SOLVENT
40200601	COAT APPL-GEN	PRIMER

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
JAN 1985			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	2.0	5	52

EFD1....VOC EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....COAT APPL-GEN PAINT,SOLVENT

AVG HOURLY...A	MAX HRLY...A	ANNUAL...APPLIED
.000 TONS	TONS	.03 TONS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
CO	.000		.0	3 FACTOR TABLE
NOX	.000		.0	3 FACTOR TABLE
PART	.000		.0	3 FACTOR TABLE
SOX	.000		.0	3 FACTOR TABLE
THC	1120.000		.0	3 FACTOR TABLE

SCC DESCRIPTION....COAT APPL-GEN PRIMER

AVG HOURLY...A	MAX HRLY...A	ANNUAL...APPLIED
.000 TONS	TONS	.01 TONS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
PART	.000		.0	3 FACTOR TABLE
THC	1320.000		.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...031 SIC...3479 MISC. INDUST. PROCESS

STACK HEIGHT..... 15 FT
STACK TEMP..... DEG F
STACK VELOCITY.... FT/MIN
NBR OF STACKS.....
% VOC MATERIAL....
SURFACE AREA VAPOR DEGREASER.... FT2

RD STACK DIAM....48.0 INCHES
REC STACK DIM.... BY FT
EX FLOW RATE..... ACFM
%SOLID PAINT.....
%VOC PHOTO CHEM COMP....

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...032 SIC...3479 MISC. INDUST. PROCESS

DATE ENTERED....02 AUG 1989 SOURCE TYPE....PAINT SPRAY BOOTH
DATE REVISED....02 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		1040	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 PAINT SPRAY BOOTH LOCATED AT BUILDING 1040.
0020 **** VOC SOURCE: IN COMPLIANCE, VOC EMISSION
0021 RATE - 0.8 TON/YR. ****
0030 BOOTH PAINT GSE - ACTUAL PAINTING TIME 4 TO 5
0031 HOURS/WEEK.
0040 DEVILBISS DRY FILTER BOOTH:
0041 DIMENSIONS - 14 FT X 26 FT X 8 FT HIGH.
0050 SPRAY GUNS: DEVILBISS TYPE MBC
0051 BINKS MODEL 2001.
0060 POC: MSGT LEWIS, X-7022.
0070 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40200101	COAT APPL-GEN	PAINT,SOLVENT
40200501	COAT APPL-GEN	ENAMEL
40200601	COAT APPL-GEN	PRIMER
40200901	THINNING SOLVENT	GENERAL
40200920	THINNING SOLVENT	MINERAL SPIRITS

ENCLOSURE (2).

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES	
AUG 1985			HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	1.0	5	52

EFD1....VOC EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....COAT APPL-GEN PAINT,SOLVENT
AVG HOURLY...A MAX HRLY...A ANNUAL...APPLIED
.000 TONS TONS .25 TONS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
CO	.000		.0	3 FACTOR TABLE
NOX	.000		.0	3 FACTOR TABLE
PART	.000		.0	3 FACTOR TABLE
SOX	.000		.0	3 FACTOR TABLE
THC	1120.000		.1	3 FACTOR TABLE

SCC DESCRIPTION....COAT APPL-GEN ENAMEL
AVG HOURLY...A MAX HRLY...A ANNUAL...APPLIED
.002 TONS TONS .59 TONS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
PART	.000		.0	3 FACTOR TABLE
THC	840.000		.2	3 FACTOR TABLE

SCC DESCRIPTION....COAT APPL-GEN PRIMER
AVG HOURLY...A MAX HRLY...A ANNUAL...APPLIED
.001 TONS TONS .27 TONS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
PART	.000		.0	3 FACTOR TABLE
THC	1320.000		.2	3 FACTOR TABLE

ENCLOSURE (2)

--PROCESS INFORMATION OPTIONAL-- CONTINUED

SCC DESCRIPTION....THINNING SOLVENT GENERAL
AVG HOURLY...A MAX HRLY...A ANNUAL...SOLVENT
.000 TONS TONS .22 TONS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
PART	.000		.0	3 FACTOR TABLE
THC	2000.000		.2	3 FACTOR TABLE

SCC DESCRIPTION....THINNING SOLVENT MINERAL SPIRITS
AVG HOURLY...A MAX HRLY...A ANNUAL...SOLVENT
.000 TONS TONS .10 TONS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
PART	.000		.0	3 FACTOR TABLE
THC	2000.000		.1	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...032 SIC...3479 MISC. INDUST. PROCESS

STACK HEIGHT..... 13 FT
STACK TEMP..... DEG F
STACK VELOCITY.... FT/MIN
NBR OF STACKS.....
% VOC MATERIAL....
SURFACE AREA VAPOR DEGREASER.... FT2

RD STACK DIAM.... INCHES
REC STACK DIM.... 3 BY 2 FT
EX FLOW RATE..... ACFM
%SOLID PAINT.....
%VOC PHOTO CHEM COMP....

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...033 SIC...9999 MISC. SOURCE

DATE ENTERED....02 AUG 1989 SOURCE TYPE....CARPENTRY SHOP
DATE REVISED....02 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		1064	

PERMIT/REGIS REQD...NO

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 MWSS 273 CARPENTRY SHOP LOCATED AT BUILDING 1064.
0020 VENTED TO CYCLONE DUST COLLECTOR WHICH EMPTIES
0021 INTO A 55 GALLON DRUM. DRUM IS EMPTIED
0022 ONCE A WEEK - APPROXIMATELY 2/3 FULL WHEN
0023 EMPTIED. DUST COLLECTOR OPERATES A FEW HOURS
0024 A WEEK.
0030 VENTED EQUIPMENT: RADIAL ARM SAW & DRILL PRESS.
0031 BAND SAW AND PLANER ARE OUT OF SERVICE.
0040 POC: SGT COLLINSWORTH, 525-6357.
0050 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
30703099	MISC WOODWORK OP	SANDING/PLANING

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	1.0	5	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....MISC WOODWORK OP SANDING/PLANING
AVG HOURLY...* MAX HRLY...* ANNUAL...PROCESSED
******* ******* ******** TONS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
CO	.000		.0	3 FACTOR TABLE
NOX	.000		.0	3 FACTOR TABLE
PART	.000		.0	3 FACTOR TABLE
SOX	.000		.0	3 FACTOR TABLE
THC	.000		.0	3 FACTOR TABLE

ENCLOSURE (25

POINT ID...033 SIC...9999 MISC. SOURCE

% VOC MAT.....**

% VOC PHOTO CHEM CORP....**

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...034 SIC...5171 STORAGE TANK

DATE ENTERED....02 AUG 1989 SOURCE TYPE....JP5 TANK
DATE REVISED....02 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		623	

PERMIT/REGIS REQD...

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 JP5 STORAGE TANK #623 LOCATED BEHIND BUILDING 620
0011 (TANK FARM C).
0020 ONE OF TWO ABOVEGROUND, HORIZONTAL, CYLINDRICAL
0021 TANKS WITHIN AN EARTHEN BERM.
0030 POC: CWO HARVEY, X-7488.
0040 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40301001	FIXED ROOF	GAS RVP13
40301007	FIXED ROOF	GAS RVP13

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....FIXED ROOF GAS RVP13

AVG HOURLY...B	MAX HRLY...B	ANNUAL...CAPACITY
.001 KGALS	KGALS	15.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	109.500		.8	3 FACTOR TABLE

SCC DESCRIPTION....FIXED ROOF GAS RVP13

AVG HOURLY...B	MAX HRLY...B	ANNUAL...CAPACITY
.022 KGALS	KGALS	195.80 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	10.000		1.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...034 SIC...5171 STORAGE TANK

TANK TYPE...1 FIXED ROOF TANK SIZE.. 15.00 KGAL
VAPOR REC...
TK HEIGHT...25.5 FT TK DIAMETER.. 10.0 FT TK SHAPE....CYLINDRICAL

TK COLOR.... TK PNT COND... YR PAINTED..

TRUE VP..... PSIA REID VP..... PSI
AVE HT VAPOR SP.... FT LIQUID TEMP..... DEG F
FILL TYPE.....2 BOTTOM MAX FILL RATE..... KGAL/MIN

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...035 SIC...5171 STORAGE TANK

DATE ENTERED....02 AUG 1989 SOURCE TYPE....JP5 TANK
DATE REVISED....02 AUG 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		624	

PERMIT/REGIS REQD...

PCR#	STATUS	PCR#	STATUS

REMARKS:

0010 JP5 STORAGE TANK #624 LOCATED BEHIND BUILDING 62C
0011 (TANK FARM C).
0020 ONE OF TWO ABOVEGROUND, HORIZONTAL, CYLINDRICAL
0021 TANKS WITHIN AN EARTHEN BERM.
0030 POC: CWO HARVEY, X-7488.
0040 END NAPSIS UPDATE APRIL 1989.

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40301001	FIXED ROOF	GAS RVP13
40301007	FIXED ROOF	GAS RVP13

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL

% ANNUAL USE DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	NORMAL OPERATING HOURS HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	24.0	7	52

EFD1.... EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....FIXED ROOF GAS RVP13
AVG HOURLY...B MAX HRLY...B ANNUAL...CAPACITY
.001 KGALS KGALS 15.00 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	109.500		.8	3 FACTOR TABLE

SCC DESCRIPTION....FIXED ROOF GAS RVP13
AVG HOURLY...B MAX HRLY...B ANNUAL...CAPACITY
.022 KGALS KGALS 195.80 KGALS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
THC	10.000		1.0	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...035 SIC...5171 STORAGE TANK

TANK TYPE...1 FIXED ROOF TANK SIZE.. 15.00 KGAL
VAPOR REC...
TK HEIGHT...25.5 FT TK DIAMETER.. 10.0 FT TK SHAPE....CYLINDRICAL

TK COLOR.... TK PNT COND... YR PAINTED..

TRUE VP..... PSIA REID VP..... PSI
AVE HT VAPOR SP.... FT LIQUID TEMP..... DEG F
FILL TYPE.....2 BOTTOM MAX FILL RATE..... KGAL/MIN

ENCLOSURE (2)

--SOURCE INFORMATION REQUIRED--

UIC....M60169 MCAS BEAUFORT SC

POINT ID...036 SIC...3479 MISC. INDUST. PROCESS

DATE ENTERED....20 DEC 1989 SOURCE TYPE....PAINT SPRAY BOOTH
DATE REVISED....20 DEC 1989 EMITTER TYPE...MINOR

SOURCE OWNER....M60169 MCAS BEAUFORT SC

COMPLIANCE STATUS...1	COMPLIANCE SCHEDULE	BLDG#	PROP REC#
IN COMPLIANCE		1040	

PERMIT/REGIS REQD...YES

PCR#	STATUS	PCR#	STATUS

REMARKS:

```
0010  DRY FILTER PAINT SPRAY BOOTH LOCATED AT
0011     BUILDING 1040 (DESCRIBED AS PORTABLE BOOTH).
0020  **** VOC SOURCE: IN COMPLIANCE, VOC EMISSION
0021       RATE - 0.5 TON/YR. ****
0030  DEVILBISS BOOTH: 14 FT X 26 FT X 8 FT HIGH.
0031       SPRAY GUNS: DEVILBISS TYPE MBC
0032                   BINKS MODEL 2001.
0040  BOOTH USED TO PAINT GROUND SUPPORT EQUIPMENT.
0050  NOTE:   PERMIT MAY BE REQUIRED - RELEVANT
0051          INFORMATION SHOULD BE SUBMITTED FOR REVIEW
0052          BY SC DHEC.
0060  POC: M/SGT LEWIS, EXT-7022.
0061  END NAPSIS UPDATE APRIL 1989.
```

--SOURCE PROCESS INFORMATION REQUIRED--

SCC	DESC-1	DESC-2
40200501	COAT APPL-GEN	ENAMEL
40200901	THINNING SOLVENT	GENERAL
4020092Q_	THINNING SOLVENT	MINERAL SPIRITS

ENCLOSURE (2)

--SOURCE INFORMATION OPTIONAL--

DATE CONST	EPA/STATE INSPEC	BLDG COL#	UTM COORDINATES HORIZONTAL	VERTICAL
AUG 1985				

% ANNUAL USE				NORMAL OPERATING HOURS		
DEC/FEB	MAR/MAY	JUN/AUG	SEP/NOV	HRS/DAY	DAYS/WK	WKS/YR
25	25	25	25	1.0	5	52

EFD1....VOC EFD2.... EFD3....

--CONTROL EQUIP INFO OPTIONAL--

--MEASURED EMISSIONS OPTIONAL--

--PROCESS INFORMATION OPTIONAL--

SCC DESCRIPTION....COAT APPL-GEN ENAMEL
AVG HOURLY...A MAX HRLY...A ANNUAL...APPLIED
.000 TONS TONS .25 TONS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
PART	.000		.0	3 FACTOR TABLE
THC	840.000		.1	3 FACTOR TABLE

SCC DESCRIPTION....THINNING SOLVENT GENERAL
AVG HOURLY...A MAX HRLY...A ANNUAL...SOLVENT
.000 TONS TONS .22 TONS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
PART	.000		.0	3 FACTOR TABLE
THC	2000.000		.2	3 FACTOR TABLE

SCC DESCRIPTION....THINNING SOLVENT MINERAL SPIRITS
AVG HOURLY...A MAX HRLY...A ANNUAL...SOLVENT
.000 TONS TONS .12 TONS

POLLUTANT	EMISS FAC	A/S	EST EMISS TONS/YR	EMISS/METHOD
PART	.000		.0	3 FACTOR TABLE
THC	2000.000		.1	3 FACTOR TABLE

ENCLOSURE (2)

POINT ID...036 SIC...3479 MISC. INDUST. PROCESS

STACK HEIGHT..... 12 FT
STACK TEMP..... 70 DEG F
STACK VELOCITY.... FT/MIN
NBR OF STACKS..... 1
% VOC MATERIAL....
SURFACE AREA VAPOR DEGREASER.... FT2

RD STACK DIAM.... INCHES
REC STACK DIM.... 3 BY 2 FT
EX FLOW RATE..... ACFM
%SOLID PAINT.....
%VOC PHOTO CHEM COMP....

ENCLOSURE (2)

Table 2-3

Actual Annual Emissions of Criteria Pollutants by Area and Source Type

1993

Area	Source Type	Emissions (tons/yr)					
		NO_x	CO	SO_2	PM	PM_{10}	Total VOC
MCAS	Spray Booths				0.07	0.07	3.53
MCAS	Burn Tank	0.01	0.68	0.00	0.04	0.04	0.06
MCAS	Open Pit Detonation	0.02	0.01	0.00	0.02	0.02	0.01
MCAS	Degreasing						8.88
MCAS	Welding				0.03	0.03	
MCAS	Fire-Fighting Training Pit						0.00
MCAS	Smokehouse	0.00	0.13	0.00	0.01	0.01	0.01
MCAS	Composite Materials Grinding				0.00	0.00	
MCAS	Carpentry				0.48		
MCAS	Boilers	9.89	2.14	13.00	1.67	1.32	0.18
MCAS	Storage Tanks						3.60
MCAS	Wastewater Treatment						0.02
MCAS	Generators	6.14	26.46	0.40	0.43		1.29
MCAS	Jet Test Cells	42.7	98.0	2.51	6.48	6.48	6.52
	Total	58.7	127	15.9	9.2	8.0	24.1
Laurel Bay	Boilers	1.19	0.30	4.22	0.12	0.06	0.02
Laurel Bay	Storage Tanks						0.01
Laurel Bay	Generators	0.00	0.00				0.00
	Total	1.19	0.30	4.22	0.12	0.06	0.03

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EMISSIONS INVENTORY

epp.165/tbl2-3

ENCLOSURE (2)

For all source types at the Beaufort Marine Corps Air Station, the following is provided.

- Information specific to the sources at the MCAS regarding material use, hours of operation, and exceptions and/or alternate approaches to calculating emissions, based on availability of information;

- A sample calculation using information and data specific to an emission unit at the MCAS;

- A calculation that describes the general approach developed to estimate emissions from a source type as it is commonly used at military installations; and

- A copy of the spreadsheet, if used to calculate emissions from the sources at the MCAS. Emissions from some source types at the MCAS were calculated without using a spreadsheet.

This appendix includes calculations for the following source types:

Boilers
Storage Tanks and Fuel Dispensing
Parts Cleaners
Welding
Surface Coating
Firefighting Training
Wastewater Treatment
Jet Engine Test Cells and Stands
Auxiliary Power Generators
Carpentry
Ordnance Destruction
Smokehouse
Composite Grinding

BOILERS

Emissions of air pollutants from the boilers at the MCAS-Beaufort were calculated as described generally in Calculation Nos. 1 and 2 (attached). The following aspects of the calculations are specific to the MCAS-Beaufort.

- Emissions were not calculated for the sludge digester boilers at the MCAS and Laurel Bay wastewater treatment plants because these boilers have never been used and are not scheduled to be used in the future.

- The following fuel properties were used in estimating boiler emissions and were obtained from MCAS fuel specifications:

Fuel	Percent Sulfur	Heat Content
Natural Gas	--	1,031 Btu/scf
No. 2 Fuel Oil	0.5	138,700 Btu/gal
No. 6 Fuel Oil	2.1	149,700 Btu/gal

- Actual fuel consumption was estimated from the average of three consecutive fiscal years (1991-1993) of fuel consumption data.

- Maximum annual emissions and the potential to emit were calculated using maximum capacity as described in Calculation No. 1 (pp. 1-5) and Calculation No. 2.

- Maximum daily emissions of toxic air pollutants were calculated by dividing the maximum annual emissions by 365 days/yr.

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. # 2

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT DoD _____ JOB NO. _____

SUBJECT Criteria Pollutant Emissions from Boilers _____ SHEET 2 OF 5 SHEETS

ENCLOSURE (2)

Table 1

Selected Published Emission Factors for Fuel-Fired Sources

Pollutant	Pulverized Coal Utility (lb/ton)	Residual Oil Utility (lb/1000 gal)	Residual Oil Industrial (lb/1000 gal)	Residual Oil Commercial (lb/1000 gal)	Distillate Oil Industrial (lb/1000 gal)	Distillate Oil Commercial (lb/1000 gal)	Natural Gas Utility (lb/MMCF)	Natural Gas Industrial (lb/MMCF)	Natural Gas Commercial (lb/MMCF)
Particulate matter	10 A	10 S + 3	10 S + 3	10 S + 3	2	2	3	13.7	12.0
Sulfur oxides	39 S								
Sulfur dioxide		157 S	157 S	157 S	142 S	142 S	0.6	0.6	0.6
Sulfur trioxide		2.9 S	2 S	2 S	2 S	2 S			
Nitrogen oxides	21	67	55	55	20	20	550	140	100
Carbon monoxide	0.6	5	5	5	5	5	40	35	21
Volatile organic compounds	0.07	0.76	1.28	1.13	0.2	0.34	1.4	2.8	7.26

Notes: A = % ash
S = % sulfur
Sulfur oxides as sulfur dioxide.
Nitrogen oxides as nitrogen dioxide.

RADIAN CORPORATION CALCULATION SHEET

CALC. NO. 2

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT DoD JOB NO. _____

SUBJECT Criteria Pollutant Emissions from Boilers SHEET 1 OF 5 SHEETS

Combustion sources under consideration fire coal, residual fuel oil (No. 6), or distillate fuel oil (No. 2). The criteria pollutant emissions from these combustion sources were estimated using factors presented in the U.S. Environmental Protection Agency's AP-42, a compendium of emission factors for different types of processes. Boilers are classified by heat content according to the following criteria:

Utility	Heat input rate greater than 100 MMBtu/hr
Industrial	Heat input rate between 10 and 100 MMBtu/hr
Commercial	Heat input rate between 0.5 and 10 MMBtu/hr

The calculations for all combustion sources are described below, and all follow the same general procedure: application of pollutant emission factor to maximum firing rate. This rate can be used to estimate the maximum potential-to-emit on an hourly or annual (if multiplied by 8,760 hours/yr) basis. Actual annual emissions are calculated using the actual fuel used for the boiler or the known firing rate and annual hours of operation.

Short-term Emission Rate (lb/hr) = EF * (heat input rate)

Annual Emission Rate (lb/yr) = EF * (heat input rate) * 8760 hr/yr

where

EF = pollutant emission factor in lb/MMBtu and
heat input rate = maximum firing rate in MMBtu/hr.

The emission factors from AP-42 are shown in Table 1. The factors in the table are given in units that cannot be directly applied to most combustion sources. The published factors were converted to a format more easily used for estimating emissions based on heat input rate using typical characteristics for coal and oil. The converted emission factors are shown in Table 2.

The factors for coal-fired boilers are expressed in lb/ton of coal fired. To make this application simpler, the emission factor was converted to a heat input basis using the characteristics for the coal supplied to an east coast military installation. The key data include:

Heat content, Btu/lb	12,500
Ash content, %	9.0
Sulfur content, %	0.95

The key data for fuel oils are:

	Distillate	Residual
Heat content, Btu/lb	19,460	18,500
Sulfur content, %	0.5	2.11
Density, lb/gal	7.14	8.11

Conversion of Factors for Coal-Fired Boilers

Coal specifications were applied to the formulae in AP-42 to convert the basic emission factors to the heat input-based factors specific to coal-fired boilers. Ash and sulfur contents were used to calculate the factors for particulate matter and sulfur oxides. Sulfur oxides were separated into sulfur dioxide and sulfur trioxide using information contained in AP-42; 97% of fuel sulfur is converted to sulfur dioxide and 0.7% of fuel sulfur is converted to sulfur trioxide and other sulfates. The heat content was then used to convert the emission factors from a weight basis to a heat input basis.

$$PM, \frac{lb}{MMBtu} = (10 * 9)\frac{lb}{ton} * \frac{ton}{2{,}000\ lb} * \frac{lb}{12{,}500\ Btu}$$

$$= 3.60\ \frac{lb}{MMBtu}$$

$$SO_2\ \frac{lb}{MMBtu} = (39 * 0.95)\frac{lb}{ton} * \frac{ton}{2{,}000\ lb} * \frac{lb}{12{,}500\ Btu} * \frac{97}{(97 + 0.7)}$$

$$= 1.47\ \frac{lb}{MMBtu}$$

Application of Emission Factors

The converted emission factors are then used with the maximum heat input rates of the boilers to calculate the emission rates for the boilers. This example includes a factor for particulate matter removal effected by an electrostatic precipitator (95% efficiency).

$$PM, \frac{lb}{hr} = 3.60\ \frac{lb}{MMBtu} * 125.52\ \frac{MMBtu}{hr} = 452\ \frac{lb}{hr}\ \text{(uncontrolled)}$$

ENCLOSURE (2)

Table 2

Converted Emission Factors for Fuel-Fired Sources

Pollutant	Pulverized Coal Utility (lb/MMBtu)	Residual Oil Utility (lb/MMBtu)	Residual Oil Industrial (lb/MMBtu)	Residual Oil Commercial (lb/MMBtu)	Distillate Oil Industrial (lb/MMBtu)	Distillate Oil Commercial (lb/MMBtu)	Natural Gas Utility (lb/MMBtu)	Natural Gas Industrial (lb/MMBtu)	Natural Gas Commercial (lb/MMBtu)
Particulate matter	3.60	0.161	0.161	0.161	0.014394	0.014394	0.00286	0.013048	0.011429
Sulfur oxides	1.48								
Sulfur dioxide	1.47	2.21	2.21	2.21	0.511	0.511	0.000571	0.000571	0.000571
Sulfur trioxide	0.01062	0.0408	0.0281	0.0281	0.00720	0.00720			
Nitrogen oxides	0.840	0.447	0.367	0.367	0.1439	0.1439	0.524	0.133	0.0952
Carbon monoxide	0.0240	0.0333	0.0333	0.0333	0.0360	0.0360	0.0381	0.0333	0.02
Volatile organic compounds	0.0028	0.0051	0.0019	0.0075	0.00144	0.00245	0.00133	0.00267	0.0069

$$PM, \frac{lb}{hr} = 452 \frac{lb}{hr} * (1 - 0.95) = 22.6 \frac{lb}{hr}$$

$$SO_2, \frac{lb}{hr} = 147 \frac{lb}{MMBtu} * 125.52 \frac{MMBtu}{hr} = 184.5 \frac{lb}{hr}$$

This same approach was used to convert emission factors for oil-fired boilers to a heat input basis. For oil-fired boilers, the density of the fuel was used to convert the emission factors from a volume basis to a weight basis before following the procedure shown above for coal-fired boilers to convert to a heat input basis.

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. " "

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

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SUBJECT Boilers SHEET 2 OF 4 SHEETS

CO emission factors for commercial boilers (lb/MMBTU)

Natural gas : 21 lb/10^6 ft^3 (Ref: AP-42, p. 1.4-5)

No 2 fuel oil : 5 lb/10^3 gal (Ref: AP-42, p. 1.3-2)

IV ASSUMPTIONS

None

V TECHNICAL APPROACH

The emission factors are applied using the equation for the annual emission rate on page 1 of Calculation Number 2 (attached):

$$\text{Actual annual emissions (lb/yr)} = \text{Emission factor}\left(\frac{\text{lb}}{10^6\text{BTU}}\right) * \text{Annual fuel consumption}\left(\frac{\text{N}\,10^6\text{BTU}}{\text{yr}}\right) \quad (1)$$

For this example calculation, the above equation can be rewritten:

$$\text{Actual annual CO emissions (lb/yr)} = \text{CO emission [Natural gas]}\left(\text{lb/yr}\right) + \text{CO emissions [No. 2 fuel oil]}\left(\text{lb/yr}\right) \quad (2)$$

$$= \text{Natural gas CO emission factor}\left(\frac{\text{lb CO}}{10^6\text{BTU}}\right) * \text{Natural gas consumed}\left(\frac{10^6\text{BTU}}{\text{yr}}\right)$$

$$+ \text{No. 2 fuel oil CO emission factor}\left(\frac{\text{lb CO}}{10^6\text{BTU}}\right) * \text{No. 2 fuel oil consumed}\left(\frac{10^6\text{BTU}}{\text{yr}}\right) \quad (3)$$

The natural gas emission factor is converted as shown below:

$$\text{Natural gas CO emission factor (lb/}10^6\text{BTU)} = \text{Natural gas CO emission factor}\left(\frac{\text{lb}}{10^6\text{ft}^3}\right) \div \text{Heat value}\left(\frac{\text{BTU}}{\text{ft}^3}\right) * \frac{10^6\text{BTU}}{10^6\text{BTU}} \quad (4)$$

ENCLOSURE (2)

91-3361

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE 2-24-94 CHECKED _____ DATE _____

PROJECT SOUTHDIV/MCAS-Beaufort JOB NO. 652-009-02

SUBJECT Boilers SHEET 1 OF 4 SHEETS

I PURPOSE

This calculation is an example of the approach for estimating emissions from boilers. The general approach for estimating emissions from boilers is given in Calculation Numbers 1 and 2 (attached).

This example calculation estimates the actual annual CO emission rate for the Bachelor Officer Quarters boiler in Building 431 (Source ID: BEA-01-431-1-BOQ). Estimating emissions of other pollutants from this boiler follows the same procedures.

II GIVEN INFORMATION

- Maximum Heat Input = 3.45×10^6 BTU/hr
- Fuel capability:
  - Primary fuel: Natural Gas
  - Secondary fuel: No. 2 Fuel Oil
- Boiler category = Commercial

III DATA:

The following data are required to estimate the actual annual CO emission rate from the Bachelor Officer Quarters boiler:

Actual fuel consumption (MMBTU/hr)

Natural gas: 3059

No. 2 fuel oil: 80

Heat value

Natural gas = 1050 BTU/ft^3 (Ref: MCAS fuel record)

No. 2 fuel oil = 138,700 BTU/lb (Ref: MCAS fuel record)

ENCLOSURE (2)

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. " "

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO. _____

SUBJECT Boilers SHEET 4 OF 4 SHEETS

3. The fuel consumption data in Section III is used in the equation (3) presented in Section V to calculate the actual annual CO emission rate for the Bachelor Officer Quarters boiler.

$$\text{Actual annual CO emissions (lb/yr)} = 2.00\times10^{-2}\left(\frac{\text{lb CO}}{\text{MMBTU}}\right)\times 3059\left(\frac{\text{MMBTU}}{\text{yr}}\right)$$

$$+ 3.6\times10^{-2}\,\frac{\text{lb CO}}{\text{MMBTU}}\times 80\left(\frac{\text{MMBTU}}{\text{yr}}\right)$$

$$= \boxed{64.1\ \frac{\text{lb CO}}{\text{yr}}}$$

ENCLOSURE (2)

3361

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET 3 OF 4 SHEETS

The No. 2 fuel oil emission factor is converted as shown below:

$$\text{No. 2 fuel oil CO emission factor}\left(\frac{lb}{10^6\,BTU}\right) = \text{No. 2 fuel oil CO emission factor}\left(\frac{lb}{10^3\,gal}\right) \div \text{Heat value}\left(\frac{BTU}{lb}\right) \times \frac{10^6\,BTU}{10^6\,BTU} \quad (5)$$

VI. CALCULATION

1. The natural gas emission factor in Section III is converted using equation 4 in Section V:

$$\text{Natural gas CO emission factor } (lb/10^6\,BTU) = \frac{21\,lb}{10^6\,ft^3} \div \frac{1050\,BTU}{ft^3} \times \frac{10^6\,BTU}{10^6\,BTU} = 2 \times 10^{-2}\ lb\,CO/10^6\,BTU$$

2. The No. 2 fuel oil emission factor in Section III is converted using equation 5 in Section V:

$$\text{No. 2 fuel oil CO emission factor } (lb/10^6\,BTU) = \frac{5\,lb}{10^3\,gal} \div \frac{138{,}700\,BTU}{lb} \times \frac{10^6\,BTU}{10^6\,BTU} = 3.6 \times 10^{-2}\ BTU/10^6\,BTU$$

ENCLOSURE (2)

4-R1-3361

- The annual throughput of JP-5 for the tanks at the test cells for auxiliary power units (APUs) was calculated based on a fuel consumption rate of 3.5 pounds per minute (0.515 gallons per minute), a test time of 1.25 hours, and 20 tests per month--or 9,300 gallons per year.

- The calculation of emissions from the floating roof storage tank (Tank 865) assumed the floating roof was equipped with a primary, liquid-mounted seal and two columns of 1-foot diameter each.

- Maximum daily emissions were estimated assuming one turnover per day.

- Actual annual emissions were estimated using actual reported throughput for 1993.

- The maximum annual emissions were estimated assuming a maximum annual fuel use of 33 percent greater than the actual annual fuel use.

- The potential to emit was calculated by multiplying the maximum daily emission rate by 365 days per year.

ENCLOSURE (2)

STORAGE TANKS AND FUEL DISPENSING

Emissions of total VOC from storage tanks at the MCAS-Beaufort were calculated using EPA's TANKS program. As described as an option in the general approach outlined in Calculation No. 3 (attached), emissions were speciated using vapor weight fractions from SPECIATE and the DOT's CHRIS data base or the material safety data sheets as available. When liquid weight fractions were provided, TANKS was used to calculate the vapor weight fractions. The following assumptions and specific approaches were used to calculate emissions from the tanks and fuel-dispensing operations at the MCAS-Beaufort.

- Emissions from tanks containing waste oil were estimated as if the tanks contained No. 2 fuel oil except for those tanks which receive both waste oil and JP-5, in which case emissions from those tanks were estimated as if the tanks contained JP-5.

- Emissions were calculated for neither the sludge digester boiler fuel oil storage tanks at the MCAS and Laurel Bay wastewater treatment plants nor the hazardous waste storage tank because these tanks have never been used and are not scheduled to be used in the future.

- Emissions from propane tanks and spill containment tanks are not expected nor were they calculated.

- The following emission factors for working losses from fixed roof tanks developed from the results of the TANKS program were used:

Fuel	Emission Factor (lb VOC/gal fuel)
JP-5	2.63×10^{-5}
Gasoline	5.48×10^{-3}
No. 2/Diesel	2.29×10^{-5}

- The annual throughput of JP-5 for the tanks at the test cells for engine type F404-GE-400 was calculated based on a typical fuel use of 800 gallons per test and an average of 20 tests per month, or a total throughput of 192,000 gallons per year.

Table 1. Factors for Calculating Annual Emission Rates

Fuel	M_V (lb/lbmol)[a]	P (psia)[a] at 60°F	K_N[b]
Gasoline (RVP 7)	68	3.5	0.25
Diesel[c]	130	0.0074	0.25
No. 2 Oil	130	0.0074	0.25
JP-5[d]	130	0.0085	0.25
Kerosene[d]	130	0.0085	0.25
AVGAS[e]	68	3.5	0.25
MOGAS[e]	68	3.5	0.25

[a] AP-42, Table 12.3-2.
[b] AP-42, Figure 12.3-6.
[c] Assumed to have the same characteristics as No. 2 oil.
[d] Assumed to have the same characteristics as jet kerosene.
[e] Assumed to have the same characteristics as gasoline RVP 7.

Many of the materials stored at military installations are already listed in the TANKS program; these materials can be selected directly from the option list when executing TANKS.

Example

Estimate the VOC emissions from the following surface tank that is not equipped with any control measures:

Fuel Type:	Aviation Gasoline (Characteristic of AVGAS are assumed to be those of gasoline)
Tank Type:	Horizontal, aboveground
Tank Dimensions	
Shell Length (ft):	32
Diameter (ft):	5
Capacity (gal):	5,000
Annual Turnovers:	12
Net Throughput:	60,000

ENCLOSURE (2)

Emissions of volatile organic compounds (VOC) and specific toxic and hazardous air pollutants result from the bulk transfer and storage of chemicals and fuels. Fuels, especially gasoline, diesel oil, kerosene, and jet petroleums, are the principal materials stored in bulk quantities at military installations. These materials are stored in aboveground and underground tanks.

This calculation describes the approach used to calculate emissions for storage and transfer of organic liquids using the EPA program TANKS to estimate short-term and long-term emissions for permitting and inventory reporting. The approach using TANKS is followed by a presentation of the mathematical approach based on computations incorporated by TANKS. Both approaches yield estimates of VOC emissions. Finally, the approach to speciating the VOC emissions to individual toxic air pollutants is presented. Instructions for executing the TANKS computer program are documented separately.

I. TANKS APPROACH

TANKS can be used to estimate emissions from storage and dispensing of organic liquids, but it is not necessary to run the TANKS program for all storage tanks. The TANKS program need be run only once to estimate VOC emissions for a given tank design and fluid. The results can then be applied to all other identical tanks. This approach uses emission factors, generated from results of the TANKS program, to estimate emissions of like materials from storage tanks of similar designs.

The results of a single TANKS program run can be used to estimate actual and maximum emissions for multiple tanks. The following guidelines are useful in minimizing TANKS runs:

1. TANKS can be run once to estimate VOC emissions from identical tanks.

2. TANKS should be used to estimate actual annual emissions; these results can be used to estimate maximum daily and maximum annual emissions.

3. TANKS should be run so that all fuel types and tank designs are represented.

The fuel properties listed in Table 1 can be used as inputs for molecular weight and vapor pressure in the TANKS program.

The VOC working loss emission factor derived in the above example for aviation gasoline can be applied to underground storage tanks containing aviation gasoline, because the working losses are related to the material stored and storage temperatures (i.e., vapor pressure) and underground storage tanks exhibit no breathing losses.

Example

Estimate the VOC emissions from the following uncontrolled underground tank:

Fuel Type:	Aviation Gasoline
Tank Type:	Horizontal, Underground
Tank Capacity:	10,000 gallons
Net Throughput:	100,000 gallons

$$\text{Actual annual VOC emissions (lb VOC/yr)} = 5.642 \times 10^{-3} \frac{\text{lb VOC}}{\text{gal}} * 100{,}000 \frac{\text{gal}}{\text{yr}} = 564.20 \frac{\text{lb VOC}}{\text{yr}}$$

$$\text{Maximum daily VOC emissions (lb VOC/day)} = 5.642 \times 10^{-3} \frac{\text{lb VOC}}{\text{gal}} * 10{,}000 \frac{\text{gal}}{\text{day}} = 56.42 \frac{\text{lb VOC}}{\text{day}}$$

$$\text{Potential annual VOC emissions (lb VOC/yr)} = 56.42 \frac{\text{lb VOC}}{\text{day}} * 365 \frac{\text{day}}{\text{yr}} = 20{,}593 \frac{\text{lb VOC}}{\text{yr}}$$

Working loss VOC emission factors can be developed and used for other fuels in an identical fashion.

II. AP-42 CALCULATIONS

The TANKS program uses correlations published in AP-42. These correlations can be used directly to estimate emissions from storage or transfer of organic liquids for the needed averaging periods. The correlations can be used in spreadsheets using data available for the physical attributes of the tanks, or the correlations can be simplified to provide conservative estimates. The approaches used to estimate short-term and annual emissions using AP-42 correlations follow.

Paint Characteristics

Paint Color:	White
Paint Shade:	White
Paint Condition:	Good
Fuel Molecular Weight (lb/lbmol):	68 (see Table 1)
Vapor Pressure (psia):	3.5 (see Table 1)

The TANKS program reports the following results:

Actual annual VOC emissions (lb/yr):

Working Losses (lb/yr):	338.51
Breathing Losses (lb/yr):	445.63

The VOC working loss emissions can be divided by the volumetric throughput to obtain a site-specific VOC working losses emission factor:

$$\frac{338.51 \text{ lb VOC}}{\text{yr}} \left| \frac{\text{yr}}{60{,}000 \text{ gal}} \right| = 5.642 \times 10^{-3} \frac{\text{lb VOC}}{\text{gal}}$$

This emission factor can be used to estimate the daily maximum VOC emission rate, assuming one complete tank turnover per day and ignoring standing losses as insignificant:

$$\text{Maximum daily emissions (lbVOC/day)} = 5.642 \times 10^{-3} \frac{\text{lb VOC}}{\text{gal}} * 5{,}000 \frac{\text{gal}}{\text{day}} = 28.21 \frac{\text{lb VOC}}{\text{day}}$$

The potential annual emissions assume one tank turnover per day, 365 days per year:

$$\text{Potential annual emissions (lb VOC/yr)} = 28.21 \frac{\text{lb VOC}}{\text{day}} * 365 \frac{\text{days}}{\text{yr}} = 10{,}296 \frac{\text{lb VOC}}{\text{yr}}$$

Maximum annual emissions are based on actual emissions and an estimated increase anticipated for the material at the installation over the next several years.

Annual Emission Estimates

The potential to emit is estimated in the same manner as maximum daily emissions, assuming that the tank is filled and emptied daily (365 times per year). For annual emissions, a more representative bulk storage temperature of 60°F can be assumed, and a turnover factor of 0.25 [AP-42, Figure 12.3-6] is used. The values to be used are presented in Table 1.

For actual emissions, the same equations shown above would be used with the addition of the actual transfer rate (pump rate) and the actual amount transferred annually (or number of transfers annually).

In these cases, the standing losses would be included using the following equation from AP-42:

$$L_s = 0.0226 * MW * \left(\frac{P}{P_A - P} \right)^{0.68} * D^{1.73} * H^{0.51}$$

$$* \Delta T^{0.50} * F_P * C * K_C$$

where:

L_s	=	Standing loss (lb/yr);
MW	=	Molecular weight of stored material (lb/lbmol);
P_A	=	Average atmospheric pressure (psia);
P	=	True vapor pressure of stored liquid (psia);
D	=	Storage tank diameter (ft);
H	=	Average vapor space height (ft);
ΔT	=	Average ambient diurnal temperature change (°F);
F_P	=	Paint factor;
C	=	Adjustment factor for small tanks; and
K_c	=	Product factor = 1.0.

No standing losses are assumed for:

(1) Storage tanks equipped with conservation vents;

(2) Indoor storage tanks; and

(3) Underground storage tanks.

Short-Term Emission Estimates

Most air quality impacts analyses require the evaluation of short-term impacts. For example, sulfur dioxide emissions are compared to 3-hr and 24-hr national ambient air quality standards (NAAQS), as well as an annual standard. The impacts of toxic air pollutant emissions are also compared to short-term periods for compounds that cause health effects from short-term exposures. A typical comparison is made to an 8-hr exposure, comparable to an 8-hr threshold limit value (TLV) used for occupational health standards.

Short-term emission estimates consider the maximum emission rate potential for the averaging period, which may be only 15 min. Storage tank emissions are greatest during transfers. The short-term emission rate, therefore, is estimated using the tank fill rate and the working losses equation from AP-42.[1] Transfer and standing losses are assumed to be negligible in calculating short-term emission rates. The equation below is used to estimate working losses for a 15-min period.

$$L_w = (2.4 \times 10^{-5})(M_V)(P)(VN)(K_N)(K_C)$$

Where:

L_w	=	working losses (lb/15 min).
M_V	=	molecular weight of vapor in storage tank (lb/lbmol).
P	=	true vapor pressure of liquid at bulk storage temp (psia).
VN	=	volume of liquid displaced during averaging period (15 min) (gal). The 15-min loading rate was assumed to equal the maximum tank filling rate for tank trucks used to fill bulk fuel tanks (110 gal/min, or 1,650 gal/15 min). Tanks smaller than 1,650 gal were assumed to be filled in 15 min.
K_N	=	turnover factor, based on frequency of turnovers.
K_C	=	product factor, equals 1 for all of these materials.

The maximum emissions for a 24-hr period occur during tank loading for all materials and during fuel dispensing or transfer of gasoline, diesel, kerosene, and JP-5. As a worst-case assumption, the maximum 24-hr emission rate is estimated assuming that the tank would be filled and emptied in a 24-hr period. Because dispensing the fuel displaces the same volume of gas from the receiving vehicle as filling a tank displaces from the tank, emissions are estimated by doubling the emissions calculated using the equations presented under 15-minute maximum emissions.

[1] Compilation of Air Pollutant Emission Factors (AP-42), October 1992, p. 12-31.

Determine component partial pressure = Liquid mole fraction of component * Vapor pressure of component

Sum partial pressures to get total = $\sum$ Partial pressures

Determine vapor mole fraction of each component = $\frac{\text{Component partial pressure}}{\text{Total pressure}}$

Determine number mole of component (assume 100 mole total of vapor) = Vapor mole fraction of component * 100 mole

Determine wt of component in vapor (lb) = Number mole component * MW component

Determine total wt in vapor = $\sum$ Component wt in vapor

Determine vapor weight fraction = $\frac{\text{Wt of component in vapor}}{\text{Total vapor weight}}$

The above calculations are incorporated in a spreadsheet.

ENCLOSURE (2)

Maximum emissions are based on actual emissions and assume some increase that reflects potential growth or increase in activity.

III. SPECIATION OF VOC EMISSIONS

The empirical relationships used to estimate emissions from bulk storage of organic liquids yield emission rates of total VOC. For evaluation of compliance with state toxic air pollutant regulations or guidelines, the VOC emissions are speciated to the individual toxic air pollutants emitted. This is usually accomplished by using a published speciation profile or one developed through a thermodynamic analysis of the chemical mixture being stored.

The U.S. Environmental Protection Agency has published speciation profiles for a number of materials, including diesel oil (No. 2 oil) and gasoline. These profiles are based on data generated through source testing of emissions from storage tanks. Because they represent the apportioning of specific organic compounds in the total amount of VOC, the profiles can be applied directly to the total VOC emissions to give emission rates of specific compounds.

In some cases, published profiles are not available. In such cases, a speciation profile can be developed using known liquid phase concentrations and thermodynamic principles. For example, this approach was used to estimate the speciation of toxic air pollutant concentrations in the vapor phase of jet fuel. (Kerosene was assumed to have the same speciation profile.)

The vapor weight fractions of each component in jet fuel were calculated in the following manner:

$$\text{Determine number moles each component (assume 100 gal fuel)} = \frac{\text{Liquid wt\%} * 100\text{ gal} * \text{fuel density}}{MW_{component}}$$

$$\text{Determine total number moles} = \sum \text{Number moles each component}$$

$$\text{Determine liquid mole fraction of each component} = \frac{\text{Number moles of component in liquid}}{\text{Total number moles in liquid}}$$

Table 2. Summary of Fuel Emission Speciation Factors

Constituent	Vapor Weight Fraction			
	Jet Fuel & Kerosene[a]	Gasoline[b]	Diesel and No. 2 Fuel Oil[c]	Aviation Gasoline[d]
Benzene	0	7.7×10^{-3}	0	7.7×10^{-3}
n-Hexane	0	1.84×10^{-2}	0	1.84×10^{-2}
Hexane isomers	0	4.78×10^{-2}	0	4.78×10^{-2}
Toluene	4.92×10^{-3}	6.6×10^{-3}	0	6.6×10^{-3}
Xylene (Total)	1.19×10^{-2}	2.0×10^{-3}	7×10^{-4}	2.0×10^{-3}
Ethylbenzene	1.66×10^{-3}	4.0×10^{-4}	0	4.0×10^{-4}
Tetraethyl Lead				1.027×10^{-6}

[a] Vapor phase concentrations calculated from liquid phase concentrations using vapor/liquid equilibria computations in TANKS.

[b] U.S. EPA. Air Emissions Speciation Manual. (Also in data base form "Speciate.") Used summer blend gasoline (with Reid vapor pressure = 7) because North Carolina has relatively warm climate year-round.

[c] Used values for vapor weight fraction from Baker Environmental, Draft Air Quality Analysis/Modeling Plan: Air Toxics Emissions Inventory and Dispersion Modeling Analysis, Marine Corps Base, Camp Lejeune, North Carolina, Prepared for Department of the Navy, Atlantic Div., Naval Facilities Engineering Command, Norfolk, Virginia, February 1993.

[d] Assumed to be identical to gasoline except for tetraethyl lead.

Example

Estimate the actual annual xylene emissions from the storage tank in the previous example:

$$\text{Actual annual VOC emissions} = 1{,}085 \ \frac{\text{lb VOC}}{\text{yr}}$$

$$\text{Actual annual xylene emissions (lb/yr)} = 1{,}085 \ \frac{\text{lb VOC}}{\text{yr}} * 2.0 \times 10^{-3} \ \frac{\text{lb xylene}}{\text{lb VOC}} = 2.17 \ \frac{\text{lb xylene}}{\text{yr}}$$

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IV. ASSUMPTIONS

- A single turn-over in tank capacity occurs during a single 24-hour period.

V. TECHNICAL APPROACH

The data given in Section III are used to estimate the maximum daily VOC emission rate using the equation below, and as demonstrated on page 3 of Calculation No 3.

$$\text{Maximum daily VOC emissions (lb/day)} = \text{Working loss VOC emission factor} \left(\frac{\text{lb VOC}}{\text{gal}}\right) \times \text{Tank capacity} \left(\frac{\text{gal}}{\text{day}}\right)$$

VI. EXAMPLE

The daily maximum VOC emission rate is calculated using the input data in Section III, and the equation in Section V:

$$\text{Maximum daily VOC emissions (lb/day)} = 5.479 \times 10^{-3} \frac{\text{lb VOC}}{\text{gal (fuel)}} \times 10{,}000 \frac{\text{gal (fuel)}}{\text{day}}$$

$$= \boxed{54.79 \frac{\text{lb VOC}}{\text{day}}}$$

ENCLOSURE (2)

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PROJECT Southern / MCAS-Beaufort JOB NO. 652-009-02

SUBJECT Storage Tanks SHEET 1 OF 2 SHEETS

I. PURPOSE

This calculation is an example of the approach for estimating emissions from storage tanks. The general approach for estimating emissions from storage tanks is given in Calculation No. 3 (attached). This example uses Approach I. A more detailed calculation approach using technical data on the storage tank could be followed, as described in Calculation No. 3, Approach II.

This example calculation estimates the maximum daily VOC emission rate for the underground gasoline storage tank located at the MCX Service Station, Building 629 (Source ID: BEA-01-629-1-T12).

II. GIVEN INFORMATION

Tank contents: Gasoline
Location: Underground

III. DATA

The following data are required to estimate the maximum daily VOC emission rate from the MCX Service Station gasoline tank:

Tank capacity: 10,000 gallons
Work loss VOC
emission factor: 5.479×10^{-3} lb VOC/gallon

ENCLOSURE (2)

PARTS CLEANERS

Emissions of air pollutants from parts cleaners at the MCAS-Beaufort were calculated as described generally in Calculation No. 4 (attached). The following aspects of the calculations are specific to the MCAS-Beaufort.

- The amount of solvent used annually was estimated from the capacity of the parts cleaners multiplied by the number of services per year.
- Actual annual emissions were based on an average solvent evaporation rate of 30 percent as indicated from Safety Kleen service records.
- Maximum daily emissions were estimated assuming that the maximum annual emissions occur during 250 days of use (5 days per week, 50 weeks per year).
- Maximum annual emissions were estimated assuming the addition of two squadrons, or a 33 percent increase in actual emissions.
- The potential to emit was estimated assuming daily emissions occur 365 days per year.

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CALCULATION SHEET

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SUBJECT Emissions from Parts Cleaners SHEET 2 OF 3 SHEETS

$$VOC\left(\frac{lb}{day}\right) = \frac{\left(966\ \frac{lb}{yr}\right)}{\left(250\ \frac{day}{yr}\right)} = 3.86\ \frac{lb}{day}$$

To demonstrate compliance with some regulations (especially regulations for toxic air pollutants), shorter periods of emissions are of interest. These are calculated based on information provided by operations personnel. For example, parts cleaners are used sporadically. Assuming two periods of use daily, each for a 15-min duration, the 15-min emission rate is estimated as follows:

$$VOC\left(\frac{lb}{15\ min}\right) = \frac{\left(3.86\ \frac{lb}{day}\right)}{\left(2\ \frac{15\text{-min episodes}}{day}\right)} = 1.93\ \frac{lb}{15\ min}$$

Actual emissions are estimated using data, as available, for each parts cleaner.

Emissions of specific toxic air pollutants may be important in compiling emission inventories. These are calculated assuming the same concentration of pollutants in the vapor lost as found in the liquid phase. These data are found in the MSDSs for the different solvents. For Safety Kleen (as an example), emissions of specific toxic air pollutants (1.0% xylene, 0.5% toluene, 0.5% methyl chloroform, and 0.5% perchloroethylene) are calculated as follows:

$$Xylene\left(\frac{lb}{day}\right) = \left(3.86\ \frac{lb\ VOC}{day}\right) * \left(0.01\ \frac{lb\ xylene}{lb\ VOC}\right)$$

$$= 0.0386\ \frac{lb\ xylene}{day}$$

$$Toluene\left(\frac{lb}{day}\right) = \left(3.86\ \frac{lb\ VOC}{day}\right) * \left(0.005\ \frac{lb\ toluene}{lb\ VOC}\right)$$

$$= 0.0193\ \frac{lb\ toluene}{day}$$

ENCLOSURE (2D)

RADIAN CORPORATION

CALCULATION SHEET

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SUBJECT Emissions from Parts Cleaners SHEET 1 OF 3 SHEETS

Maintenance operations at military installations require the use of parts cleaners to remove lubricants from metal parts before installation into equipment or before coating. Numerous parts cleaners of varying dimensions and descriptions are located at these installations, and the solvent or solvent mixture used can vary depending upon the application and activity using the parts cleaners. The estimates of emissions for parts cleaners depend upon the number of cleaners and the composition and amount of material used in them over the period of interest.

Emissions from parts cleaners can be calculated using a material balance approach if data are available. The amount of solvent used is determined from the amount delivered to the location and the amount taken from the location. The total amount of solvent is determined from records, and the VOC and specific toxic and hazardous air pollutant emissions are calculated using data from the material safety data sheets (MSDSs). Typical solvents include Safety Kleen, Citrosol®, and those procured under the MILSPEC PD-680. The amount of material used in the machine is based on information from the user at the activity or the supplier. For example, Safety Kleen provides many installations with machines and a service whereby the solvent is exchanged on a regular schedule to ensure that the operation always maintains adequate fresh solvent. Records are generally maintained (by the vendor in this case) of the amount used and the frequency of replacement. Often, the amount of material removed from a site is not known. In this case, the losses to the atmosphere are based on the amount delivered and information on typical losses.

The solvent consumption for a given type of parts cleaner may only be available for all the parts cleaners of that design (i.e., total solvent consumption for all parts cleaners of that design). In that case, emissions are estimated based on the total amount of solvent used and computed on a single parts cleaner basis. For example, if 276,000 lb of Safety Kleen solvent are used annually in an estimated 100 Safety Kleen parts cleaners, the per cleaner usage is 2,760 lb. For services such as Safety Kleen, emissions are calculated using the vendor supplied estimate of the loss rate (e.g., 8% per week). (For operations that use parts cleaners not associated with a service, the emissions are based on records of usage.) Assuming the solvent is changed monthly, an estimated 35% of the solvent is lost through evaporation. This fraction is applied to the total usage per parts cleaner to estimate VOC emissions:

$$\text{VOC}\left(\frac{\text{lb}}{\text{yr}}\right) = \left(2{,}760\ \frac{\text{lb used}}{\text{yr}}\right) * \left(0.35\ \frac{\text{lb lost}}{\text{lb used}}\right) = 966\ \frac{\text{lb VOC emitted}}{\text{yr}}$$

Because most parts cleaning operations are tied to maintenance which is typically a weekday operation, daily emissions are estimated assuming that annual emissions are distributed equally for the 250 days annually.

RADIAN CORPORATION

CALCULATION SHEET

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SUBJECT Emissions from Parts Cleaners SHEET 3 OF 3 SHEETS

$$\text{Methyl chloroform}\left(\frac{\text{lb}}{\text{day}}\right) = \left(3.86\ \frac{\text{lb VOC}}{\text{day}}\right) * \left(0.005\ \frac{\text{lb methyl chloroform}}{\text{lb VOC}}\right)$$

$$= 0.0386\ \frac{\text{lb methyl chloroform}}{\text{day}}$$

$$\text{Perchloroethylene}\left(\frac{\text{lb}}{\text{yr}}\right) = \left(966\ \frac{\text{lb VOC}}{\text{yr}}\right) * \left(0.005\ \frac{\text{lb perchloroethylene}}{\text{lb VOC}}\right)$$

$$= 0.0193\ \frac{\text{lb perchloroethylene}}{\text{yr}}$$

ENCLOSURE (2)

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CALCULATION SHEET

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SUBJECT _____ SHEET 2 OF 3 SHEETS

IV. ASSUMPTIONS

- Parts cleaners are operated 5 days/week, 50 weeks/year or 250 days/year.
- The liquid phase speciation profile for SK105 represents the VOC emission rate speciation profile.

V. TECHNICAL APPROACH

The data given in Section III are used to estimate the actual annual VOC and xylene emission rates using the equations below and as demonstrated in Calculation Number 4.

(1) $$\text{Actual annual VOC emissions (lb/yr)} = \text{Capacity (gal)} * \text{Specific gravity} * 8.33\left(\frac{\text{lb}}{\text{gal}}\right) * \text{Estimated losses}\left(\frac{\text{lb VOC}}{100\text{ lb fluid}}\right) * \text{Annual services}$$

(2) $$\text{Actual annual xylene emission (lb/yr)} = \text{Maximum annual VOC emissions (lb/yr)} * \text{xylene emission factor}\left(\frac{\text{lb xylene}}{\text{lb VOC}}\right)$$

ENCLOSURE (2)

RADIAN CORPORATION

CALCULATION SHEET

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PROJECT SOUTH DIV/MCAS Beaufort JOB NO. 652-009-02

SUBJECT Parts Cleaners SHEET 1 OF 3 SHEETS

I. PURPOSE

This calculation is an example of the approach for estimating emissions from parts cleaners. The general approach for estimating emissions from parts cleaners is given in Calculation Number 4 (attached).

This example calculation estimates the actual annual VOC and xylene emission rates for one 35 gallon parts cleaner located in the Armory Building 611 (Source ID: BEA-01-61.01-T11). The only criteria pollutant emitted from this source are VOC's. Estimating emissions of other toxic and hazardous air pollutants follow the same procedure as for xylene.

II. GIVEN INFORMATION

Solvent type = SK105
Part cleaner operates at room temperature.

III. DATA

Specific gravity = 0.80
Services per year = 9
Capacity = 35 gallons
Estimated losses = 30 lb VOC / 100 lb fluid
Wt. % xylene in SK105 = 1.00 %

xylene emission factor = 1.00 lb xylene / 100 lb VOC (see Section IV)

ENCLOSURE (2)

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

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PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET 3 OF 3 SHEETS

VI EXAMPLE

The actual annual VOC emission rate is calculated using the appropriate input data in Section III and equation 1:

$$\text{Actual annual VOC emissions (lb/yr)} = 35\,gal * 0.80 * 8.33\,\frac{lb}{gal} * \frac{30\,lb\,VOC}{100\,lb\,fluid} * \frac{9}{yr}$$

$$= \boxed{630\ \frac{lb\ VOC}{yr}}$$

The actual annual xylene emission rate is calculated using the appropriate data in Section III, the maximum daily VOC emissions (lb/day), and equation 2:

$$\text{Actual annual xylene emission (lb/yr)} = 630\,\frac{lb\ VOC}{} * 1.00\,\frac{lb\ xylene}{100\,lb\ VOC} = 6.30\,\frac{lb\ xylene}{day}$$

ENCLOSURE 12

21-3361

WELDING

There are four welding work stations at MCAS-Beaufort. Estimates of emissions from welding are based on the operation of the work stations daily as much as 8 hours per day.

Emissions of air pollutants from welding at the MCAS-Beaufort were calculated as discussed generally in Calculation No. 5 (attached). The following aspects of the calculations are specific to the MCAS-Beaufort.

- Maximum daily emissions were based on the maximum rod consumption rate per minute, assuming eight hours per day of operation, except for brazing which assumes one hour per day of operation. Estimates of actual annual emissions were based on the maximum rod consumption rate per minute and the average weekly or monthly hours of operation.

- Maximum daily and actual annual emissions for arc welding at the MALS Hangar (Building 594) were based on the pounds of rod consumed as obtained from interviews with site personnel. Maximum daily emissions for TIG welding assume a maximum daily consumption rate of 2 pounds per day. Average annual emissions for TIG welding are based on the maximum daily consumption rate and the average hours per month of operation.

- Maximum annual emission rates were estimated assuming welding occurs five days per week, 52 weeks per year.

- Potential to emit was estimated assuming welding occurs during three shifts per day, 365 days per year.

The maximum daily and average annual rod consumption rates were estimated as shown in the attached calculation.

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. 5

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SUBJECT Emissions from Welding Operations SHEET 1 OF 3 SHEETS

Welding is performed at various locations at military installations. Welding operations are usually conducted inside and emissions released to the work place, or some of the particulate matter (PM) generated may be captured and released out of doors. For simplicity, all emissions generated from welding operations are assumed to be released to the atmosphere. This ensures a conservative estimate.

Emissions are related to the amount of fume generated and the metals contained in the rods or wires used. (Emissions from flux use is assumed to be negligible and is not estimated.) Emissions are estimated using factors developed by the American Welding Society (AWS) and presented in an EPA guidance document for preparing Section 313 release reports under the Superfund Amendments and Reauthorization Act (SARA).[1] The emission factors are summarized for the common rod types in Table 1.

Emission factors are presented in this guidance document in terms of pounds of pollutants emitted per 1,000 pounds of rods consumed for different types and sizes of rods. Not all of a rod is used when welding; some scrap is left. For these calculations, an 80% use is assumed. (If more precise data are available, they should be substituted for the assumed 80% use. Use may be as low as 50-60%. The 80% use rate is assumed to yield a more conservative estimate of emissions.) If data are available to estimate emissions on a rod weight basis, these factors can be used directly. For example, the PM emissions for 100 rods/day use of 1/8" E6010 in an 8-hr day are estimated as follows:

Emissions Rate = (rod consumption) * (use fraction) * (emission factor)

$$\text{PM } \frac{\text{lb}}{\text{hr}} = \left(100 \frac{\text{rods}}{\text{day}}\right)\left(0.8 \frac{\text{lb used}}{\text{lb rod}}\right)\left(1.199 \frac{\text{lb PM}}{1{,}000 \text{ rods}}\right)\left(\frac{\text{day}}{8 \text{ hr}}\right)$$

$$= 0.012 \frac{\text{lb PM}}{\text{hr}}$$

Daily rod consumption is often unknown and is estimated from the annual rod use and assumptions for number of hours for welding annually. The usage rate may be based on data provided from operations personnel at the activity as to maximum potential welding during a short-term period. For example, a typical or average rod consumption rate is 32 rods daily, with a maximum expected consumption of 100 rods daily. To prepare emission estimates when data are not available, welding operations are assumed 5 days per week and 50 weeks

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[1] Section 313 Reporting: Clarification and Guidance for the Metal Fabrication Industry, Office of Toxic Substances, U.S. Environmental Protection Agency, January 1990.

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CALCULATION SHEET

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SUBJECT Emissions from Welding Operations _____ SHEET 2 OF 3 SHEETS

ENCLOSURE (2)

Table 1. Emission Factors for Welding Rod Use

Rod ID	Rod Diameter (in.)	Diameter (in.)	Rod Density (lb/ft³)	Weight Used (a) (lb/rod)	Emissions (lb/1000 lb)				Emissions (lb/1000 rod)			
					PM	Mn	Ni	Cr	PM	Mn	Ni	Cr
E6010	3/32	0.09375	490	0.0188	35.9	1.15			0.675	0.022		
	1/8	0.125	490	0.0334	35.9	1.15			1.199	0.038		
	5/32	0.15625	490	0.0522	35.9	1.15			1.874	0.060		
E6011 (b)	1/8	0.125	490	0.0334	35.9	1.15			1.199	0.038		
E6012 (b)	1/8	0.125	490	0.0334	35.9	1.15			1.199	0.038		
E7018	1/8	0.125	490	0.0334	21.1	0.9			0.705	0.030		
	5/32	0.15625	490	0.0522	21.1	0.9			1.101	0.047		
Nickel	1/8	0.125	540	0.0368	12.9	0.05	0.90		0.475	0.002	0.033	
308-16 (c)	1/8	0.125	490	0.0334	7.0	0.05	2.30	0.60	0.234	0.002	0.077	0.020
Steel (c)	1/16	0.0625	490	0.0084	7.0	0.05	2.30	0.60	0.058	0.000	0.019	0.005
	1/8	0.125	490	0.0334	7.0	0.05	2.30	0.60	0.234	0.002	0.077	0.020
	3/16	0.1875	490	0.0752	7.0	0.05	2.30	0.60	0.526	0.004	0.173	0.045
Brass (d)	1/16	0.0625	530	0.0090	8.1				0.0732			
	1/8	0.125	530	0.0361	8.1				0.293			
	3/16	0.1875	530	0.0813	8.1				0.659			
Aluminum	1/16	0.0625	165	0.0028	72.3				0.203			
	1/8	0.125	165	0.0112	72.3				0.813			
	3/64	0.046875	165	0.0016	72.3				0.114			
Braz. alloy	1/16	0.0625	530	0.0090	8.1				0.073			
Aluminum	0.035	0.035	165	0.0009	72.3				0.064			
	0.046	0.046	165	0.0015	72.3				0.110			

(a) Assuming a maximum of usage of 80% of the rod, 1 foot long rod, and densities of: (steel - 490 lb/ft³; nickel - 540 lb/ft³; brass - 530 lb/ft³; and aluminum - 530 lb/ft³ (Perry's 5th edition, Table 3-120).

(b) Assumed to be similar to highest emitting steel electrode (E6010).

(c) Assumed to be stainless steel (Haynes C-276, worst case).

(d) Brass emissions would be copper and zinc.

annually. For the potential to emit each pollutant, the emission calculation will be based on use of the rod that results in the worst-case emission of that pollutant.

Some rod consumption rates are listed in terms of rod count instead of weight of rods used. The published emission factors are converted to a rod count basis to facilitate emission estimates. The weight basis is adjusted based on the estimated weight of each rod, which is calculated using the rod diameter and length and the density of the rod material. The following calculation is used:

$$\text{Count-based EF} = (\text{weight-based EF}) * (\text{volume of rod}) * (\text{density of rod})$$

where the volume of the rod is calculated assuming the rod is a solid cylinder. The resulting set of count-based emission factors are shown in Table 1 with the weight-based emission factors.

The metal toxic air pollutant factors are taken directly from the AWS data. The exception is for chromium^{+6} which is assumed to be 1/279 of total chromium estimated using the AWS factors. This partitioning factor is used to estimate hexavalent chromium emissions from combustion processes.[2] Welding is assumed to be conducted under such conditions to make this assumption plausible.

[2] Memorandum from James Roller, North Carolina Department of Health and Natural Resources, to Donald Incheck, March 12, 1993.

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE 2-24-94 CHECKED _____ DATE _____

PROJECT SOUTHDIV/MCAS - Beaufort JOB NO. 652-009-02

SUBJECT Welding SHEET 1 OF 2 SHEETS

I. PURPOSE

This calculation is an example of the approach for estimating emissions from welding. The general approach for estimating emissions from welding is given in Calculation Number 5 (attached).

This calculation estimates the actual annual PM emission rate for ARC welding operations in the MALS Hangar, Building 594 (Source ID: BEA-01-594-2-511). Estimating emissions of other pollutants follows the same procedure.

II. GIVEN INFORMATION

Rod Type: E7018
Welding Type: ARC

III. DATA

Actual rod useage: 60 lb rod/yr
PM emission factor: 21.1 lb PM/1000 lb rod (Ref: Section 313 Reporting: Clarification and Guidance for the Metal Fabrication Industry, p. 14).

IV. ASSUMPTIONS

None.

ENCLOSURE (2)

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET 2 OF 2 SHEETS

V. TECHNICAL APPROACH

The data in Section III are used to estimate the actual annual PM emission rate using the equation below:

$$\text{Actual annual PM emissions (lb PM/yr)} = \text{Actual coal useage}\left(\frac{\text{lb coal}}{\text{yr}}\right) * \text{PM emission factor}\left(\frac{\text{lb PM}}{1000\ \text{lb coal}}\right)$$

VI. EXAMPLE

The actual annual PM emission rate is calculated using the data in Section III and the equation in Section V:

$$\text{Actual annual PM emissions (lb PM/yr)} = 60\ \frac{\text{lb coal}}{\text{yr}} * 21.1\ \frac{\text{lb PM}}{1000\ \text{lb coal}} = \boxed{1.27\ \frac{\text{lb PM}}{\text{yr}}}$$

ENCLOSURE (2)

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT SOUTHPIV-MCAS JOB NO. _____

SUBJECT Welding Rod Useage SHEET _____ OF _____ SHEETS

The purpose of these calculations are to estimate the daily maximum and annual average welding rod use in pounds per day and pounds per year respectively, based on information obtained from site interviews (max rods/min, avg. hrs/month, max % of weld type). All daily use rates assume 8 hrs/day.

I. Building 594

Welding occurs an average of 20 hrs/month. For the different welding rod IDs, estimate the average hours per month based on 20 hours multiplied by the maximum percent of welding time for a given rod.

A. Welding Type: TIG
Rod ID : 4043 (Aluminum)

Length: 36 in
Diameter: 0.0625 in
} 6.392×10^{-5} ft³/rod

Assume daily maximum consumption rate = 2 lb/day

Max hrs/day = 8 hrs/day

Avg hrs/month = 20 hrs/mo. * (40%) = 8 hrs/month

where 40% = percent of time spent using Rod ID 4043

Density = 165 lb/ft³

$$\frac{?\text{ lb avg}}{\text{yr}} = \frac{2\text{ lb}}{\text{day}} \cdot \frac{\text{day}}{8\text{ hrs}} \cdot \frac{8\text{ hrs}}{\text{month}} \cdot \frac{12\text{ months}}{\text{yr}} = \frac{24\text{ lbs}}{\text{yr}}$$

ENCLOSURE (2)

A1-3361

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET _____ OF _____ SHEETS

B. Welding Type: TIG
Rod ID : Stainless Steel

Length: 36 in
Diameter: 0.09375 in } 1.44×10^{-4} ft³/rod

Assume daily maximum consumption rate = 2 lb/day

Max hrs/day = 8 hrs/day

Avg hrs/month = 20 hrs/month * (100%)

where 100% = percent of time spent using Stainless steel rods

Density = 490 lb/ft³

$$\frac{?\ \text{lb avg}}{\text{yr}} = \frac{2\ \text{lb}}{\text{day}} \left| \frac{\text{day}}{8\ \text{hr}} \right| \frac{20\ \text{hrs}}{\text{month}} \left| \frac{12\ \text{months}}{\text{yr}} \right| = 60\ \text{lb/yr}$$

C. Welding Type: TIG
Rod ID: Haynes 25

Length: 36 in
Diameter: 0.0625 in } 6.392×10^{-5} ft³/rod

Assume daily maximum consumption rate = 2 lb/day

Max hrs/day = 8 hrs day

Avg hrs/month = 20 hrs/mo * (20%) = 4 hrs/month

where 20% = percent of time spent using Haynes 25 rods

Density = 490 lb/ft³

$$\frac{?\ \text{lb avg}}{\text{yr}} = \frac{2\ \text{lb}}{\text{day}} \left| \frac{\text{day}}{8\ \text{hr}} \right| \frac{4\ \text{hrs}}{\text{month}} \left| \frac{12\ \text{months}}{\text{yr}} \right| = \frac{12\ \text{lb}}{\text{yr}}$$

ENCLOSURE (2)

1-81-3361

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET _____ OF _____ SHEETS

II. Building 625

A. Welding Type: ARC
Rod ID : 6011

Length : 14 in
Diameter : 0.125 } 9.942×10^{-5} ft³/rod

Max rods/min : 0.2 rod/min

Max hrs/day = 8 hrs/day

indoor Avg hrs/wk = 30 hrs/wk * (80%) = 24 hrs/wk
outdoor Avg hrs/wk = 20 hrs/wk * (80%) = 16 hrs/wk
where 80% ≡ percent of time spent using rod 6011

Density = 490 lb/ft³

$$\frac{\text{lb max}}{\text{day}} = \frac{9.942\times10^{-5}\,\text{ft}^3}{\text{rod}} \left| \frac{490\,\text{lb}}{\text{ft}^3} \right| \frac{0.2\,\text{rods}}{\text{min}} \left| \frac{60\,\text{min}}{\text{hr}} \right| \frac{8\,\text{hrs}}{\text{day}} \Big| = 4.68\,\text{lb/day}$$

(Use for inside welding and outside welding)

outdoor welding

$$\frac{\text{lb avg}}{\text{yr}} = \frac{9.942\times10^{-5}\,\text{ft}^3}{\text{rod}} \left| \frac{490\,\text{lb}}{\text{ft}^3} \right| \frac{0.2\,\text{rods}}{\text{min}} \left| \frac{60\,\text{min}}{\text{hr}} \right| \frac{24\,\text{hrs}}{\text{wk}} \left| \frac{52\,\text{wks}}{\text{yr}} \right| = 729\,\text{lbs/yr}$$

indoor welding

$$\frac{\text{lb avg}}{\text{yr}} = 486\,\text{lb/yr}$$

ENCLOSURE (2)

491-3361

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET _____ OF _____ SHEETS

B. Welding Type: ARC
Rod ID: Aluminum

Length: 36 in
Diameter: 0.125 in } 2.56×10^{-4} ft³/rod

Max rods/min: 0.2 rod/min

Max hrs/day = 8 hrs/day

indoor Avg hrs/wk = 30 hrs/wk * (10%) = 3 hrs/wk

outdoor Avg hrs/wk = 20 hrs/wk * (10%) = 2 hrs/wk

where 10% = percent of time spent using aluminum rods

Density = 165 lb/ft³

$$\frac{\text{lb max}}{\text{day}} = \frac{2.56\times10^{-4}\ \text{ft}^3}{\text{rod}} \left| \frac{165\ \text{lb}}{\text{ft}^3} \right| \frac{0.2\ \text{rod}}{\text{min}} \left| \frac{60\ \text{min}}{\text{hr}} \right| \frac{8\ \text{hrs}}{\text{day}} \Bigg| = \frac{4.06\ \text{lbs}}{\text{day}}$$

outdoor welding

$$\frac{\text{lb avg}}{\text{yr}} = \frac{2.56\times10^{-4}\ \text{ft}^3}{\text{rod}} \left| \frac{165\ \text{lb}}{\text{ft}^3} \right| \frac{0.2\ \text{rod}}{\text{min}} \left| \frac{60\ \text{min}}{\text{hr}} \right| \frac{2\ \text{hrs}}{\text{day}} \left| \frac{52\ \text{wk}}{\text{yr}} \right| = \frac{52.32\ \text{lbs}}{\text{yr}}$$

indoor welding

$$\frac{\text{lb avg}}{\text{yr}} = \frac{79.07\ \text{lb}}{\text{yr}}$$

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET _____ OF _____ SHEETS

Building [illegible] Pigmented Epoxy Resin Component A

Compound	Wt%	Wt% of VOC	Density of Compound (lb/gal)	Density of Volatile Fraction (lb/gal)
Toluene	5	12.5	7.16	0.895
PGME*	25	62.5	7.51	4.694
Isobutyl Alcohol	10	25.0	6.558	1.640
	40	100.0		7.229

Building [illegible] Polyamide Resin Component B

Compound	Wt%	Wt% of VOC	Density of Compound (lb/gal)	Density of Volatile Fraction (lb/gal)
2-[illegible]	20	25.0	6.558	1.64
Toluene	15	18.8	7.16	1.35
Isobutanol	35	43.7	6.722	2.94
Methyl Ethyl Ketone	10	12.5	6.71	0.84
	80	100.0		6.77

Squadron Painting Polyurethane Part A

Compound	Wt%	Wt% VOC	Density of Compound (lb/gal)	Density of Volatile Fraction (lb/gal)
n-Butyl Acetate	5	11.3	7.35	0.831
Ethyl 3-Ethoxypropionate	5	11.3	7.92	0.895
Mineral Spirits**	1	2.3	6.28	0.144
Xylene	1	2.3	7.244	0.167
Ethyl Benzene	1	2.3	7.21	0.1661
Methyl Ethyl Ketone	5	11.3	6.71	0.758
2,4-Pentanedione	5	11.3	8.1	0.915
Toluene	1	2.3	7.16	0.165
Methyl Isobutyl Ketone	20	45.4	6.68	3.033
Dibutyltin Dilaurate	0.1	0.2	8.84	0.0177
	44.1	100.0		7.092

** Assume density equal to VM&P naphtha.

ENCLOSURE (2 [illegible]

[illegible]-3361

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET _____ OF _____ SHEETS

Solution Painting Polyurethane Part B

Compound	Wt%	VOC Wt%	Density of Compound (lb/gal)	Density of Volatile Fraction (lb/gal)
CS [illegible] = Aromatic [illegible]*	5	16.67	6.28	1.05
n-Butyl Acetate	5	16.67	7.35	1.23
[illegible]	20	66.67	7.92	5.28
	30	100		7.56

Solution Painting Epoxy Resin Component A

Compound	Wt%	VOC Wt%	Density of Compound (lb/gal)	Density of Volatile Fraction (lb/gal)
Toluene	5	12.5	7.16	0.895
PGME**	25	62.5	7.51	4.694
2-Propanol	10	25.0	6.558	1.640
	40	100.0		7.229

Iguadron Painting Epoxy Resin Component B

Compound	Wt%	VOC Wt%	Density of Compound (lb/gal)	Density of Volatile Fraction (lb/gal)
2-Propanol	20	26.7	6.558	1.751
Toluene	15	20.0	7.16	1.432
Isobutyl Alcohol	30	40.0	6.722	2.689
Methyl Ethyl Ketone	10	13.3	6.71	0.892
	75	100.0		6.764

ENCLOSURE (2)

** Assume density equal to ethylene glycol monobutyl ether.

* Assume density equal to VM&P Naphthas

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RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET _____ OF _____ SHEETS

Building [illegible]

Lacquer Thinner Type III

Given volume percents. Need to convert to weight percents.

Given that S.G. < 1; assume S.G. = 1

Compound	Vol %	Density (lb/gal)	Mass of VOC (assume 100 gal total)	Wt %
Acetone	20	6.67	1.33	15.9
Toluene	20	7.16	1.43	17.1
EGMBE	5	7.51	0.38	4.6
Methanol	5	6.59	0.33	4.0
Aliphatic HC	60	x	0.6x	58.4
	110		8.34	100.0

$0.6x + 3.47 = 8.34$

$8.34 - 3.47 = 0.6x$

$x = 8.12$ $\therefore 0.6x = 4.87$

$x = 8.12$ lb/gal

ENCLOSURE (2)

4-R1-3361

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET _____ OF _____ SHEETS

Building 1040 Spray Paint Lacquer (Aerosol)

Compound	Wt%	Wt% of VOC	Density of Compound (lb/gal)	Density of Volatile Component
V.M&P Naphtha	1	1.27	6.28	0.080
Toluene	25	31.6	7.16	2.26
Acetone	20	25.3	6.64	1.68
Propane	19	24.1	4.166	1.00
Isobutane	4	5.06	4.629	0.234
n-Butane	7	8.86	4.854	0.430
Xylene	2	2.53	7.244	0.183
Aromatic 150	1	1.27	6.28	0.080
	79	100.0		5.95

Building 1040 Ameron Clear Lacquer

Compound	Wt%	Wt% of VOC	Density of Compound (lb/gal)	Density of Volatile Component
Cyclohexanone	8	14.5	7.91	1.15
Methyl Ethyl Ketone	8	14.5	6.71	0.97
Naphtha	8	14.5	6.28	0.91
Isobutyl Acetate	15	27.3	7.23	1.97
n-Butyl Acetate	16	29.1	7.35	2.14
	55	100		7.14

APPENDIX (-2)

91.3301

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. 8

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT DoD JOB NO. _____

SUBJECT Emissions from Firefighting Training Pits SHEET 1 OF 2 SHEETS

Fuels such as diesel oil, kerosene, or jet petroleum are dispensed into a fire pit and ignited for training personnel in fighting fires. While typically used infrequently, training pits can be sources of criteria pollutants (such as particulate matter, carbon monoxide, and nitrogen oxides) and toxic and hazardous air pollutants from the constituents in the fuel used (such as ethyl benzene, toluene, and xylene). Use of firefighting training pits varies in frequency. Therefore emissions must be estimated for potential to emit (from maximum potential use) and actual use based on fuel consumption.

Emissions from combustion of fuels in open burning are related to the amount of fuel burned. The emission factors are the same for jet fuel, distillate oil (diesel oil), and kerosene.[1] The only criteria pollutant listed is volatile organic compounds (VOC) with an emission factor of 0.4 lb/1000 gal of fuel burned. The emission rate of VOC is calculated by applying the emission factor to the fuel consumption rate. For exarnple, for 100 gallons of JP-5 burned in a 15-min period, the VOC emissions would be:

$$\text{VOC}\left(\frac{\text{lb}}{15\text{ min}}\right) = \left(0.4\ \frac{\text{lb}}{1{,}000\text{ gal}}\right)\left(100\ \frac{\text{gal}}{15\text{ min}}\right) = 0.04\ \frac{\text{lb VOC}}{15\text{ min}}$$

The VOC emissions are assumed to directly relate to the mass fractions of individual constituents in the liquid phase (in the fuel). Therefore, the individual constituent emission rates are determined by applying the liquid phase mass fractions of the compounds of interest to the estimated VOC emission rate. It is assumed that all the fuel is vaporized and consumed in the combustion process (i.e., one lb fuel = one lb VOC). The example above is continued for the toxic air pollutant species in JP-5 (0.01 wt% ethylbenzene, 0.01 wt% toluene, 0.06 wt% xylene):

$$\text{Ethylbenzene}\left(\frac{\text{lb}}{15\text{ min}}\right) = \left(0.04\ \frac{\text{lb VOC}}{15\text{ min}}\right)\left(0.0001\ \frac{\text{lb ethylbenzene}}{\text{lb fuel}}\right)\left(\frac{\text{lb fuel}}{\text{lb VOC}}\right)$$

$$= 4.0\text{E}{-6}\ \frac{\text{lb ethylbenzene}}{15\text{ min}}$$

---

[1] Emission factors are tabulated in AIRS Facility Subsystem Source Classification Codes (SCCs) and Emission Factors Listing for Criteria Air Pollutants [EPA-450/4-90-003, March 1990] for SCCs 5-01-006-01, -02, and -03.

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. 8

SIGNATURE_____ DATE_____ CHECKED_____ DATE_____

PROJECT DoD JOB NO._____

SUBJECT Emissions from Firefighting Training Pits SHEET 2 OF 2 SHEETS

$$\text{Xylene}\left(\frac{\text{lb}}{15\text{ min}}\right) = \left(0.04\ \frac{\text{lb VOC}}{15\text{ min}}\right)\left(0.006\ \frac{\text{lb xylene}}{\text{lb fuel}}\right)\left(\frac{\text{lb fuel}}{\text{lb VOC}}\right)$$

$$= 2.4\text{E-}4\ \frac{\text{lb xylene}}{15\text{ min}}$$

$$\text{Toluene}\left(\frac{\text{lb}}{15\text{ min}}\right) = \left(0.04\ \frac{\text{lb VOC}}{15\text{ min}}\right)\left(0.001\ \frac{\text{lb toluene}}{\text{lb VOC}}\right)$$

$$= 4.0\text{E-}5\ \frac{\text{lb toluene}}{15\text{ min}}$$

Calculations of potential to emit use the maximum potential fuel consumption allowed by existing state regulations or permits or by the amount expected to be used in any of the averaging periods against which rates must be compared. Actual emissions are based on actual fuel consumption when data are available.

ENCLOSURE (2)

FIREFIGHTING TRAINING

Emissions of air pollutants from the firefighting training pit at the MCAS-Beaufort were calculated as described generally in Calculation No. 8 (attached). The following aspects of the calculations are specific to the MCAS-Beaufort.

- All fuel used was assumed to be consumed in the firefighting training exercises.
- Training is conducted once per week, approximately 42 weeks annually with no more than one training session conducted on any single day. Approximately eight additional sessions are held annually for various other local and state fire departments.
- A training session consists of an average of four fires and a maximum of six fires. Typical fuel consumption is 100 gallons for the first fire, with 50 gallons used in each subsequent fire. Infrequently, 150 gallons may be used in each fire to simulate a large crash.
- The assumption of maximum daily fuel consumption is based on one six-fire exercise and the consumption of 150 gallons of fuel per fire--or a total fuel consumption of 900 gallons per day.
- The assumption of maximum annual fuel consumption is based on maximum daily fuel consumption rate of 900 gallons per day, one daily exercise per week, 52 weeks per year--or an annual consumption of 46,800 gallons of fuel.
- Average fuel consumption is estimated assuming 50 four-fire exercises annually and the consumption of 250 gallons per exercise--or a total fuel consumption of 12,500 gallons per year.
- The potential to emit assumes maximum daily emissions for 365 days per year.

Pollutant	Emissions from Firefighting Training			
	Actual Annual (lb/yr)	Maximum Daily (lb/day)	Maximum Annual (lb/yr)	Potential to Emit (lb/yr)
VOC	5	0.36	18.7	131
Ethylbenzene	5×10^{-4}	3.6×10^{-5}	1.9×10^{-3}	1.31×10^{-2}
Toluene	5×10^{-4}	3.6×10^{-5}	1.9×10^{-3}	1.31×10^{-2}
Xylene	3×10^{-3}	2.2×10^{-4}	1.1×10^{-2}	7.9×10^{-2}

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE 2-24-94 CHECKED _____ DATE _____

PROJECT SOUTHDIV/MCAS-Beaufort JOB NO. 152-009-02

SUBJECT Firefighting Training Pit SHEET 1 OF 3 SHEETS

I PURPOSE

This calculation is an example of the approach for estimating emissions from the firefighting training pit. The general approach for estimating emissions from firefighter training is given in Calculation Number 8 (attached).

This example calculation estimates the maximum annual VOC and xylene emission rates for the firefighting training pit (Source ID: BEA-01-1006-1-07). The only criteria pollutant emitted from this source are VOC's. Estimating emissions of other toxic and hazardous air pollutants follows the same procedure as for xylene.

II. GIVEN INFORMATION

- Fuel used = JP-5

III. DATA

The following data are required to estimate the maximum annual VOC and xylene emission rates for the firefighter training pit (Source ID: BEA-01-1006-1-07):

Maximum annual fuel consumption: 46,800 gallons/yr
VOC emission factor = 0.4 lb VOC / 1000 gallons (Ref: NAPAP, p.M5)
[Wt % xylene in fuel = 0.6 lb xylene / 100 lb fuel =
Xylene emission factor = 0.6 lb xylene / 100 lb VOC (see Section IV)]

ENCLOSURE (2)

91-3361

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET 2 OF 3 SHEETS

IV. ASSUMPTIONS

- All fuel used in the firefighting training pit is combusted or evaporated.
- The liquid phase fuel speciation profile represents the VOC emission rate speciation profile.

V. TECHNICAL APPROACH

The data given in Section III are used to estimate the maximum annual VOC and xylene emission rates using the equations below and as demonstrated in Calculation No. 8:

$$\text{Maximum annual VOC emissions (lb/yr)} = \text{VOC emission factor}\left(\frac{\text{lb VOC}}{1000\ \text{gal}}\right) * \text{Actual annual fuel consumption}\left(\frac{\text{gal}}{\text{yr}}\right) \quad (1)$$

$$\text{Maximum annual xylene emissions (lb/yr)} = \text{Maximum annual VOC emissions (lb/yr)}\left(\frac{\text{lb VOC}}{\text{yr}}\right) * \text{Xylene emission factor}\left(\frac{\text{lb xylene}}{\text{lb VOC}}\right) \quad (2)$$

ENCLOSURE (2)

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET 3 OF 3 SHEETS

VI. EXAMPLE

The maximum annual VOC emission rate is calculated using the input data in Section III and equation (1) in Section V:

$$\text{Maximum VOC emissions (lb/yr)} = 0.4 \frac{\text{lb VOC}}{1000\text{ gal}} * 46{,}800 \frac{\text{gal}}{\text{yr}} = \boxed{18.72 \frac{\text{lb VOC}}{\text{yr}}}$$

The maximum annual xylene emission rate is calculated using the input data in Section III and equation (2) in Section V:

$$\text{Maximum xylene emissions (lb/yr)} = 18.72 \frac{\text{lb VOC}}{\text{yr}} * 0.6 \frac{\text{lb xylene}}{100\text{ lb VOC}}$$

$$= \boxed{0.112 \frac{\text{lb xylene}}{\text{yr}}}$$

ENCLOSURE (2)

4-81-3361

WASTEWATER TREATMENT

Emissions of air pollutants resulting from wastewater treatment at the MCAS-Beaufort were calculated as described generally in Calculation No. 9 (attached). Because there are no available organic compound concentration data currently available for MCAS-Beaufort, constituent concentrations of the wastewater from Camp Lejeune Marine Corps Base were assumed representative of MCAS-Beaufort wastewater concentrations and were used in this calculation.

The following concentration data were used:

Compound	Maximum Concentration ($\mu g/L$)[1]
Methylene chloride	4
1,4-Dichlorobenzene	4
Chloroform	4
Tetrachloroethylene	10
Trichloroethylene	1
Toluene	3
Xylene	5

[1] Baker Environmental, Inc. Supplemental Document to the Interim Remedial Action Focused Feasibility Study for the Shallow Aquifer at the Hadnot Point Industrial Area Operable Unit, Marine Corps Base, Camp Lejeune, North Carolina. Contract Task Order 0017. April 16, 1992.

- Maximum daily and maximum annual emissions were estimated using the permit discharge rate of 750,000 gal/day.
- Actual annual emissions were estimated using the actual discharge rate of approximately 450,000 gal/day.
- Potential to emit was calculated using the design capacity of 1,000,000 gal/day.

The following example presents the estimation of maximum annual methylene chloride emissions from the MCAS-Beaufort wastewater treatment plant. The results of all the wastewater treatment emission calculations are presented in the following table.

$$\text{Maximum annual emissions}\left(\frac{lb}{yr}\right) = \left(4\ \frac{\mu g}{L}\right) * \left(10^{-6}\ \frac{g}{\mu g}\right) * \left(\frac{lb}{453.6\ g}\right) * \left(3.785\right.$$

$$\left. * \left(750{,}000\ \frac{gal}{day}\right) * \left(365\ \frac{days}{yr}\right) = 9.14\ \frac{lb}{yr}\right.$$

Emissions from Wastewater Treatment

Compound	Maximum Daily Emissions (lb/day)	Maximum Annual Emissions (lb/yr)	Average Annual Emissions (lb/yr)	Potential to Emit (lb/yr)
Methylene chloride	0.0250	9.14	5.48	12.18
1,4-Dichlorobenzene	0.0250	9.14	5.48	12.18
Chloroform	0.0250	9.14	5.48	12.18
Tetrachloroethylene	0.0626	22.84	13.71	30.46
Trichloroethylene	0.00626	2.28	1.37	3.05
Toluene	0.0188	6.85	4.11	9.14
Xylene	0.0313	11.42	6.85	15.23
Total VOC[1]	0.1690	61.67	37.00	82.24

[1] Does not include methylene chloride, which is excluded from the EPA's definition of VOC.

ENCLOSURE (22

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. 9

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PROJECT DoD JOB NO._____

SUBJECT Emissions from Wastewater Treatment Facilities SHEET 1 OF 2 SHEETS

Military facilities generate municipal and industrial wastewater that is either treated on-site in treatment facilities or transferred off-site to local publicly owned treatment works (POTWs) for treatment. Emissions result from on-site treatment facilities from processing of wastewater. Wastewater evolves volatile organic constituents through handling in trenches or ditches, from stagnant equalization ponds, and from aeration basins. The emissions from these facilities are estimated using different approaches based on the amount and quality of the data available.

Estimation Approach

The approach to estimate emissions from wastewater uses the data available and yields conservative results. Concentration data for specific volatile species in the influent, as available, are used with the maximum (or expected) wastewater flow rate to estimate the total pollutant loading to the treatment system. All of the volatile species are assumed to be emitted from the treatment system, taking no credit for the amount that is biologically degraded or the amount that is discharged to the receiving body. This approach is useful for estimating emissions for conservative analyses, where there is little data, or when the contribution to total emissions by the treatment system is minor.

Calculation of Potential to Emit

The potential to emit pollutants (criteria, toxic, and hazardous air pollutants) is evaluated for assessing compliance with state toxic air pollutant regulations and assessing the need for permitting under Title V of the Clean Air Act. Therefore, calculations are made for the maximum potential to emit for short-term periods (hourly and daily) and for longer terms (annual). The maximum concentration and the maximum design (or recorded) flow rate through the treatment system is used to estimate the emission rates of the pollutants of interest. In its simplest form, the emission rate is merely the product of the wastewater flow rate and the pollutant concentration, adjusted for the averaging period of interest.

Concentration data are generally reported in μg/L for individual pollutants, and design flow rates are generally provided in million gallons per day (MGD). The pollutant emission rate is therefore calculated using these data. The following example is for chloroform (4 μg/L) emissions from a 4.575 MGD facility:

$$\text{Potential emissions}\left(\frac{\text{lb}}{\text{day}}\right) = \left(4\ \frac{\mu\text{g}}{\text{L}}\right)\left(10^{-6}\ \frac{\text{g}}{\mu\text{g}}\right)\left(\frac{\text{lb}}{453.6\ \text{g}}\right)\left(3.785\ \frac{\text{L}}{\text{gal}}\right)\left(4{,}575{,}000\ \frac{\text{gal}}{\text{day}}\right)$$

$$= 0.153\ \frac{\text{lb}}{\text{day}}$$

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SUBJECT Emissions from Wastewater Treatment Facilities SHEET 2 OF 2 SHEETS

Calculation of Actual Emissions

Actual emissions are estimated using the same approach used to estimate maximum potential to emit. The flow rate is the actual annual average flow rate measured (recorded) for the treatment system, if available. The concentration data used for estimating actual emissions are the actual average concentrations, by pollutant, measured throughout the year. This is the most accurate approach that can be used, but is rarely feasible because data are normally of insufficient quality to allow such a calculation.

ENCLOSURE (2)

JET ENGINE TEST CELLS AND STANDS

Emissions of air pollutants from jet engine test cells and stands at MCAS-Beaufort were calculated as described in Calculation No. 10 (attached). The following aspects of the calculations are specific to MCAS-Beaufort.

MCAS-Beaufort Jet Engine Test Areas

Source ID	Building No.	Design ID	Status	Indoor/ Outdoor	Engines Tested
BEA-1-1097-2-S8	1097	T-23	In use	Outdoor	F404-GE-400
BEA-1-603-1-S8	603/604	T-6	Shut down	Indoor	F404-GE-400
BEA-1-966-2-P8	966	T-14	Shut down	Outdoor	F404-GE-400
BEA-1-418-8-S9	[a]	T-26	In use	Outdoor	GTC36-200 (APU)

[a] No building number assigned. Test stand is located in a portable van approximately 150 feet south of Building 418 (maintenance hangar).

- Emission factors for the GTC36-200 APU were not available. Emissions for this engine were estimated using emission factors for a GTC85-72 APU. Both engines are rated at 200 horse-power.
- All emission estimates were based on the maximum hourly emission rate for each pollutant.
- Maximum daily emissions were estimated assuming the testing of three engines per day, and 2.5 hours per test.
- Maximum annual emissions were estimated assuming the testing of three engines per day, 365 days per year, and 2.5 hours per test.
- Actual annual emissions were estimated assuming the testing of five engines per week, 52 weeks per year, and 1.25 hours per test.
- Potential to emit was estimated assuming the operation of an engine in each test stand and cell for 8,760 hours per year.

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CALCULATION SHEET

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PROJECT DoD JOB NO. 652-009-02

SUBJECT Emissions from Jet Engine Test Cells SHEET 1 OF 4 SHEETS

Jet engines and auxiliary power units (APUs) are routinely removed from aircraft for maintenance. Before these power units can be reinstalled on the aircraft, they must be tested through a series of power cycles to ensure that the engine is functioning properly. Engines are fixed on a carriage and fired through an established series of power or speed settings. Adjustments to the engine can be made and the engine retested while on the test stand. While the engine is in a fixed position, it is considered a stationary source and emissions generated during test firing must be included in the emissions inventory.

At some locations, several different jet engine designs are maintained. For these cases, all available emission data for the engine designs are evaluated. The maximum emission rate of any single pollutant for all possible engines is selected for each power level (i.e., afterburn, intermediate run power, flight idle, and ground idle). In this way, an emission profile is developed for jet engines representing only maximum emission potential. This "maximum emission engine" profile is then used to calculate actual, maximum, and potential to emit.

Criteria pollutant emission factors for a number of commercial and military aircraft engines are available in Volume IV (Mobile Sources) of the U.S. Environmental Protection Agency's (EPA's) Procedures for Emission Inventory Preparation (EPA-450/4-81-026d [Rev.]). These emission factors are presented in terms of pounds per 1,000 pounds of fuel and can be converted to pounds per hour at the reported power levels using the fuel flow rates reported in the Procedures.

For example, the hydrocarbon (HC) emissions from the F404-GE-400 engine during climbout is calculated as follows:

$$\text{HC emissions}\left(\frac{\text{lb}}{\text{hr}}\right) = \left(134.7\ \frac{\text{lb}}{\text{min}}\right)\left(60\ \frac{\text{min}}{\text{hr}}\right)\left(\frac{0.15\ \text{lb}}{1{,}000\ \text{lb fuel}}\right)$$

$$= 1.21\ \frac{\text{lb}}{\text{hr}}$$

Estimates of potential emissions are made using the maximum hourly emission rate for each pollutant when comparing the emission rates for the different power levels. Potential to emit is calculated assuming that emissions are generated at the maximum hourly emission rate for 8,760 hr/yr. Continuing the example of HC emissions from the F404-GE-400 engine, the maximum hourly rate is selected as the basis of calculating potential emissions, 48.8 lb/hr at 76% power (Table 1):

Table 1

Hourly Emission Rates for Engine F404-GE-400

Power Setting	Emissions (lb/hr)					
	HC	CO	NO_x	SO_2	VOC*	PM
A/B Max	3.12	21.30	189.69	15.33	3.45	
IRP	1.21	21.34	39.60	4.36	1.34	22.71
76%	48.80	200.88	20.15	3.53	53.90	39.90
Ground Idle	36.30	85.70	0.72	0.34	40.10	7.73
Maximum hourly rate	48.80	200.88	189.69	15.33	53.90	39.90

* VOC emissions are 1.1046 * total hydrocarbon emissions (Procedures for Emission Inventory Preparation, Vol. IV, p. 198).

$$\text{Potential HC emissions (tpy)} = \left(48.8\ \frac{\text{lb}}{\text{hr}}\right)\left(8{,}760\ \frac{\text{hr}}{\text{yr}}\right)\left(\frac{\text{ton}}{2{,}000\ \text{lb}}\right) = 213.7\ \text{tpy}$$

Because potential to emit calculated in this way reflects operating conditions way beyond what would be expected, a maximum emission rate is calculated using the maximum hourly emission rate and the total number of hours per day that the engine would be operated. This total number of hours is calculated using the maximum expected duration of any test run and the maximum number of runs expected in any 24-hr period. Such a calculation would yield reasonable maximum daily emission rates. The annual emission rates based on this daily maximum would be determined by using the worst-case operating schedule (e.g., 250 days or 365 days) for the test cell.

For the F404-GE-400 engine, the maximum cycle time is 2.5 hours and three daily cycles are expected, or a total of 7.5 hours of daily operation. The maximum annual emission rate is calculated using the maximum hourly rate and the total daily operating hours:

$$\text{Maximum HC emissions (tpy)} = \left(48.8\ \frac{\text{lb}}{\text{hr}}\right)\left(7.5\ \frac{\text{hr}}{\text{day}}\right)\left(365\ \frac{\text{day}}{\text{yr}}\right)\left(\frac{\text{ton}}{2{,}000\ \text{lb}}\right) = 66.8\ \text{tpy}$$

The actual annual emissions to be reported for test cell operation are estimated using the hourly maximum emission rate and the total number of hours that this cell was operated during the calendar year. This result will be higher than real actual emissions, but not overly conservative because engines are tested primarily in intermediate run power (IRP) and afterburn (maximum thrust) modes and the emission rates associated with these operation modes represent the higher emission rates.

Emissions of toxic air pollutants are estimated by applying a speciation profile for organic compounds to the VOC emissions estimated for the test cell. Data on combustion of JP-5 fuel in a T-39 jet engine were used to calculate speciation fractions of the individual compounds in total VOC. No data were readily available for JP-5 for many specific engine types; therefore, data for JP-5 and a T-39 engine were used to develop this speciation profile which will be applied to all engine types and jet petroleum fuels (Table 2). No data on the presence or absence of toxic metals in the exhaust from jet engine operation were available in the open literature.

Table 2

Speciation Profile* for VOC Emissions from Jet Engine Test Cells

Toxic Air Pollutant	Fraction of VOC
Acetylene	0.1206
1,3-Butadiene	0.0286
N-Pentane	0.0021
Heptane	0.0006
Octane	0.0022
Xylenes	0.0042
Benzene	0.0177
Toluene	0.0054
Ethylbenzene	0.0016
Styrene	0.0021
Phenol	0.0014
Naphthalene	0.0027

* From SPECIATE. Fractions are for a TF-39 engine burning JP-5 across all power levels.

ENCLOSURE (2D)

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CALCULATION SHEET

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PROJECT SOUTDIV/MCAS-Beaufort JOB NO. 657-009-02

SUBJECT Jet Test Stands and Cells SHEET 1 OF 4 SHEETS

I PURPOSE

This calculation is an example of the approach for estimating emissions from jet test stands and cells. The general approach for estimating emissions from jet test stands and cells is given in Calculation Number 10 (attached).

This calculation estimates the daily maximum VOC and benzene emission rates for jet test stand Facility No. 1097 (Source ID: BEA-01-1097-2-S8). Estimating emissions of other criteria pollutants from jet test cells and stands follows the same procedure as for VOC. Estimating emissions of other toxic air pollutants follows the same procedure as for Benzene.

II GIVEN INFORMATION

Engine type: F404-GE-400
Fuel: JP-5

III. DATA

The following data are required to estimate the daily maximum VOC and benzene emission rates from jet test stand Facility No. 1097:

- No. of engines tested per day = 3 engines/day
- Maximum cycle time = 2.5 hours
- Benzene emission factor = 0.0173 lb benzene/lb VOC (Ref: SPECIATE)

The following table summarizes the fuel consumption rates and hydrocarbon (HC) emission rates for the F404-GE-400 (engine) (Ref: Mobile Sources, p. 183)

Mode	Fuel Flow (lb/min)	HC* Emission Rate (lb/1000 lb fuel)
Takeoff	473.28	0.13
Climbout	134.71	0.31
Approach	109.02	0.35
Idle	10.40	58.18

ENCLOSURE (2)

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SUBJECT _____ SHEET 3 OF 4 SHEETS

IV. ASSUMPTIONS

- The worst-case VOC emission rate of 189.7 lb VOC/hr/engine is assumed to apply for the entire cycle time.
- The benzene emission factor for a TF-39 engine burning JP-5 across all power levels is assumed to apply to the F404 GE-400 engine

V. TECHNICAL APPROACH

The HC emission factors are converted to units of lb/hr/engine using the equation on page 1 of Calculation Number 10 (attached)

$$\text{HC emissions (lb/hr/engine)} = \text{HC emission rate}\left(\frac{\text{lb HC}}{1000\ \text{lb fuel}}\right) * \text{Fuel Flow}\left(\frac{\text{lb}}{\text{min}}\right) * \frac{60\ \text{min}}{\text{hr}} \quad (1)$$

The HC emission factor is then converted to a VOC emission factor using the following equation:

$$\text{VOC emissions (lb/hr/engine)} = \text{HC emissions (lb/hr/engine)} * 1.1046 \quad (2)$$

(Ref: Mobile Sources, p. 198, equation 5-15)

The daily maximum VOC emission rate is calculated using the following equation:

$$\text{Daily maximum VOC emission rate}\left(\frac{\text{lb}}{\text{day}}\right) = \text{VOC emissions}\left(\frac{\text{lb}}{\text{hr engine}}\right) * \text{No. of engines tested per day}\left(\frac{\text{engines}}{\text{day}}\right) * \text{Max. cycle time (hrs)} \quad (3)$$

ENCLOSURE (2)

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

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SUBJECT _____ SHEET 3 OF 4 SHEETS

The daily maximum benzene emission rate is calculated using the following equation:

$$\text{Daily maximum benzene emission rate}\left(\frac{lb}{hr}\right) = \text{Daily maximum VOC emission rate}\left(\frac{lb}{hr}\right) * \text{Benzene emission factor}\left(\frac{lb\ benzene}{lb\ VOC}\right) \quad (4)$$

VI CALCULATION

1. The HC emission rates in Section III are converted using equation 1. The following example is for the takeoff mode:

$$\text{HC emission (lb/hr/engine)} = 0.13\ \frac{lb\ HC}{1000\ lb\ fuel} * 473.28\ \frac{lb\ fuel}{min} * \frac{60\ min}{hr} = 3.69\ \frac{lb\ HC}{hr \cdot engine}$$

2. The remaining HC factors are converted as shown in the above example. The results are summarized below:

Mode	HC Emission rate (lb/hr/engine)
Takeoff	3.69
Climbout	2.51
Approach	2.29
Idle	36.30

The maximum HC emission rate is 36.30 lb/hr/engine, and will be used as the basis for the remaining calculations.

3. The VOC emission rate is calculated using equation 2:

$$\text{VOC emissions (lb/hr/engine)} = 36.30\ \frac{lb}{hr \cdot engine} * 1.1041 = 40.10\ \frac{lb}{hr \cdot engine}$$

ENCLOSURE (2)

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SUBJECT _____ SHEET 4 OF 4 SHEETS

4. The daily maximum VOC emission rate is calculated using equation 3:

$$\text{Daily maximum VOC emission rate} \left(\frac{lb}{day}\right) = 40.10 \frac{lb}{hr \cdot engine} * 3 \frac{engines}{day} * 2.5 \text{ hours} = \boxed{301 \frac{lb\ VOC}{day}}$$

✓ ✓

5. The daily maximum benzene emission rate is calculated using equation 4:

$$\text{Daily maximum benzene emission rate} \left(\frac{lb}{day}\right) = 301 \frac{lb\ VOC}{day} * 0.0177 \frac{lb\ benzene}{lb\ VOC} = \boxed{5.33 \frac{lb\ benzene}{day}}$$

ENCLOSURE (2D)

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AUXILIARY POWER GENERATORS

Emissions from generators at the MCAS-Beaufort were calculated as described generally in Calculation No. 11 (attached). The following aspects of the calculations are specific to the MCAS-Beaufort.

- Maximum daily emissions were estimated based on 24 hours of operation per day and on the maximum firing rate of the generators.
- Maximum annual emissions and potential to emit were based on 8,760 hours of operation per year.
- The toxic air pollutant speciation for emissions from gasoline combustion was assumed to be the same as diesel fuel.
- Actual emissions were based on actual hours of operation.

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. 11

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PROJECT DoD JOB NO._____

SUBJECT Generators SHEET 1 OF 3 SHEETS

Generators are used to provide emergency power during power shutdowns, or auxiliary power during periods of peak power demand. Generators may fire a variety of fuels, including No. 6 fuel oil (residual oil), No. 2 fuel oil (distillate oil/diesel fuel), natural gas, or gasoline.

Emissions can be estimated based on the fuel fired, the power rating of the generator, and the hours of operation.

Table 1 summarizes the emission factors for criteria and toxic air pollutants for generators.[1]

Actual emissions should be based on the actual hours of operation, when available.

Maximum daily and maximum annual emission rates, and potential should be based on estimated possible maximum and potential usage. This could even be as much as 24 hours of daily operation, 365 days per year.

Example: Estimate formaldehyde emissions for a generator.

Generator power rating:	250 kW
Fuel:	Diesel
Actual hours of operation:	200 hours/yr
Emission factor:	3.36×10^{-4} g/kW-hr

Actual annual emissions:

$$3.36 \times 10^{-4} \frac{g}{kW\text{-}hr} \left| \frac{lb}{453.4\ g} \right| 250\ kW \left| \frac{200\ hr}{yr} \right| = 3.71 \times 10^{-2} \frac{lb}{yr}$$

Maximum daily emissions (assuming 24 hours operation):

$$3.36 \times 10^{-4} \frac{g}{kW\text{-}hr} \left| \frac{lb}{453.4\ g} \right| 250\ kW \left| \frac{24\ hr}{day} \right| = 4.45 \times 10^{-3} \frac{lb}{day}$$

ENCLOSURE (2)

RADIAN CORPORATION

CALCULATION SHEET

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PROJECT DoD JOB NO._____ CALC. NO. 11

SUBJECT Generators SHEET 2 OF 3 SHEETS

Table 1

Emission Factors for Emergency Generators (g/kW-hr)[a]

Generator Size and Fuel	Benzene[b]	Toluene[b]	Xylene[b]	Propylene	1,3-Butadiene[b]	Formaldehyde[b]	Acetaldehyde[b]	Acrolein[b]	Naphthalene[b]	Fluorene
< 447 Diesel	3.97E-03	1.74E-03	1.21E-03	1.10E-02	1.66E-04	5.02E-03	3.27E-03	3.94E-04	3.61E-04	1.24E-04
< 447 Gasoline[c]	3.97E-03	1.74E-03	1.21E-03	1.10E-02	1.66E-04	5.02E-03	3.27E-03	3.94E-04	3.61E-04	1.24E-04
447 + Diesel	3.30E-03	1.20E-03	8.22E-04	1.19E-02		3.36E-04	1.07E-04	3.36E-05	5.54E-04	5.45E-05
Four-cycle, Lean-burn Reciprocating[d] Natural Gas	2.20E-03	2.20E-03	3.30E-03			1.78E+00				

Generator Size and Fuel	Chrysene	Benzo(b) fluoranthene	Benzo(a) pyrene	Ethyl benzene[b]	POM[b]	NO_x	CO	SO_2	PM	PM10	VOC[e]
< 447 Diesel	1.50E-06	4.22E-07	8.00E-07		7.15E-04	18.8	4.06	1.25	1.34	–	1.5
< 447 Gasoline[c]	1.50E-06	4.22E-07	8.00E-07		7.15E-04	6.92	267	0.359	0.439	–	8.96
447 + Diesel	6.51E-06				9.03E-04	14	3.2	[f]	0.2644	0.2116	0.44
Four-cycle, Lean-burn Reciprocating[d] Natural Gas				1.10E-03	0	15.49	10.29	–	–	–	1.7888

[a] From AP-42. Emission factors reported in AP-42 in units of lb/MMBtu are converted to g/kW-hr using the following conversion factor: conversion to metric using 7,000 Btu/brake hp-hr, 0.7457 kW/hp brake horsepower conversion from AP-42 = 4.258 (g/kW-hr)/(lb/MMBtu).

[b] HAP.

[c] Assume air toxic emission factors for gasoline are the same as those for diesel.

[d] AP-42 p. 3.2-4, pipeline compressor engines.

[e] Add speciated emissions to get total VOC estimate (not all speciated emissions are reported for natural gas).

[f] Calculate SO_2 assuming all sulfur in fuel is converted to SO_2 (AP-42, p. 3.4-4).

Maximum annual emissions (assuming 365 days of maximum daily operation):

$$4.45 \times 10^{-3} \frac{lb}{day} * \frac{365\ days}{yr} = 1.62 \frac{lb}{yr}$$

This is the same as the potential to emit.

Reference

1. U.S. Environmental Protection Agency. Compilation of Air Pollution Emission Factors, Volume I: Stationary Point and Area Source, Fourth Edition. Research Triangle Park, NC. EPA AP-42, September 1985.

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PROJECT SOUTHDIV/MCAS-Beaufort JOB NO. 657-009-02

SUBJECT Generator SHEET 1 OF 2 SHEETS

I. PURPOSE

This calculation is an example of the approach for estimating emissions from generators. The general approach for estimating emissions from generators is given in Calculation Number 11 (attached).

This calculation estimates the actual annual SO_2 emission rate for the generator at the Military Police Station - Building 584 (Source ID: BEA-01-584-1-G10). Estimating emissions of other pollutants follows the same procedure.

II. GIVEN INFORMATION

- The generator uses diesel fuel.

III. DATA

- Firing rate = 30 kW
- Annual operating hours = 8 hours/yr
- SO_2 emission factor = 1.25 g/kW·hr (Ref: AP-42, page 3.3-4).

IV. ASSUMPTIONS

- The emission factors in AP-42, Section 3.3 are for gasoline and diesel industrial engines, and are assumed to apply to generators.

ENCLOSURE (2)

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

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SUBJECT _____ SHEET 2 OF 2 SHEETS

V. TECHNICAL APPROACH

The data in Section III are used to estimate the actual annual SO_2 emission rate using the equation below, as demonstrated on page 1 of Calculation Number 11:

$$\text{Actual annual } SO_2 \text{ emissions } (\text{lb } SO_2/\text{yr}) = \text{Firing rate (kW)} * \text{Annual operating hours} \left(\frac{\text{hrs}}{\text{yr}}\right) * SO_2 \text{ emission factor} \left(\frac{\text{g}}{\text{kW}\cdot\text{hr}}\right) * \left(\frac{2.20462 \text{ lb}}{1000 \text{ g}}\right)$$

VI. EXAMPLE

The actual annual SO_2 emission rate is calculated using the data in Section III and the equation in Section V:

$$\text{Actual annual } SO_2 \text{ emissions } (\text{lb } SO_2/\text{yr}) = 30\text{kW} * \frac{8 \text{ hrs}}{\text{yr}} * \frac{1.25 \text{ g}}{\text{kW}\cdot\text{hr}} * \frac{2.20462 \text{ lb}}{1000 \text{ g}}$$

$$= \boxed{0.661 \ \frac{\text{lb } SO_2}{\text{yr}}}$$

CARPENTRY

Particulate matter is generated from sawing boards at Building 625 (Public Works Maintenance Shop) at the MCAS-Beaufort. Most sawdust is of sufficient size to fall to the floor. Some dust is collected using pickups and a cyclone before exhaust is vented to the atmosphere.

Emissions of particulate matter from carpentry sources at the MCAS-Beaufort were estimated as shown in Approach II of Calculation No. 13 (attached). This calculation is based on an AP-42 emission factor for cyclones in woodworking collection systems and the following hours of operation as determined through interviews with site personnel:

Average hours per month:	40
Maximum hours per day:	8
Maximum hours per month:	80

The corresponding maximum daily, actual annual, maximum annual, and potential to emit PM emission rates were calculated as follows:

$$\text{Maximum daily PM emissions}\left(\frac{\text{lb}}{\text{day}}\right) = 2\ \frac{\text{lb}}{\text{hr}} * 8\ \frac{\text{hr}}{\text{day}} = 16\ \frac{\text{lb}}{\text{day}}$$

$$\text{Actual annual PM emissions}\left(\frac{\text{lb}}{\text{yr}}\right) = 2\ \frac{\text{lb}}{\text{hr}} * 40\ \frac{\text{hr}}{\text{month}} * 12\ \frac{\text{months}}{\text{yr}} = 960\ \frac{\text{lb}}{\text{yr}}$$

$$\text{Maximum annual PM emissions}\left(\frac{\text{lb}}{\text{yr}}\right) = 2\ \frac{\text{lb}}{\text{hr}} * 80\ \frac{\text{hr}}{\text{month}} * 12\ \frac{\text{months}}{\text{yr}} = 1{,}920\ \frac{\text{lb}}{\text{yr}}$$

$$\text{Potential to emit PM}\left(\frac{\text{lb}}{\text{yr}}\right) = 16\ \frac{\text{lb}}{\text{day}} * 365\ \frac{\text{days}}{\text{yr}} = 5{,}840\ \frac{\text{lb}}{\text{yr}}$$

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. 13

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PROJECT DoD JOB NO._____

SUBJECT Particulate Emissions From Carpentry Sources SHEET 1 OF 2 SHEETS

Emissions from carpentry sources can be estimated in different ways, depending upon the information available. This calculation describes two different approaches, one using information about the amount of sawdust collected for disposal each year and the second using emission rates for cyclones applied to woodworking collection systems.

Approach I

This approach to estimating emissions from carpentry sources can be used when the amount of dust collected (from the floor and cyclone) is known. The amount of dust exhausted is calculated using the overall collection efficiency and the total amount of dust disposed of from the facility. Because the PM generated from carpentry sources is so large, the overall efficiency is assumed to be 99%.

Overall collection efficiency	99%
Production variability factor	2

Building Number	Amount Collected (lb/yr)	Actual Amount Emitted (lb/yr)	Days Operated (per year)	Hours Operated (per/day)	Emissions (lb/day)	Maximum Emissions (lb/day)	Maximum Emissions (lb/hr)	Maximum Emissions (lb/yr)	Potential to Emit (lb/yr)
30	485	4.90	250	0.5	0.020	0.039	0.039	9.80	343.32
70	1,455	14.70	52	40	0.283	0.565	0.071	29.39	618.97

$$\text{Actual annual emissions} = \left(\frac{\text{lb sawdust disposed}}{\text{yr}}\right)\left(1 - \text{\% efficiency of dust collection system}\right)$$

$$= \left(485\ \frac{\text{lb}}{\text{yr}}\right)(1 - 0.99)$$

$$= 4.85\ \frac{\text{lb}}{\text{yr}}$$

Maximum annual emissions are calculated using a production variability factor (2) to account for any potential increase in activity.

Daily or hourly emissions are calculated from maximum annual emissions based on number of days or hours per year of activity.

Potential to emit is calculated by multiplying the hourly emission rate by 8,760 hours per year.

RADIAN CORPORATION

CALCULATION SHEET

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SUBJECT Particulate Emissions From Carpentry Sources SHEET 2 OF 2 SHEETS

Approach II

Emissions can also be estimated using an emission rate listed in AP-42[1] for cyclones in woodworking collection systems and hours of operation:

$$\text{Emissions} = E_R \left(\frac{\text{lb}}{\text{hr}} \right) * \text{Hours of operation}$$

Where E_R is the emission rate suggested for use with cyclones handling waste from all operations other than sanding (2 lb/hr).

For example, the following hours of operation are determined through interviews with site personnel:

Average hours/month:	40
Maximum hours/day:	8
Maximum hours/month:	80

The corresponding maximum daily, actual annual, and maximum annual PM emission rates are calculated as follows:

$$\text{Maximum daily PM emissions} \left(\frac{\text{lb}}{\text{day}}\right) = 2\ \frac{\text{lb}}{\text{hr}} * 8\ \frac{\text{hr}}{\text{day}} = 16\ \frac{\text{lb}}{\text{day}}$$

$$\text{Actual annual PM emissions} \left(\frac{\text{lb}}{\text{yr}}\right) = 2\ \frac{\text{lb}}{\text{hr}} * 40\ \frac{\text{hr}}{\text{month}} * 12\ \frac{\text{months}}{\text{yr}} = 960\ \frac{\text{lb}}{\text{yr}}$$

$$\text{Maximum annual PM emissions} \left(\frac{\text{lb}}{\text{yr}}\right) = 2\ \frac{\text{lb}}{\text{hr}} * 80\ \frac{\text{hr}}{\text{month}} * 12\ \frac{\text{months}}{\text{yr}} = 1{,}920\ \frac{\text{lb}}{\text{yr}}$$

---

[1] Compilation of Air Pollutant Emission Factors (AP-42), September 1985, p. 10.4-2.

ORDNANCE DESTRUCTION

Open Detonation and Burning

Emissions from open ordnance destruction at MCAS-Beaufort were calculated as described generally in Beaufort Calculation No. 1 (attached). The following aspects of the calculations are specific to the MCAS-Beaufort.

- Emission factors for TNT were used to estimate emissions from detonation of C-4 plastic explosive because TNT is the base explosive used to detonate the C-4.
- Maximum emissions and the potential to emit were based on the worst case emission factor for each pollutant. Actual emissions were based on the average net mass of explosives detonated.
- The daily maximum emissions were estimated based on the detonation of a net explosive weight of 65 lb/day.
- The maximum annual emissions were estimated based on the detonation of a net explosive weight of 65 lb/day, 4 days/month, 12 months/yr, or 3,120 lb/yr.
- The average annual emissions were estimated based on the detonation of a net explosive weight of 1,920 lb/yr. Approximately 80 percent consists of C-4 plastic explosive, the remaining 20 percent consists of double-base propellents.
- The potential to emit was estimated by multiplying the daily emissions by 365 days per year.

Closed Destruction

Emissions from the closed processing of live munitions were estimated as described in DoD Calculation No. 17 (attached). The following information was used in the calculations for the MCAS-Beaufort:

- Amount of fuel used per burn:

Wood	200 lb
Diesel	10 gal

- Number of burns: 2/week, 52 weeks/yr.
- Quantity of ash collected: 2,450 lb (1993).
- Only 1 burn/day possible.

- Potential to emit was calculated based on maximum daily emissions for 365 days/yr.

- Maximum emissions were assumed to equal potential to emit.

ENCLOSURE (2)

RADIAN CORPORATION

CALCULATION SHEET

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SUBJECT Emissions from Open Detonation of Explosives SHEET 1 OF 5 SHEETS

Explosives and propellants are disposed of by open burning and open detonation. Reasons for disposal include expiration of the use date, excess material, obsolescence, and safety. Emissions of criteria, toxic, and hazardous air pollutants are estimated using emission factors summarized in *Development of Methodology and Technology for Identifying and Quantifying Emission Products from Open Burning and Open Detonation Thermal Treatment Methods, Volume 1--Test Summary* (Headquarters, United States Army Armament, Munitions and Chemical Command, Rock Island, Illinois, January 1992).

Emission factors are provided for three classes of burns: (1) TNT detonation, (2) double-base burn, and (3) composite propellant burn. Table 1 summarizes the emission factors for each of these classifications.

Emission factors for VOC and PM are estimated from the carbon dioxide and carbon monoxide emission factors and the carbon distribution information summarized in Table 2.

$$\text{VOC Emission Factor}\left(\frac{\text{lb VOC}}{\text{lb explosive}}\right) = \frac{(\text{CO EF} + \text{CO}_2\text{ EF})(\text{Organic Carbon wt \%})}{(\text{CO Carbon wt \%} + \text{CO}_2\text{ Carbon wt \%})}$$

$$\text{PM Emission Factor}\left(\frac{\text{lb PM}}{\text{lb explosive}}\right) = \frac{(\text{CO EF} + \text{CO}_2\text{ EF}) * \text{Elemental Carbon (soot) wt \%}}{(\text{CO Carbon wt \%} + \text{CO}_2\text{ Carbon wt \%})}$$

Example

Estimate the PM emission factor for open detonation of TNT.

From Table 1:	CO EF (lb/lb)	=	7.17×10^{-3}
	CO_2 EF (lb/lb)	=	1.33
From Table 2:	CO Carbon wt %	=	0.50
	CO_2 Carbon wt %	=	97.20
	Elemental Carbon wt %	=	1.71

$$\text{PM Emission Factor}\left(\frac{\text{lb}}{\text{lb}}\right) = \frac{(7.17 \times 10^{-3} + 1.33) * 1.71}{(97.20 + 0.50)} = 2.34 \times 10^{-2}$$

ENCLOSURE (2E)

RADIAN CORPORATION

CALCULATION SHEET

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SUBJECT Emissions from Open Detonation of Explosives SHEET 2 OF 5 SHEETS

Table 1

Maximum Emission Factors (kg/kg) for Species Found for TNT Detonations, Double-Base Burns, and Composite Propellant Burns

Species	TNT Detonation EF (kg/kg)	Double-Base Burn EF	Composite Burn EF
Carbon dioxide	1.33	9.7×10^{-1}	4.18×10^{-6}
Carbon monoxide	7.17×10^{-3}	9.54×10^{-4}	4.28×10^{-6}
Nitrogen dioxide	2.60×10^{-3}	2.81×10^{-3}	1.57×10^{-3}
Nitric oxide	1.46×10^{-2}	2.47×10^{-2}	5.37×10^{-3}
Sulfur dioxide	2.23×10^{-4}	3.60×10^{-4}	1.44×10^{-4}
VOC[c]	7.80×10^{-3}	2.04×10^{-3}	0
Particulate matter[c]	2.34×10^{-2}	0	8.46×10^{-10}
Methane	1.31×10^{-4}	7.26×10^{-5}	7.99×10^{-5}
Acetylene	1.82×10^{-5}	2.18×10^{-5}	5.27×10^{-5}
Benzene	8.67×10^{-6}	1.27×10^{-5}	3.02×10^{-5}
Semivolatile Organics			
2,6-Dinitrotoluene	4.39×10^{-7}	1.43×10^{-8}	3.72×10^{-9}
4-Nitrophenol	2.59×10^{-6}	6.87×10^{-7}	4.08×10^{-7}
2,4-Dinitrotoluene	1.05×10^{-6}	$<1.75 \times 10^{-10}$	1.04×10^{-8}
2-Nitronaphthalene	6.43×10^{-7}	5.43×10^{-9}	2.03×10^{-8}
2,4,6-Trinitrotoluene	3.38×10^{-6}	5.01×10^{-6}	$<1.37 \times 10^{-6}$
1-Nitropyrene	1.06×10^{-6}	$<1.66 \times 10^{-6}$	1.98×10^{-6}
Phenol	2.52×10^{-5}	4.39×10^{-6}	3.78×10^{-6}
Dibenzofuran	1.32×10^{-6}	2.25×10^{-7}	2.79×10^{-7}
Benz[a]anthracene	$<3.30 \times 10^{-6}$	$<1.83 \times 10^{-6}$	$<1.66 \times 10^{-6}$
Benzo[a]pyrene	3.01×10^{-6}	8.96×10^{-7}	5.23×10^{-6}
Dibenz[a,h]anthracene	1.73×10^{-6}	ND[a]	ND
N-Nitrosodiphenylamine	1.23×10^{-6}	1.45×10^{-6}	3.45×10^{-8}

ENCLOSURE (2)

epp.165/table1.cal

epp.165/Calc-1/Page4

Table 1

(Continued)

Species	TNT Detonation EF (kg/kg)	Double-Base Burn EF	Composite Burn EF
Naphthalene	1.50×10^{-4}	$<1.55 \times 10^{-6}$	1.44×10^{-6}
1- &2-Methylnaphthalene	3.00×10^{-5}		
1,3,5-Trinitrobenzene	2.75×10^{-6}		
Biphenyl	$<5.20 \times 10^{-6}$		
Phenanthrene	1.85×10^{-7}		
2,5-Diphenyloxazole	7.23×10		
1,1,3-Trimethyl-3-phenylindane	5.70×10^{-7}		
Pyrene	2.02×10^{-7}		
Metals			
Aluminum			1.33×10^{-4}
Chromium	3.52×10^{-6}	BD[b]	4.77×10^{-6}
Nickel	2.54×10^{-6}	BD	1.59×10^{-6}
Copper		3.71×10^{-3}	
Lead	1.97×10^{-5}	1.27×10^{-2}	9.39×10^{-5}
Cadmium	2.86×10^{-6}	BD	BD
Antimony	1.06×10^{-6}	BD	4.77×10^{-6}
Barium	9.31×10^{-4}	BD	1.59×10^{-7}
Bubblers			
Ammonia	2.92×10^{-4}	BD	BD
Hydrogen chloride			9.43×10^{-2}

[a] Detection limit not determined.
[b] Target analyte not found in concentrations above detection limits.
[c] Derived from the emission factor for CO and the percent carbon distribution (Table 7.2 and Table 7.3, Ref. 1).

Table 2

Distribution of Carbon-Containing Species for TNT Detonations, Double-Base Burns, and Composite Propellant Burns

Fuel	Percent			
	Carbon Dioxide	Carbon Monoxide	Organic Carbon	Elemental Carbon (soot)
TNT	97.20	0.50	0.57	1.71
Double-Base	99.64	0.15	0.21	0.00
Composite	99.88	0.11	0.00	0.01

Application of Emission Factors

Emission factors are used to estimate actual and maximum emission rates. In the following example, the following amounts of explosive and propellant materials are disposed of.

Maximum annual mass detonated (lb/yr) = 3,120
Actual annual mass detonated (lb/yr) = 1,920

Approximately 80 percent of the material disposed of is TNT-base explosives, and the remaining 20 percent is double-base propellant.

$$\text{Actual annual } NO_x \left(\frac{lb}{yr}\right) = 0.8 * 1{,}920 \frac{lb}{yr} * 1.72 \times 10^{-2} \frac{lb\ NO_x}{lb}$$

$$+ 0.2 * 1{,}920 \frac{lb}{yr} * 2.75 \times 10^{-2} \frac{lb\ NO_x}{lb}$$

$$= 36.98 \frac{lb}{yr}$$

To estimate the maximum annual emissions, the worst-case emission factor is applied to the maximum annual mass of material disposed of:

ENCLOSURE 12 A

RADIAN CORPORATION

CALCULATION SHEET

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PROJECT Beaufort JOB NO. _____

SUBJECT Emissions from Open Detonation of Explosives SHEET 5 OF 5 SHEETS

$$\text{Maximum Annual } NO_x \text{ (lb)} = 3{,}120 \ \frac{\text{lb}}{\text{yr}} * 2.75 \times 10^{-2} \ \frac{\text{lb } NO_x}{\text{lb}} = 85.8 \ \frac{\text{lb } NO_x}{\text{yr}}$$

RADIAN CORPORATION

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PROJECT SOUTHDIV/MCAS-Beaufort JOB NO. 659-009-02

SUBJECT Ordnance destruction - open pit SHEET 1 OF 2 SHEETS

I. PURPOSE

This calculation is an example of the approach for estimating emissions from the open detonation of explosives and the open burning of propellants. The approach for estimating emissions from open ordnance destruction is given in the attached discussion.

This example calculation estimates the actual annual lead emissions from the open detonation pit (Source ID: BEA-01-937-1-I11). Estimating emissions of other pollutants follows the same procedure.

II. GIVEN INFORMATION

- The material disposed of consists primarily of C-4 plastic explosive and double base propellent.
- The C-4 detonation is initiated using a TNT blastic cap.

III. DATA

- Actual annual mass destructed = 1,920 lb/yr
- % C-4 : 80%
- % Double-base propellent : 20%
- Lead emission factor
  - TNT : 1.97×10^{-5} lb Pb/lb TNT
  - Double-base propellent : 1.27×10^{-2} lb. Pb/lb propellent

ENCLOSURE (2)

3361

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

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PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET 2 OF 2 SHEETS

I ASSUMPTIONS

- The TNT emission factor for Pb is assumed to be representative for C-4 detonation.

V. TECHNICAL APPROACH

The actual annual lead emissions are estimated using the equation below, and as demonstrated on page 4 of the attached discussion:

$$\text{Actual annual Pb emissions (lb/yr)} = \text{Actual annual mass destructed (lb/yr)} \times \left[\frac{\%\ C\text{-}4}{100} \times \frac{\text{TNT Pb emission factor}}{\left(\frac{lb\ Pb}{lb\ TNT}\right)} + \frac{\%\ \text{Propellant}}{100} \times \frac{\text{Propellant Pb emission factor}}{\left(\frac{lb\ Pb}{lb\ \text{Propellant}}\right)} \right]$$

VI. CALCULATION

The data in Section III and the equation in Section V are used to calculate the actual annual lead emissions from open pit ordnance destruction:

$$\text{Actual annual Pb emissions (lb/yr)} = 1920\ \frac{lb}{yr} \left[\frac{80}{100} \times 1.97 \times 10^{-5}\ \frac{lb\ Pb}{lb\ TNT} + \frac{20}{100} \times 1.27 \times 10^{-2}\ \frac{lb\ Pb}{lb\ propellant} \right]$$

$$= \boxed{4.91\ \frac{lb\ Pb}{yr}}$$

ENCLOSURE (2)

RADIAN CORPORATION CALCULATION SHEET

CALC. NO. 17

SIGNATURE_____ DATE_____ CHECKED_____ DATE_____

PROJECT DoD JOB NO. 652-009

SUBJECT Emissions from Ordnance Destruction SHEET 1 OF 4 SHEETS

At many military installations, live ordnance is destroyed as a training exercise or before spent brass can be recycled. The process of ordnance disposal is similar at these installations, providing heat to the ordnance to provide the energy to explode or ignite the energetic material in the ordnance. The operation may be conducted in an enclosed structure (known variously as a bangbox, bullet popper, or burn tank) or it may be conducted in open pits. The emissions generated from enclosed disposal operations are assumed to equal those for open disposal because the enclosed process does not restrict air flow, rendering it identical to open burning. The fuels used to provide the energy for ordnance disposal include wood waste (from used shipping crates or excelsior packing material) and some liquid fuel such as diesel oil. An alternate to this fuel combination is C4 explosive.

The emissions from ordnance disposal include pollutants generated by combustion of the fuels and pollutants generated by the combustion of the energetic material in the ordnance. Because the latter can be small compared to the emissions from fuel, the pollutants from the ordnance targeted for estimation include primarily the metals from the ordnance. Lead in the projectile of the ordnance will yield some emissions to the atmosphere when processed.

The emission data from ordnance disposal is scant; the results of a recent test by the Department of the Air Force at an Army facility have not been released. Therefore, the emissions from ordnance disposal are estimated using published emission factors for the fuels (wood waste and diesel) and available composition data for ash from ordnance disposal at an enclosed facility in South Carolina. The amount of wood waste and fuel documented from a site visit to the Marine Corps Air Station in Beaufort, South Carolina, were used to estimate emissions of pollutants from combustion of these fuels. The concentration of lead in the ash collected from this same facility was assumed to be in equilibrium with the concentration of lead in the vapor phase at combustion exhaust temperatures during the combustion of the fuels. Using these equilibrium data, the amount of ash collected, and the number of disposal events, the amount of lead (and therefore, lead oxide) was calculated for each event.

The calculated emissions for an ordnance disposal event originates from data on this operation at the MCAS-Beaufort. Each event uses 200 lb of wood waste and 10 gal of diesel fuel with the brass (spent and live) in an enclosed device. The fuel combustion emissions are calculated using emission factors and speciation profiles published by the U.S. Environmental Protection Agency (AP-42, NAPAP Criteria Pollutant Emission Factors, SPECIATE data base) for open burning of these fuels. For example, the emissions of VOC from diesel fuel combustion are 0.4 lb/1000 gal of diesel burned. Also, the amount of the specific toxic air pollutants emitted from open burning of diesel are partitioned in accordance with the concentration of the specific air pollutant in the liquid phase.

For example, emissions from combustion of diesel in these events are calculated as follows:

$$\frac{\text{lb VOC}}{\text{event}} = 0.4\ \frac{\text{lb VOC}}{1{,}000\ \text{gal}} * 10\ \frac{\text{gal}}{\text{event}}$$

$$= 0.004\ \frac{\text{lb VOC}}{\text{event [diesel]}}$$

$$\frac{\text{lb Benzene}}{\text{event}} = 0.004\ \frac{\text{lb VOC}}{\text{event}} * 0.00274\ \frac{\text{lb benzene}}{\text{lb VOC}}$$

$$= 0.000011\ \frac{\text{lb benzene}}{\text{event [diesel]}}$$

Similarly for wood waste, the particulate matter emissions from open combustion for each event are calculated as:

$$\frac{\text{lb PM}}{\text{event}} = 7\ \frac{\text{lb}}{\text{ton wood}} * 200\ \frac{\text{lb}}{\text{event}}$$

$$= 0.70\ \frac{\text{lb PM}}{\text{event [wood]}}$$

The processing of brass with projectile in place can result in lead emissions (as lead oxide). There are no emission factors for toxic air pollutants currently available for this process. However, there are data available for the amount of lead in the ash remaining from the process. These data are used to estimate the amount of lead emitted from the process. An estimated 23.6 lb of ash are generated from each event. The average concentration of lead in the ash is 13.65 mg/L. Assuming that this concentration is equal to weight fraction (i.e., ppmw), the amount of lead lost through the exhaust stack is calculated using partitioning of lead oxide into liquid and vapor phases at the estimated combustion temperature (e.g., 2073°F). The vapor pressure of lead at this temperature is 20 mmHg. The partitioning coefficient is calculated as the ratio of vapor pressure to total pressure:

$$K = \frac{y}{x}$$

$$= \frac{\left(\frac{vp}{760\ \text{mmHg}}\right)}{1.0}$$

$$= \frac{20}{760}$$

$$= 0.026$$

The amount of lead emitted per event is calculated by applying the partitioning coefficient to the amount of lead in the ash.

$$\frac{\text{lb Pb in ash [brass]}}{\text{event}} = \left(\frac{\text{lb ash}}{\text{event}}\right)(\text{Pb concentration in ash})$$

$$= \left(23.6\ \frac{\text{lb ash}}{\text{event}}\right)\left(0.00001365\ \frac{\text{lb Pb [ash]}}{\text{lb ash}}\right)$$

$$= 0.000322\ \frac{\text{lb Pb [ash]}}{\text{event}}$$

$$\frac{\text{lb Pb emitted [brass]}}{\text{event}} = \left(\frac{\text{lb Pb in ash}}{\text{event}}\right)(\text{Partitioning coefficient})$$

$$= \left(0.000322\ \frac{\text{lb Pb [ash]}}{\text{event}}\right)\left(0.026\ \frac{\text{lb Pb emitted}}{\text{lb Pb [ash]}}\right)$$

$$= 0.00000846\ \frac{\text{lb Pb emitted}}{\text{event}}$$

Emission factors developed this way can be used to estimate emissions of all pollutants from ordnance disposal at other military installations on an event basis. The emissions from each event is representative of disposal of approximately 1000 lb of ordnance (brass). Modifications to the emission estimates must be made to account for different fuels. For example, many installations use C4 explosives to fuel ordnance disposal instead of the wood waste and diesel used at MCAS-Beaufort. The amount of fuel typical for a disposal event can be used with appropriate factors to estimate emissions from the fuel combustion portion of the overall factor.

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SUBJECT Emissions from Ordnance Destruction SHEET 4 OF 4 SHEETS

The emissions related to combustion are changed by simply substituting the fuel contribution to emissions. When C4 is used instead of wood waste and diesel oil, the emissions of PM, sulfur dioxide, carbon monoxide (CO), nitrogen oxides, and VOC, and the associated toxic air pollutants benzene, toluene, and xylene, are replaced by emissions of PM, CO, VOC, and ammonia resulting from C4 combustion. The emission factors for these pollutants are documented in work conducted for the Naval Ordnance Station at Indian Head, Maryland. For example, the PM emissions from use of C4 is calculated from the weight of each block of C4 and the number of blocks used.

$$\frac{\text{lb PM}}{\text{event}} = 0.8544 \frac{\text{lb PM}}{\text{lb C4}} * 1.25 \frac{\text{lb C4}}{\text{block}} * 6 \frac{\text{blocks}}{\text{event}}$$

$$= 0.64 \frac{\text{lb PM}}{\text{event [C4]}}$$

ENCLOSURE (2)

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

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PROJECT SOUTHDIV/MCAS - Beaufort JOB NO. 652-009-02

SUBJECT Ordnance destruction - enclosed SHEET 1 OF 4 SHEETS

I. PURPOSE

This calculation is an of the approach for estimating emissions from enclosed ordnance destruction. The general approach for estimating emissions from enclosed ordnance destruction is given in Calculation Number 17.

This calculation estimates the actual annual VOC, benzene, and lead emission rates from the enclosed ordnance destruction unit (Source ID: BEA-01-1046-1-H11). Estimating emission rates of other criteria pollutants follows the same procedure as for VOC. Estimating the emission rates of other toxic and hazardous air pollutants follows the same procedure as for benzene, except for lead.

II. GIVEN INFORMATION

- Fuels used: Diesel fuel
  Wood

- Enclosed ordnance destruction results in generation of ash, which contains lead.

III. DATA

Daily fuel consumption:
- Diesel 10 gal/day
- Wood 200 lb/day

Annual amount of ash = 2450 lb/yr

Lead concentration in ash = 13.65 ppmw = 13.65 lb Pb/10^6 lb ash

Frequency of use = 104 days/yr

Lead partition coefficient = 0.0263

ENCLOSURE (22)

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RADIAN CORPORATION

CALCULATION SHEET

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SUBJECT _____ SHEET 2 OF 4 SHEETS

VOC emission factors:

- Diesel 0.4 lb VOC/1000 gal (Ref: NAPAP, p. 145)
- Wood 11 lb VOC/ton wood (Ref: NAPAP, p. 145)

Benzene emission factor:

- Diesel 0.00274 lb benzene/lb VOC (SPECIATE)

IV. ASSUMPTIONS

- The concentration of lead in the ash is assumed to be in equilibrium with the concentration of lead in the vapor phase at the exhaust temperature
- The liquid phase diesel fuel speciation profile represents the VOC emission rate speciation profile.

V. TECHNICAL APPROACH

1. The actual annual VOC emission rate is estimated using the equation below and as demonstrated on page 2 of Calculation Number 17:

$$\text{Actual annual VOC emissions (lb/yr)} = \left[\text{Daily diesel consumption rate}\left(\frac{gal}{day}\right) * \text{VOC emission factor (diesel)}\left(\frac{lb\ VOC}{1000\ gal}\right) + \text{Daily wood consumption rate}\left(\frac{lb}{day}\right) * \text{VOC emission factor (wood)}\left(\frac{lb\ VOC}{ton\ wood}\right)\left(\frac{ton}{2000\ lb}\right)\right] * \text{Frequency of Op}\left(\frac{day}{yr}\right)$$

ENCLOSURE 12

RADIAN CORPORATION

CALCULATION SHEET

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SUBJECT _____ SHEET 3 OF 4 SHEETS

2. The actual annual benzene emission rate is estimated using the equation below and as demonstrated on page 2 of Calculation Number 17:

$$\text{Actual annual benzene emissions } (lb/yr) = \text{Daily diesel consumption rate}\left(\frac{gal}{day}\right) * \text{VOC emission factor (diesel)}\left(\frac{lb\ VOC}{1000\ gal}\right) * \text{Benzene emission factor}\left(\frac{lb\ benzene}{lb\ VOC}\right) * \text{Frequency of use}\left(\frac{days}{yr}\right) \quad (2)$$

3. The actual annual lead emission rate is estimated using the equation below and as demonstrated on page 3 of Calculation 17:

$$\text{Actual annual Pb emissions } (lb/yr) = \text{Annual ash generation rate}\left(\frac{lb\ ash}{yr}\right) * \text{Pb conc. in ash}\left(\frac{lb\ Pb}{10^6\ lb\ ash}\right) * \text{Partitioning coefficient} \quad (3)$$

VI. EXAMPLE

1. The actual annual VOC emission rate is calculated using the appropriate data from Section III and equation 1 from Section IV:

$$\text{Actual annual VOC emissions } (lb/yr) = \left[\frac{10\ gal}{day} * \frac{0.4\ lb\ VOC}{1000\ gal} + \frac{200\ lb}{day} * \frac{11\ lb\ VOC}{ton} * \frac{ton}{2000\ lb}\right] * \frac{104\ days}{yr}$$

$$= \boxed{115\ lb\ VOC/yr}$$

ENCLOSURE (2)

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CALCULATION SHEET

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SUBJECT _____ SHEET 4 OF 4 SHEETS

2. The actual annual benzene emission rate is calculated using the appropriate data from Section III and equation 2 from Section V:

$$\text{Actual annual benzene emissions (lb/yr)} = \frac{10\ \text{gal}}{\text{day}} \times \frac{0.4\ \text{lb VOC}}{1000\ \text{gal}} \times 0.00274\ \frac{\text{lb benzene}}{\text{lb VOC}} \times \frac{104\ \text{day}}{\text{yr}}$$

$$= \boxed{1.14 \times 10^{-3}\ \frac{\text{lb benzene}}{\text{yr}}}$$

3. The actual annual lead emission rate is calculated using the appropriate data from Section III and equation 3 from Section V:

$$\text{Actual annual Pb emissions (lb/yr)} = \frac{2450\ \text{lb ash}}{\text{yr}} \times \frac{13.65\ \text{lb Pb}}{10^6\ \text{lb ash}} \times 0.0263$$

$$= 8.8 \times 10^{-4}\ \frac{\text{lb Pb}}{\text{yr}}$$

ENCLOSURE 1 of 2

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. 2

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PROJECT Beaufort JOB NO. _____

SUBJECT Emissions of Air Pollutants from the Smokehouse SHEET 1 OF 1 SHEETS

Emissions of air pollutants from the smokehouse at MCAS-Beaufort were calculated as described below.

- Fuel consumption for each fire is approximately 50 pounds of wood and 1 bale of hay (approximately 30 pounds). The emission factors for the open burning of wood were assumed to apply to hay.
- All estimates assume the consumption of 80 pounds of fuel per fire.
- Maximum daily emissions were estimated assuming three fires and a total fuel consumption of 240 pounds per day.
- Maximum annual emissions were estimated assuming eight fires per month and a total consumption of 7,680 pounds of fuel. Annual average emissions were estimated assuming four fires per month and a total consumption of 3,840 pounds of fuel.
- The potential to emit was calculated by multiplying the daily emissions by 365 days per year.
- The following example demonstrates the application of the CO emission factor in calculating maximum annual emission:

$$CO\left(\frac{lb}{yr}\right) = 7{,}680\ lb\ fuel\left(\frac{ton}{2{,}000\ lb}\right) * \left(130\ \frac{lb\ CO}{ton}\right) = 499\ \frac{lb\ CO}{yr}$$

- The following table summarizes the emission factors and emissions.

Pollutant	Emission Factor* (lb/ton wood)	Maximum Daily (lb/day)	Average Annual (lb/yr)	Maximum Annual (lb/yr)	Potential to Emit (lb/yr)
PM	7	0.84	13.4	26.9	307
SO_2	0.1	0.0120	0.192	0.384	4.38
NO_x	1.0	0.120	1.92	3.84	43.8
CO	130	15.6	250	499	5,694
VOC	11.0	1.32	21.1	42.2	482

* U.S. Environmental Protection Agency. Criteria Pollutant Emission Factors for the 1985 NAPAP Emissions Inventory. EPA/600/7-87/015. May 1987. p. 145.

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. 3

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PROJECT Beaufort JOB NO._____

SUBJECT Emissions of Particulate Matter from Composite Grinding SHEET 1 OF 1 SHEETS

This calculation estimates emissions of particulate matter from composite grinding. The epoxy resin used at MCAS-Beaufort contains no toxic air pollutant. The material has a vapor pressure less than 0.01 mmHg, and VOC emissions are assumed to be negligible.

- Based on information obtained from the epoxy manufacture, the specific gravity of the cured material is 1.31 (10.91 lb/gal), and material shrinkage during curing is negligible.
- Composite grinding was previously conducted in a closed room without ventilation. Therefore, actual emissions were not calculated. The newly constructed composite grinding booth is scheduled for operation in 1994. Maximum emissions and the potential to emit were estimated.
- Epoxy use is proportional to the number of squadrons. The maximum daily consumption rate for five squadrons is one quart per day. For eight squadrons, this would be 1.6 quarts per day.
- The maximum annual emissions were estimated assuming 5 days per week of operation, 52 weeks per year.
- The potential to emit was estimated assuming three times the maximum daily emission rate (i.e., assumes 3 shifts per day) and 365 days per year of operation.
- All emission rates assumed a filter removal efficiency of 25 percent based on information obtained from the filter vendor, and the release to the air in the grinding booth of 80 percent of the cured epoxy material due to grinding. It is assumed that only 10 percent of the PM generated from grinding reaches the filters.

$$\text{Maximum daily PM emissions (lb/day)} = \left|\frac{1.6\ \text{qts}}{\text{day}}\right|\frac{\text{gal}}{4\ \text{qts}}\left|\frac{10.91\ \text{lb}}{\text{gal}}\right|(1 - 0.25)\ (0.80)\ (0.1)$$

$$= 0.262\ \frac{\text{lb}}{\text{day}}$$

$$\text{Maximum annual PM emissions (lb/yr)} = \left|\frac{0.262\ \text{lb}}{\text{day}}\right|\frac{5\ \text{days}}{\text{wk}}\left|\frac{52\ \text{wks}}{\text{yr}}\right| = 68.1\ \frac{\text{lb}}{\text{yr}}$$

$$\text{Potential to emit (lb/yr)} = 3 * \left|\frac{0.262\ \text{lb}}{\text{day}}\right|\frac{365\ \text{day}}{\text{yr}} = 287\ \frac{\text{lb}}{\text{yr}}$$

C-18 Codes in O&MMC (Operations & Maintenance Marine Corps) Table	
Code	**Description**
CP	Civilian Personnel (Salaries)
CR	Cultural Resources Management
HD	Hazardous Materials/Waste Disposal
HM	Hazardous Materials/Waste Management
M1	Installation Authority Environmental Repair
M2	Headquarters Authority Environmental Repair
O1	Other
PH	Headquarters Authority Environmental/Natural Resources Stud. & Investigations
PL	Installation-Managed Environmental/Natural Resources Stud. & Investigations
R1	Installation Authority Environmental Minor Construction
R2	Headquarters Authority Environmental Minor Construction
TN	Training
TV	Travel

ENCLOSURE (3)

C-8 Codes in FD_CODE (Fund Code) Table	
Code	**Description**
BRAC	Base Realignment and Closure
DE	DERA
DFSC	Defense Fuel Supply Center
JFIP	Japanese Facility Improvement Program
MC	Military Construction, Marine Corps
MCNR	Military Construction Naval Reserve
O&MMC	Operations & Maintenance Marine Corps
O&MMCR	Operations & Maintenance Marine Corps Reserve
O3	Other Marine Corps Appropriation
O4	Other Non-Marine Corps Appropriation
PR	Procurement, Marine Corps
RD	Research, Development, Testing and Evaluation
UNFDREIM	Unfunded Reimbursable

ENCLOSURE (3)

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: John B. Pate, MD, Chairman
William E. Applegate, III, Vice Chairman
John H. Burriss, Secretary

Toney Graham, Jr., MD
Richard E. Jabbour, DDS
Henry S. Jordan, MD
Currie B. Spivey, Jr.

Promoting Health, Protecting the Environment

September 30, 1991

HAND DELIVERED

Colonel C. O. Hoelle, Jr., Commanding Officer
Marine Corps Air Station
Beaufort, South Carolina 29904-5000

RE: Marine Corps Air Station
Final RCRA Permit Decision
SC1 750 216 169

Dear Colonel Hoelle:

The South Carolina Department of Health and Environmental Control (Department), in conjunction with the Environmental Protection Agency (EPA), has made a decision to issue a Hazardous Waste Permit to the Marine Corps Air Station facility located near Beaufort, South Carolina. The application for which the permit has been written is for the storage of hazardous waste in containers and a tank.

Please find enclosed a permit prepared in accordance with the South Carolina Hazardous Waste Management Regulations, as amended. The Federal permit, which will be issued by EPA, will contain HSWA requirements. The two permits constitute the RCRA permit required by the Department and EPA.

A responsiveness summary is enclosed which was prepared by this Department in response to all of the comments received during the public comment period.

Unless adjudicated as specified as R.61-79.124.15 and under R.61-72 Section II, the permit shall become effective on October 30, 1991 and shall remain in effect for a period of five (5) years from the date of issuance unless terminated per R.61-79.270.43. A request for an adjudicatory hearing (appeal the final permit decision) must be served on the Board within fifteen (15) days after notification of the final permit decision. The request should be sent to:

The Board of Health and Environmental Control
Attn: Clerk of the Board
Office of the Commissioner
2600 Bull Street
Columbia, South Carolina 29201 (803) 734-4880

ENCLOSURE (4)

The Department is committed to the protection of public health and the environment. The Department appreciates all comments that were submitted during the public comment period and has taken each one into consideration in making the final permit decision and finalizing the permit conditions.

If you should have any further questions concerning this matter, please contact this office at (803) 734-5200.

Sincerely,

David E. Wilson, Jr., P.E., Manager
Hazardous Waste Permitting
Bureau of Solid and Hazardous Waste Management

DEWjr/GRT/jta

cc: Russell Berry, Low Country EQC
Angela Gorman
Kelly Ewing, EPA Region IV
Ken Lapierre, EPA Region IV

ENCLOSURE (4)

RESPONSE TO COMMENTS ON THE DRAFT
HAZARDOUS WASTE PERMIT FOR
MARINE CORPS AIR STATION
BEAUFORT, SOUTH CAROLINA
SC1 750 216 169

PREPARED BY
THE SOUTH CAROLINA DEPARTMENT
OF HEALTH AND ENVIRONMENTAL CONTROL

ENCLOSURE (4)

RESPONSE TO COMMENTS SUBMITTED BY MARINE CORPS AIR STATION
ON THE DRAFT PERMIT
DATED DECEMBER 28, 1990

Section: Fact Sheet Page: Attachment 1, Page 5

Comment 1: Contaminated oils and contaminated fuels should not have an asterisk next to them since these items may be stored in tanks and/or containers.

Response 1: Table C-1 of the Marine Corps Air Station (MCAS) Part B permit application showed contaminated oils and contaminated fuels with asterisks thus designating them for container storage only. Since the issuance of the draft permit MCAS has submitted a revised Table C-1 showing no asterisks for contaminated oils or contaminated fuels. Therefore, the Department agrees with this comment, but no revisions are necessary since a fact sheet is not prepared for the final permit.

Section: Fact Sheet Page: Attachment 1, Page 5

Comment 2: Note 1 should be amended to note that D003 wastes that are stored/disposed via the OB/OD facility are not stored in tanks/containers.

Response 2: Since the issuance of the draft permit, MCAS has submitted a revised Table C-1 with a revised Note 1. Therefore, the Department agrees with this comment, but no revisions are necessary since a fact sheet is not prepared for the final permit. In addition, the Department is hereby clarifying that storage is not allowed at the OB/OD facility.

Section I.D. Page 2

Comment 3: It is recommended that "AOC" be added to the list of definitions.

Response 3: The Department has added "area of concern" to the list of definitions in Section I.D.

Comment 4: It is recommended that this statement be amended to read "Except as indicated in the approved permit application..." in order to allow continued receipt at the OB/OD site of explosive hazardous wastes from MCRD Parris Island and 5 local counties in response to emergency situations.

Response 4: The Department has amended Section II.B.2. to state "The Permittee shall not receive hazardous waste at the tank storage or container storage facilities from an off-site source."

For response to comments 5 through 25 see the EPA response to comments.

REVISIONS MADE TO THE
MARINE CORPS AIR STATION
PERMIT IN RESPONSE TO COMMENTS

SECTION	CHANGE
I.D.	Added "Area of Concern" to the list of definitions.
II.B.2.	Amended to state the following: The Permittee shall not receive hazardous waste at the tank storage or container storage facilities from an off-site source.

OTHER CHANGES

SECTION	CHANGE
Permit Page	Changed facility contact from John W. Robinson to Alice G. Howard.
II.L.	Deleted this section which required the Permittee to update the information on the floodplain standard. Since the issuance of the draft permit, MCAS has submitted the required information.
II.M.	Added this section pursuant to the S.C. Hazardous Waste Management Location Standards to require additional information regarding karst and liquefaction.
III.A.	Changed "buildings" to "building" in third paragraph.
III.B.1.	Changed "two facilities" to "facility".

ENCLOSURE (4)

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: John B. Pate, MD, Chairman
William E. Applegate, III, Vice Chairman
John H. Burriss, Secretary

Toney Graham, Jr., MD
Richard E. Jabbour, DDS
Henry S. Jordan, MD
Currie B. Spivey, Jr.

Promoting Health, Protecting the Environment

OFFICE OF ENVIRONMENTAL QUALITY CONTROL
BUREAU OF SOLID AND HAZARDOUS WASTE MANAGEMENT

HAZARDOUS WASTE PERMIT

Date of Issue: Sept. 30, 1991 Expiration Date: Oct. 30, 1996

Effective Date: Oct. 30, 1991

Permit Number: SC1 750 216 169

Permission is hereby granted to:

Name of facility: Marine Corps Air Station

Address: Highway 21

Beaufort, South Carolina 29904

Facility Contact: Alice G. Howard

Phone: 803-522-7317

for the operation of one hazardous waste container storage area and one hazardous waste storage tank located near Beaufort, South Carolina in Beaufort County.

This permit is issued pursuant to Section 44-56-10 et seq. and Regulation 61-79 of the 1976 South Carolina Code of Laws, as amended. The authority granted hereunder is subject to the requirements of the aforementioned laws and regulations and the following conditions:

(See attached list of conditions)

William W. Culler, P.E., Director
Division of Facility Engineering
Bureau of Solid and Hazardous
Waste Management

This permit is non-transferable and is the property of the Bureau of Solid and Hazardous Waste Management and must be surrendered on demand. Keep posted at all times in a conspicuous place on the premises.

ENCLOSURE (#1)

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Appendix A — Solid Waste Management Units Summary

Appendix B — RCRA Facility Investigation (RFI) Plan Outline

Appendix C — Corrective Measures Study (CMS) Plan Outline

Appendix D — Schedule of Compliance

Appendix E — Modification of the Corrective Action Schedule of Compliance

Appendix F — Waste Minimization Certifications Objectives

ENCLOSURE (4)

Marine Corps Air Station
SC1 750 216 169
MODULE I - GENERAL PERMIT CONDITIONS

The permittee must comply with all applicable South Carolina Hazardous Waste Management Regulations. Many changes are anticipated in State requirements and at such time as the Department accomplishes the necessary regulatory changes, you will be required to comply with any applicable portions of such revisions.

The Permittee shall construct and/or operate this facility in accordance with the Hazardous Waste Permit Application dated September 21, 1984, and revised December 23, 1985, June 24, 1988, July 20, 1988, July 25, 1990, and October 12, 1990.

I.A. EFFECT OF PERMIT

The Permittee is allowed to store hazardous waste in containers and tanks in accordance with the conditions of this permit. Any storage, treatment, and/or disposal of hazardous waste, under the jurisdiction of RCRA, not authorized in this Permit is prohibited. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of state or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any order issued or any action brought under Sections 3008(a), 3008(h), 3013, or 7003 of RCRA; Sections 106(a), 104 or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq., commonly known as CERCLA), or any other law providing for protection of public health or the environment. [R.61-79.270.4,270.30(g)]

I.B. PERMIT ACTIONS

I.B.1. Permit Modification, Revocation and Reissuance, and Termination

This permit may be modified revoked and reissued, or terminated for cause as specified in R.61-79.270.41, 270.42, and 270.43. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated non-compliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition. [R.61-79.270.30(f)]

I.B.2. Permit Renewal

This Permit may be renewed as specified in R.61-79.270.30(b) and Permit Condition I.E.2. Review of any application for a Permit renewal shall consider improvements in the state of control and measurement technology, as well as changes in applicable regulations. [R.61-79.270.30(b)]

I.C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

I.D. DEFINITIONS

For purposes of this Permit, terms used herein shall have the same meaning as those in R.61-79 Parts 124, 260, 264, 266, 268, and 270, unless this Permit specifically provides otherwise; where terms are not defined in the regulations or the Permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

I.D.1. The term "solid waste" means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).

I.D.2. "Hazardous constituents" for purposes of this permit are those substances listed in Appendix VIII of R.61-79.261.

ENCLOSURE (4)

I.D.3. A "Solid Waste Management Unit" for the purposes of this permit includes any unit which has been used for the treatment, storage, or disposal of solid waste at any time, irrespective of whether the unit is or ever was intended for the management of solid waste. RCRA regulated hazardous waste management units are also solid waste management units.

I.D.4. A "unit" for the purposes of this permit includes, but is not limited to, any landfill, surface impoundment, waste pile, land treatment unit, incinerator, injection well, tank, container storage area, septic tank, drain field, wastewater treatment unit, elementary neutralization unit, transfer station or recycling unit.

I.D.5. "Release" for purposes of this permit includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of any hazardous waste or hazardous constituents.

I.D.6. "Contamination" for purposes of this permit refers to the presence of any hazardous constituent in a concentration which exceeds the naturally occurring concentration of that constituent in the immediate vicinity of the facility (in areas not affected by the facility).

I.D.7. "Corrective action", for purposes of this permit, may include "corrective action" as provided in R.61-79.264.100 and/or other remedial activities for any media until otherwise defined in R.61-79.264.101.

I.D.8. "Area of Concern" (AOC) for purposes of this permit includes any area having a probable release of a hazardous waste or hazardous constituent which is not from a solid waste management unit and is determined by the Department to pose a current or potential threat to human health or the environment. Such areas of concern may require investigations and remedial action as required under Section 3005(c)(3) of the Resource Conservation and Recovery Act and R.61-79.270.32 in order to ensure adequate protection of human health and the environment.

ENCLOSURE (4)

I.E. DUTIES AND REQUIREMENTS

I.E.1. Duty to Comply

The Permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance, other than non-compliance authorized by an emergency permit, constitutes a violation of RCRA and the South Carolina Hazardous Waste Management Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application. [R.61-79.270.30(a)]

I.E.2. Duty to Reapply

If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee shall submit a complete application for a new permit at least 180 days prior to Permit expiration, unless permission for a later date has been granted. [R.61-79.270.10(h), 270.30(b)]

I.E.3. Permit Expiration

Pursuant to R.61-79.270.50, this Permit shall be effective for a fixed term not to exceed five years. This Permit and all conditions herein will remain in effect beyond the Permit's expiration date, if the Permittee has submitted a timely, complete application (see R.61-79.270.10, 270.13 through 270.29) and, through no fault of the Permittee, the Department has not issued a new Permit, as set forth in R.61-79.270.51.

I.E.4. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [R.61-79.270.30(c)]

I.E.5. Duty to Mitigate

In the event of noncompliance with this Permit, the Permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. [R.61-79.270.30(d)]

ENCLOSURE (4)

I.E.6. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of a backup or auxiliary facility or similar systems only when necessary to achieve compliance with the conditions of the permit. [R.61-79.270.30(e)]

I.E.7. Duty to Provide Information

The Permittee shall furnish to the Department, within a reasonable time, any relevant information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit. [R.61-79.264.74(a), 270.30(h)]

I.E.8. Inspection and Entry

Pursuant to R.61-79.270.30(i), the Permittee shall allow the Department, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

I.E.8.a. Enter at reasonable times upon the Permittee's premises where a regulated activity is located or conducted, or where records must be kept under the conditions of this permit;

I.E.8.b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

I.E.8.c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and

I.E.8.d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by RCRA, any substances or parameters at any location.

I.E.9. Monitoring and Records

I.E.9.a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix I of R.61-79.261 or an equivalent method approved by the Department. Laboratory methods must be those specified in the most recent edition of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846, Standard Methods of Wastewater Analysis, or an equivalent method as specified in the Waste Analysis Plan. [R.61-79.270.30(j)(1)]

I.E.9.b. The Permittee shall retain at the facility records of all monitoring information, including all calibration and maintenance records, copies of all reports and records required by this permit, the certification required by R.61-79.264.73(b)(9), and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report, record, certification, or application. These periods may be extended by request of the Department at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.

I.E.9.c. Pursuant to R.61-79.270.30(j)(3), records of monitoring information shall specify:

I.E.9.c.i. The dates, exact place, and times of sampling or measurements;

I.E.9.c.ii. The individuals who performed the sampling or measurements;

I.E.9.c.iii. The dates analyses were performed;

I.E.9.c.iv. The individuals who performed the analyses;

I.E.9.c.v. The analytical techniques or methods used; and

I.E.9.c.vi. The results of such analyses.

I.E.10. Reporting Planned Changes

The Permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. The permitted facility is the hazardous waste container storage area and the hazardous waste storage tank. [R.61-79.270.30(l)(1)]

ENCLOSURE (4)

I.E.11. Reporting Anticipated Noncompliance

The Permittee shall give advance notice to the Department of any planned changes in the permitted facility (hazardous waste container storage area and hazardous waste storage tank) or activity which may result in noncompliance with permit requirements. [R.61-79.270.30(l)(2)]

I.E.12. Transfer of Permits

This permit is not transferable to any person, except after notice to the Department. The Department may require modification or revocation and reissuance of the Permit pursuant to R.61-79.270.40. Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of R.61-79.264 and 270 and this permit. [R.61-79.270.30(l)(3), 264.12(c)]

I.E.13. Twenty-four Hour Reporting

I.E.13.a. The Permittee shall report to the Department any noncompliance with the permit which may endanger health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the circumstances. This report shall include the following:

i. Information concerning the release of any hazardous waste, or hazardous constituents, which may endanger public drinking water supplies.

ii. Any information of a release or discharge of hazardous waste, or of a fire or explosion from the hazardous waste management facility, which could threaten the environment or human health outside the facility.

I.E.13.b. The description of the occurrence and its cause shall include:

i. Name, address, and telephone number of the owner or operator;

ii. Name, address, and telephone number of the facility;

iii. Date, time, and type of incident;

iv. Name and quantity of materials involved;

v. The extent of injuries, if any;

vi. An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and

vii. Estimated quantity and disposition of recovered material that resulted from the incident.

I.E.13.c. A written submission shall also be provided to the Department within five days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period(s) of noncompliance (including exact dates and times); whether the noncompliance has been corrected; and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Department may waive the five-day written notice requirement in favor of a written report within 15 days.The written report shall contain the above as well as the information specified under condition I.E.13.a and b. [R.61-79.270.30(l)(6)]

I.E.14. Other Noncompliance

The Permittee shall report all other instances of noncompliance not otherwise required to be reported above, Permit Conditions I.E.10. - 13., at the time monitoring reports are submitted. The reports shall contain the information listed in Condition I.E.13. [R.61-79.270.30(l)(10)]

I.E.15. Other Information

Whenever the Permittee becomes aware that he failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Department, the Permittee shall promptly submit such facts or information. [R.61-79.270.30(l)(11)]

I.F. SIGNATORY REQUIREMENT

All applications, reports, or information submitted to or requested by the Department shall be signed and certified in accordance with R.61-79.270.11. and 270.30(k).

I.G. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DEPARTMENT

All reports, notifications, or other submissions which are required by this Permit to be sent or given to the Department should be sent by certified mail or given to:

S.C. Department of Health and Environmental Control
Bureau of Solid and Hazardous Waste Management
2600 Bull Street
Columbia, South Carolina 29201
Attn: Director, Division of Facility Engineering

I.H. CONFIDENTIAL INFORMATION

In accordance with R.61-79.270.12, the Permittee may claim confidential any information required to be submitted by this permit.

I.I. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The Permittee shall maintain at the facility, until closure is completed and certified by an independent, registered professional engineer, the following documents and all amendments, revisions and modifications to these documents:

1. Waste Analysis Plan, as required by R.61-79.264.13 and this Permit.

2. Inspection schedules, as required by R.61-79.264.15(b)(2) and this Permit.

3. Personnel training documents and records, as required by R.61-79.264.16(d) and this Permit.

4. Contingency Plan, as required by R.61-79.264.53(a) and this Permit.

5. Operating record, as required by R.61-79.264.73 and this Permit.

6. Closure Plan, as required by R.61-79.264.112(a) and this Permit.

7. All other documents required by Module I, Permit Condition E.9 and this Permit.

ENCLOSURE (4)

MODULE II - GENERAL FACILITY CONDITIONS

II.A. DESIGN AND OPERATION OF FACILITY

The Permittee shall construct, maintain and operate the facility in a manner to minimize the possibility of a fire, explosion, or any unplanned sudden or nonsudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment, as required by R.61-79.264.31.

II.B. REQUIRED NOTICES

II.B.1. Hazardous Waste Imports

The Permittee shall not receive hazardous waste from a foreign source.

II.B.2. Hazardous Waste from Off-Site Sources

The Permittee shall not receive hazardous waste at the tank storage or container storage facilities from an off-site source.

II.C. GENERAL WASTE ANALYSIS

The Permittee shall follow the waste analysis procedures required by R.61-79.264.13, as described in the Waste Analysis Plan of the approved permit application.

The Permittee shall verify the analysis of each waste stream annually as part of its quality assurance program, in accordance with Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA Publication SW-846, or equivalent methods approved by the Regional Administrator. At a minimum, the Permittee shall maintain proper functional instruments, use approved sampling and analytical methods, verify the validity of sampling and analytical procedures, and perform correct calculations. If the Permittee uses a contract laboratory to perform analyses, then the Permittee shall inform the laboratory in writing that it must operate under the waste analysis conditions set forth in this Permit.

II.D. SECURITY

The Permittee shall comply with the security provisions of R.61-79.264.14(b)(2) and (c), and Part F-1 of the permit application.

ENCLOSURE (4)

II.E. GENERAL INSPECTION REQUIREMENTS

The Permittee shall follow the inspection schedule set out in Part F-2 of the Permit Application. The Permittee shall remedy any deterioration or malfunction discovered by an inspection, as required by R.61-79.264.15(c). Records of inspection shall be kept, as required by R.61-79.264.15(d).

II.F. PERSONNEL TRAINING

The Permittee shall conduct personnel training, as required by R.61-79.264.16. This training program shall follow the outline in Part H-3 of the permit application. The Permittee shall maintain training documents and records, as required by R.61-79.264.16(d) and (e).

II.G. SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

The Permittee shall comply with the requirements of R.61-79.264.17(a). The Permittee shall follow the procedures for handling ignitable, reactive, and incompatible wastes set forth in Part F-5 of the permit application.

II.H. PREPAREDNESS AND PREVENTION

II.H.1. Required Equipment

At a minimum, the Permittee shall maintain at the facility the equipment set forth in the Contingency Plan, Part G of the permit application, as required by R.61-79.264.32.

II.H.2. Testing and Maintenance of Equipment

The Permittee shall test and maintain the equipment specified in Permit Condition II.H.1, as necessary, to assure its proper operation in time of emergency, as required by R.61-79.264.33.

II.H.3. Access to Communications or Alarm System

The Permittee shall maintain access to the communications or alarm system, as required by R.61-79.264.34.

II.H.4. Required Aisle Space

At a minimum, the Permittee shall maintain aisle space, as required by R.61-79.264.35 and the plans and specifications in Part D of the permit application.

II.H.5. Arrangements with Local Authorities

The Permittee shall maintain arrangements with state and local authorities, as required by R.61-79.264.37. If state or local officials refuse to enter into preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

II.I. CONTINGENCY PLAN

II.I.1. Implementation of Plan

The Permittee shall immediately carry out the provisions of the Contingency Plan whenever there is a fire, explosion, or release of hazardous waste or constituents which could threaten human health or the environment.

II.I.2. Copies of Plan

The Permittee shall comply with the requirements of R.61-79.264.53.

II.I.3. Amendments to Plan

The Permittee shall review and immediately amend, if necessary, the Contingency Plan, as required by R.61-79.264.54.

II.I.4. Emergency Coordinator

A trained emergency coordinator shall be available at all times in case of an emergency, as required by R.61-79.264.55.

II.J. RECORDKEEPING AND REPORTING

In addition to the recordkeeping and reporting requirements specified elsewhere in this Permit, the Permittee shall do the following:

II.J.1. Operating Record

The Permittee shall maintain a written operating record at the facility, in accordance with R.61-79.264.73.

II.J.2. Quarterly Report

The Permittee shall comply with the quarterly reporting requirements of R.61-79.264.75.

ENCLOSURE (4)

II.K. GENERAL CLOSURE REQUIREMENTS

II.K.1. Performance Standard

The Permittee shall close the facility, as required by R.61-79.264.111 and in accordance with the Closure Plan, Part I of the permit application.

II.K.2. Amendment to Closure Plan

The Permittee shall amend the Closure Plan, in accordance with R.61-79.264.112(c), whenever necessary.

II.K.3. Notification of Closure

The Permittee shall notify the Department in writing at least 45 days prior to the date on which he expects to begin final closure of the facility, as required by R.61-79.264.112(d).

II.K.4. Time Allowed For Closure

After receiving the final volume of hazardous waste, the Permittee shall treat, remove from the unit or facility, or dispose of on site all hazardous waste and shall complete closure activities, in accordance with R.61-79.264.113 and the schedules specified in the Closure Plan.

II.K.5. Disposal or Decontamination of Equipment, Structures, and Soils

The Permittee shall decontaminate or dispose of all contaminated equipment, structures, and soils, as required by R.61-79.264.114 and the Closure Plan.

II.K.6. Certification of Closure

The Permittee shall certify that the facility has been closed in accordance with the specifications in the Closure Plan, as required by R.61-79.264.115.

II.L. This section is not used in this permit.

II.M. Within thirty days of the effective date of this permit, the Permittee shall submit information to the Department which adequately addresses the comments in the September 23, 1991 memorandum from the Division of Hydrogeology.

MODULE III - STORAGE IN CONTAINERS

III.A. MODULE HIGHLIGHTS

This permit module is for one hazardous waste container storage facility at the Marine Corps Air Station. The facility has a fiberglass roof and a concrete floor.

The facility has a total floor area of 1600 square feet which is divided into six (6) storage bays. Four of the bays are 184 square feet each, and two are 125 square feet each. In addition, the facility contains 440 square feet of primary aisle space and 174 square feet of spill containment curbs.

The types of wastes which are stored in the container storage building are listed below in permit condition III.B.1.

The maximum permitted volume of container storage is 13,200 gallons. The facility also has secondary containment capacity of 1908 gallons.

III.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

III.B.1. The Permittee may store the wastes identified in the approved permit application in containers at the facility, subject to the terms of this Permit and as follows:

The location of the containers must be in accordance with Part D-1(c) of the approved permit application.

III.B.2. The Permittee is prohibited from storing hazardous waste that is not identified in the approved permit application.

III.C. CONDITION OF CONTAINERS

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the Permittee shall transfer the hazardous waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this Permit. [R.61-79.264.171]

III.D. COMPATIBILITY OF WASTE WITH CONTAINERS

The Permittee shall assure that the ability of the container to contain the waste is not impaired, as required. All acidic wastes shall be contained in containers which have a polyethylene liner.

ENCLOSURE (4)

III.E. MANAGEMENT OF CONTAINERS

The Permittee shall keep all containers closed during storage, except when it is necessary to add or remove waste, and shall not open, handle, or store containers in a manner which may rupture the container or cause it to leak. [R.61-79.264.173]

III.F. CONTAINMENT SYSTEMS

The Permittee shall maintain the containment system in accordance with the attached plans and specifications, contained in Part D of the permit application. [R.61-79.264.175]

III.G. INSPECTION SCHEDULES AND PROCEDURES

The Permittee shall inspect the container area weekly, in accordance with the Inspection Schedule to detect leaking containers and deterioration of containers and the containment system caused by corrosion and other factors. [R.61-79.264.174]

III.H. RECORDKEEPING

The Permittee shall place the results of all waste analyses and trial tests and any other documentation showing compliance with the requirements of Permit Conditions III.K.1 and III.K.2 and R.61-79.264.17(b) and 264.177 in the facility operating record.

III.I. CLOSURE

At closure of the container area, the Permittee shall remove all hazardous waste and hazardous waste residues from the containment system, in accordance with the procedures in the Closure Plan.

III.J. SPECIAL CONTAINER PROVISIONS FOR IGNITABLE OR REACTIVE WASTE

III.J.1. The Permittee shall not locate containers holding ignitable or reactive waste within 15 meters (50 feet) of the facility's property line.

III.J.2. The Permittee shall take precautions to prevent accidental ignition or reaction of ignitable or reactive waste and follow the procedures specified in Part F-5 of the permit application.

III.K. SPECIAL CONTAINER PROVISIONS FOR INCOMPATIBLE WASTE

III.K.1. The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same container unless the procedures in Part F-5 of the permit application are followed.

III.K.2. The Permittee shall not place hazardous waste in an unwashed container that previously held an incompatible waste or material.

III.K.3. The Permittee shall separate containers of incompatible wastes as described in Part D-1(c) of the approved permit application.

ENCLOSURE (4)

MODULE IV - STORAGE IN TANKS

IV.A. This permit is for one aboveground tank storage facility at the Marine Corps Air Station. The tank is constructed of 1/4 inch of carbon steel with three steel reinforced concrete cradles with neoprene cradle pads.

The tank has a diameter of 10.5 feet. The secondary containment capacity for the tank is 16,046 gallons.

The types of wastes which are stored in the tank are listed below in permit conditions IV.C.

IV.B. PERMITTED UNIT

The Permittee may store a total volume of 10,000 gallons of hazardous waste in one existing tank subject to the terms of this permit and as follows:

Tank Capacity (Gallons)	Dimensions of Tank	Secondary Containment Required	Description of Hazardous Wastes
10,000	10.5 ft. (diam) 15 ft.	yes-in place	Waste oil, solvents, and mixed paint wastes

IV.C. WASTE IDENTIFICATION

IV.C.1. The Permittee may store only those hazardous wastes identified in the approved permit application and in the tank at the location and constructed in accordance with the approved permit application and subject to the terms of this permit.

IV.C.2. The Permittee is prohibited from storing hazardous waste that is not identified in the approved Permit application.

IV.D. SECONDARY CONTAINMENT

The Permittee shall design, construct, and operate the secondary containment system, in accordance with the approved detailed design plans and descriptions contained in the approved permit application. [R.61-79.264.193(b)-(f)]

IV.E. OPERATING REQUIREMENTS

IV.E.1. The Permittee shall not place hazardous wastes or treatment reagents in the tank system if they could cause the tank, its ancillary equipment, or a containment system to rupture, leak, corrode, or otherwise fail. [R.61-79.264.194(a)]

IV.E.2. The Permittee shall prevent spills and overflows from the tank or containment systems using the methods described in the approved permit application. [R.61-79.264.194(b)]

IV.F. RESPONSE TO LEAKS OR SPILLS

In the event of a leak or a spill from the tank system, from a secondary containment system, or if a system becomes unfit for continued use, the Permittee shall remove the system from service immediately and complete the following actions: [R.61-79.264.196(a)-(f)]

IV.F.1. Stop the flow of hazardous waste into the system and inspect the system to determine the cause of the release.

IV.F.2. Remove waste and accumulated precipitation from the system within 24 hours of the detection of the leak to prevent further release and to allow inspection and repair of the system. If the Permittee finds that it will be impossible to meet this time period, the Permittee shall notify the Department and demonstrate that the longer time period is required.

If the collected material is RCRA hazardous waste, it must be managed in accordance with all applicable requirements of R.61-79 Parts 262-264. The Permittee shall note that if the collected material is discharged through a point source to U.S. waters or to a POTW, it is subject to requirements of the Clean Water Act. If the collected material is released to the environment, it may be subject to reporting under R.61-79.302.

IV.F.3. Contain visible releases to the environment. The Permittee shall immediately conduct a visual inspection of all releases to the environment and based on that inspection: (1) prevent further migration of the leak or spill to soils or surface water and (2) remove and properly dispose of any visible contamination of the soil or surface water.

IV.F.4. Close the system in accordance with the Closure Plan, in the approved permit application, unless the following actions are taken:

IV.F.4.a. For a release caused by a spill that has not damaged the integrity of the system, the Permittee shall remove the released waste and make any necessary repairs to fully restore the integrity of the system before returning the tank system to service.

IV.F.4.b. For a release caused by a leak from the primary tank system to the secondary containment system, the Permittee shall repair the primary system prior to returning it to service.

IV.F.5. For all major repairs to eliminate leaks or restore the integrity of the tank system, the Permittee must obtain a certification by an independent, qualified, registered professional engineer that the repaired system is capable of handling hazardous wastes without release for the intended life of the system before returning the system to service. Examples of major repairs are: installation of an internal liner, repair of a ruptured tank, or repair or replacement of a secondary containment vault.

IV.G. <u>INSPECTION SCHEDULES AND PROCEDURES</u>

IV.G.1. The Permittee shall inspect the tank systems, in accordance with the Inspection Schedule, as specified in the approved permit application, and shall complete the items in Permit Conditions IV.G.2 and IV.G.3. as part of those inspections:

IV.G.2. The Permittee shall inspect the overfill controls, in accordance with the inspection schedule. [R.61-79.264.195(a)]

IV.G.3. The Permittee shall inspect the following components of the tank system once each operating day: [R.61-79.264.195(b)]

IV.G.3.a. Above ground portions of the tank system, if any, to detect corrosion or releases of wastes;

IV.G.3.b. Data gathered from monitoring and leak detection equipment (e.g., pressure or temperature gauges, monitoring wells) to ensure that the tank system is being operated according to its design;

IV.G.3.c. Construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system, to detect erosion or signs of releases of hazardous waste (e.g., wet spots, dead vegetation).

IV.G.4. The Permittee shall document compliance with Permit Conditions IV.G.2. and IV.G.3. and place this documentation in the operating record for the facility. [R.61-79.264.195(d)]

IV.H. RECORDKEEPING AND REPORTING

IV.H.1. The Permittee shall report to the Department, within 24 hours of detection, when a leak or spill occurs from the tank system or secondary containment system to the environment. [R.61-79.264.196.(d)(1)] (A leak or spill of one pound or less of hazardous waste, that is immediately contained and cleaned-up, need not be reported.) [R.61-79.264.196(d)(2)] (Releases that are contained within a secondary containment system need not be reported).

IV.H.2. Within 30 days of detecting a release to the environment from the tank system or secondary containment system, the Permittee shall report the following information to the Department: [R.61-79.264.196(d)(3)]

a. Likely route of migration of the release;

b. Characteristics of the surrounding soil (including soil composition, geology, hydrogeology, and climate);

c. Results of any monitoring or sampling conducted in connection with the release. If the Permittee finds it will be impossible to meet this time period, the Permittee should provide the Department with a schedule of when the results will be available. This schedule must be provided before the required 30-day submittal period expires;

d. Proximity of downgradient drinking water, surface water, and populated areas; and

e. Description of response actions taken or planned.

IV.H.3. The Permittee shall submit to the Department all certifications of major repairs to correct leaks within seven days from returning the tank system to use. [R.61-79.264.196(f)]

IV.I. CLOSURE AND POST-CLOSURE CARE

IV.I.1. At closure of the tank system(s), the Permittee shall follow the procedures in the Closure Plan, as specified in the approved permit application. [R.61-79.264.197(a)]

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IV.I.2. If the Permittee demonstrates that not all contaminated soils can be practically removed or decontaminated, in accordance with the Closure Plan, then the Permittee shall close the tank system(s) and perform post-closure care. [R.61-79.264.197(b)]

IV.J. SPECIAL TANK PROVISIONS FOR IGNITABLE OR REACTIVE WASTES

IV.J.1. The Permittee shall not place ignitable or reactive waste in the tank system or in the secondary containment system, unless the procedures described in the approved permit application are followed.

IV.J.2. The Permittee shall comply with the requirements for the maintenance of protective distances between the waste management area and any public ways, streets, alleys, or an adjoining property line that can be built upon, as required in Tables 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code" (1977 or 1981). [R.61-79.264.198(b)]

IV.K. SPECIAL TANK PROVISIONS FOR INCOMPATIBLE WASTES

IV.K.1. The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same tank system or the same secondary containment system, as required by R.61-79.264.199(a).

IV.K.2. The Permittee shall not place hazardous waste in a tank system that has not been decontaminated and that previously held an incompatible waste or material, as required by R.61-79.264.199(b).

MODULE V - SOLID WASTE MANAGEMENT UNITS

V.A. APPLICABILITY

The Conditions of this Part apply to:

V.A.1. The solid waste management units (SWMUs) and areas of concern (AOCs) identified in Appendix A-1, which require further investigation.

V.A.2. The SWMUs and AOCs identified in Appendix A-2, and A-3 which require no further investigation at this time or are addressed under other portions of this permit.

V.A.3. Any additional SWMUs or AOCs discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means.

V.B. Notification and Assessment Requirements for Newly Identified SWMUs and AOCs

V.B.1. The Permittee shall notify the Department in writing, within fifteen (15) calendar days of discovery, of any additional SWMUs as discovered under Condition V.A.3.

V.B.2. The Permittee shall notify the Department in writing, within fifteen (15) calendar days of discovery, of any Areas of Concern (AOCs) as discovered under Condition V.A.3. The notification shall include, at a minimum, the location of the AOC and all available information pertaining to the nature of the release (e.g., media affected, hazardous constituents released, magnitude of release, etc.). If the Department determines that further investigation of an AOC is required, the permit will be modified in accordance with R.61-79.270.41.

V.B.3 The Permittee shall prepare and submit to the Department, within ninety (90) calendar days of notification, a SWMU Assessment Report (SAR) for each SWMU identified under Condition V.B.1. At a minimum, the SAR shall provide the following information:

a. Location of unit(s) on a topographic map of appropriate scale such as required under R.61-79.270.14(b)(19).

b. Designation of type and function of unit(s).

c. General dimensions, capacities and structural description of unit(s) (supply any available plans/drawings).

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d. Dates that the unit(s) was operated.

e. Specification of all wastes that have been managed at/in the unit(s) to the extent available. Include any available data on R.61-79.261, Appendix VIII constituents contained in the wastes.

f. All available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (to include groundwater data, soil analyses, air, and/or surface water data).

V.B.4. Based on the results of the SAR, the Department shall determine the need for further investigations at the SWMUs covered in the SAR. If the Department determines that such investigations are needed, the Permittee shall be required to prepare a plan for such investigations as outlined in Condition V.E.1.b.

V.C. Notification Requirements for Newly Discovered Releases at Previously Identified SWMUs

V.C.1. The Permittee shall notify the Department in writing of any newly discovered release(s) of hazardous waste or hazardous constituents discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, within fifteen (15) calendar days of discovery. Such newly discovered releases may be from SWMUs or AOCs identified in Condition V.A.2. or SWMUs identified in Condition V.A.3. for which further investigation under Condition V.B.4. was not required.

V.C.2. If the Department determines that further investigation of the SWMUs is needed, the Permittee shall be required to prepare a plan for such investigations as outlined in Condition V.B.3.

V.D. Confirmatory Sampling (CS)

V.D.1. The Permittee shall prepare and submit to the Department, within ninety (90) calendar days of the effective date of this permit, a Confirmatory Sampling (CS) Workplan to determine any release from SWMUs and AOCs identified in Condition V.A.3 and Appendix A-4. The CS Workplan shall include schedules of implementation and completion of specific actions necessary to determine a release. It should also address applicable requirements and affected media. Completion of all Confirmatory Sampling shall not exceed forty-five (45) days.

V.D.2. The CS Workplan must be approved by the Department, in writing, prior to implementation. The Department shall specify the start date of the CS Workplan schedule in the letter approving the CS Workplan. If the Department disapproves the CS Workplan, the Department shall either (1) notify the Permittee in writing of the CS Workplan's deficiencies and specify a due date for submission of a revised CS Workplan, or (2) revise the CS Workplan and notify the Permittee of the revisions.

V.D.3. The Permittee shall implement the confirmatory sampling in accordance with the approved CS Workplan.

V.D.4. The Permittee shall prepare and submit to the Department in accordance with the approved schedule, a Confirmatory Sampling (CS) Report identifying those SWMUs and AOCs listed in Condition V.A.3 and Appendix A-4 that have released hazardous waste or hazardous constituents into the environment. The CS Report shall include all data, including raw data, and a summary and analysis of the data, that supports the above determination.

V.D.5. Based on the results of the CS Report, the Department shall determine the need for further investigations at the SWMUs and AOCs covered in the CS Report. If the Department determines that such investigations are needed, the Permittee shall be required to prepare a plan for such investigations as outlined in Condition V.E.1.b. The Department will notify the permittee of any no further action decision.

V.E. <u>RCRA Facility Investigation (RFI)</u>

V.E.1. <u>RFI Workplan(s)</u>

V.E.1.a. The Permittee shall prepare and submit to the Department, within one hundred twenty (120) calendar days of the effective date of this permit, a RCRA Facility Investigation (RFI) Workplan for those units identified in Condition V.A.1. This Workplan shall be developed to meet the requirements of Condition V.E.1.c.

V.E.1.b. The Permittee shall prepare and submit to the Department, within ninety (90) calendar days of notification by the Department, an RFI Workplan for those units identified under Condition V.B.4. or Condition V.C.2. This RFI Workplan(s) shall be developed to meet the requirements of Condition V.E.1.c.

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V.E.1.c. The RFI Workplan(s) shall meet the requirements of Appendix B at a minimum. The Workplan(s) shall include schedules of implementation and completion of specific actions necessary to determine the nature and extent of releases and the potential pathways of contaminant releases to the air, land, surface water, and groundwater. The Permittee must provide sufficient justification and/or documentation that a release is not probable if a unit or a media/pathway associated with a unit (groundwater, surface water, soil, subsurgace gas, or air) is not included in the RFI Workplan(s). Such deletions of a unit, media or pathway from the RFI(s) are subject to the approval of the Department. The permittee shall provide sufficient written justification for any omissions or deviations from the minimum requirements of Appendix B. Such omissions or deviations are subject to the approval of the Department. The RFI Workplan may be phased to allow for subsequent investing activity to be contingent upon the initial phase findings. If the scope of the Workplan is designed to be an initial phase, the initial phase work must summarize all potential final phase activities needed to meet the requirements of this condition. In addition, the scope of the RFI Workplan(s) shall include all investigations necessary to ensure compliance with R.61-79.264.101.

V.E.1.d. The RFI Workplan(s) must be approved by the Department, in writing, prior to implementation. The Department shall specify the start date of the RFI Workplan schedule in the letter approving the RFI Workplan(s). If the Department disapproves the RFI Workplan(s), the Department shall either (1) notify the Permittee in writing of the RFI Workplan's deficiencies and specify a due date for submission of a revised RFI Workplan, or (2) revise the RFI Workplan and notify the Permittee of the revisions and the start date of the schedule within the approved RFI Workplan.

V.E.2. <u>RFI Implementation</u>

The Permittee shall implement the RFI(s) in accordance with the approved RFI Workplan(s) and Appendix B.

V.E.3. <u>RFI Reports</u>

V.E.3.a. If the time required to conduct the RFI(s) is greater than one hundred eighty (180) calendar days, the Permittee shall provide the Department with quarterly RFI Progress Reports (90 day intervals) beginning ninety (90) calendar days from the start date specified by the Department in the RFI Workplan approval letter. The Progress Reports shall contain the following information at a minimum:

i. A description of the portion of the RFI completed;

ii. Summaries of findings;

iii. Summaries of <u>all</u> deviations from the approved RFI Workplan during the reporting period;

iv. Summaries of <u>all</u> problems or potential problems encountered during the reporting period;

v. Projected work for the next reporting period; and

vi. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

V.E.3.b. The Permittee shall prepare and submit to the Department Draft and Final RCRA Facility Investigation Report(s) for the investigations conducted pursuant to the Workplan(s) submitted under Condition V.E.1. The Draft RFI Report(s) shall be submitted to the Department for review in accordance with the schedule in the approved RFI Workplan(s). The Final RFI Report(s) shall be submitted to the Department within thirty (30) calendar days of receipt of the Department's comments on the Draft RFI Report. The RFI Report(s) shall include an analysis and summary of all required investigations of SWMUs and AOCs and their results. The summary shall describe the type and extent of contamination at the facility, including sources and migration pathways, and a description of actual or potential receptors. The Report(s) shall also describe the extent of contamination (qualitative/quantitative) in relation to background levels indicative of the area. If the draft RFI Report is a summary of the initial phase investigatory work, the report shall include a workplan for the final phase investigatory actions required based on the initial findings. Approval of the final phase workplan shall be carried out in accordance with Condition V.E.1.d. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support a Corrective Measures Study, if necessary.

V.E.3.c. The Department will review the Final RFI Report(s) and notify the permittee of the need for further investigative action and/or the need for a Corrective Measures Study to meet the requirements of V.G. and R.61-79.264.101. The Department will notify the permittee of any no further action decision. Any further investigative action required by the Department shall be prepared and submitted in accordance with a schedule specified by the Department and approved in accordance with Condition V.E.1.d.

V.F. Interim Measures (IM)

V.F.1. IM Workplan

V.F.1.a. Upon notification by the Department, the Permittee shall prepare and submit an Interim Measures (IM) Workplan for any SWMU which the Department determines poses a current or potential threat to human health or the environment. The IM Workplan shall be submitted within thirty (30) calendar days of such notification and shall include the elements listed in V.F.1.b. Such interim measures may be conducted concurrently with investigations required under the terms of this permit. The Permittee may initiate IM by submitting an IM Workplan for approval and reporting in accordance with the requirements under Condition V.F.

V.F.1.b. The IM Workplan shall ensure that the interim measures are designed to mitigate any current or potential threat(s) to human health or the environment and to be consistent with and integrated into any long-term solution at the facility. The IM Workplan shall include: the interim measures objectives, procedures for implementation (including any designs, plans, or specifications), and schedules for implementation.

V.F.1.c. The IM Workplan must be approved by the Department, in writing, prior to implementation. The Department shall specify the start date of the IM Workplan schedule in the letter approving the IM Workplan. If the Department disapproves the IM Workplan, the Department shall either (1) notify the Permittee in writing of the IM Workplan's deficiencies and specify a due date for submission of a revised IM Workplan, or (2) revise the IM Workplan and notify the Permittee of the revisions and the start date of the schedule within the approved IM Workplan.

V.F.2. IM Implementation

V.F.2.a. The Permittee shall implement the interim measures in accordance with the approved IM Workplan.

V.F.2.b. The Permittee shall give notice to the Department as soon as possible of any planned changes, reductions or additions to the IM Workplan.

V.F.2.c. Final approval of corrective action required under R.61-79.264.101 which is achieved through interim measures shall be in accordance with R.61-79.270.41. and Condition V.H. as a permit modification.

V.F.3. IM Reports

V.F.3.a. If the time required for completion of interim measures is greater than six (6) months, the Permittee shall provide the Department with progress reports semi-annually beginning 180 calendar days from the start date specified by the Department in the IM Workplan approval letter. The Progress Reports shall contain the following information at a minimum:

i. A description of the portion of the interim measures completed;

ii. Summaries of all deviations from the IM Workplan during the reporting period;

iii. Summaries of all problems or potential problems encountered during the reporting period;

iv. Projected work for the next reporting period; and

v. Copies of laboratory/monitoring data.

V.F.3.b. The Permittee shall prepare and submit to the Department, within ninety (90) calendar days of completion of interim measures conducted under Condition V.F., an IM Report. The IM Report shall contain the following information at a minimum:

a. A description of interim measures implemented;

b. Summaries of results;

c. Summaries of all problems encountered;

d. Summaries of accomplishments and/or effectiveness of interim measures; and

e. Copies of all relevant laboratory/monitoring data, etc. in accordance with Condition I.E.9.

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V.G. Corrective Measures Study

V.G.1. Corrective Measures Study (CMS) Plan

V.G.1.a. The Permittee shall prepare and submit a CMS Plan for those units requiring a CMS within ninety (90) calendar days of notification by the Department that a CMS is required. This CMS Plan shall be developed to meet the requirements of Condition V.G.1.b.

V.G.1.b. The CMS Plan shall meet the requirements of Appendix C. The CMS Plan shall include schedules of implementation and completion of specific actions necessary to complete a CMS. The Permittee must provide sufficient justification and/or documentation for any unit identified in accordance with Condition V.G.1.a. which is deleted from the CMS Plan. Such deletion of a unit is subject to the approval of the Department. The CMS shall be conducted in accordance with the approved CMS Plan. The Permittee shall provide sufficient written justification for any omissions or deviations from the minimum requirements of Appendix C. Such omissions or deviations are subject to the approval of the Department. The scope of the CMS Plan shall include all investigations necessary to ensure compliance with 3005(c)(3), and R.61-79.264.101. The Permittee shall implement corrective actions beyond the facility boundary, where necessary to protect human health and the environment, unless the Permittee demonstrates to the satisfaction of the Department that, despite the Permittee's best efforts, as determined by the Department, the Permittee was unable to obtain the necessary permission to undertake such actions. The permittee is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis. Assurances of financial responsibility for completion of such off-site corrective action will be required.

V.G.1.c. The Department shall either approve or disapprove, in writing, the CMS plan. If the Department disapproves the CMS Plan, the Department shall either (1) notify the Permittee in writing of the CMS Plan's deficiencies and specify a due date for submittal of a revised CMS Plan, or (2) revise the CMS Plan and notify the Permittee of the revisions. This modified CMS Plan becomes the approved CMS Plan.

V.G.2. Corrective Measures Study Implementation

The Permittee shall begin to implement the Corrective Measures Study according to the schedules specified in the CMS Plan, no later than ninety (90) calendar days after the Permittee has received written approval from the Department for the CMS Plan. The CMS shall be conducted in accordance with the approved CMS Plan approved in accordance with Condition V.G.1.c.

V.G.3. CMS Report

V.G.3.a. The Permittee shall prepare and submit to the Department a draft and final CMS Report for the study conducted pursuant to the approved CMS Plan. The draft CMS Report shall be submitted to the Department within ninety (90) calendar days from the Department's approval of the CMS Plan. The final CMS Report shall be submitted to the Department within thirty (30) days of receipt of the Department's comments on the draft CMS Report. The CMS Report shall summarize any bench-scale or pilot tests conducted. The CMS Report must include an evaluation of each remedial alternative and recommend the preferred alternative. The CMS Report shall present all information gathered under the approved CMS Plan. The CMS Final Report must contain adequate information to support the Department's decision on the recommended remedy, described under Permit Condition V.H.

V.G.3.b. If the Department determines that the CMS Final Report does not fully satisfy the information requirements specified under Permit Condition V.G.3.a., the Department may disapprove the CMS Final Report. If the Department disapproves the CMS Final Report, the Department shall notify the Permittee in writing of the deficiencies in the CMS Final Report and specify a due date for submittal of a revised CMS Final Report. The Department will notify the Permittee of any no further action decision.

V.G.3.c. As specified under Permit Condition V.G.3.b., based on preliminary results and the CMS Final Report, the Department may require the Permittee to evaluate additional remedies or particular elements of one or more proposed remedies.

V.H. Remedy Approval and Permit Modification

V.H.1. A remedy shall be selected by the Department from the remedial alternatives evaluated in the CMS. It will be based at a minimum on protection of human health and the environment, as per specific site conditions, existing regulations, and guidance.

V.H.2. Pursuant to R.61-79.270.41., a permit modification will be initiated by the Department upon concurrence of a remedy selected in accordance with Condition V.H.1.

V.I. Modification of the Corrective Action Schedule of Compliance

V.I.1. If at any time the Department determines that modification of the Corrective Action Schedule of Compliance is necessary, the Department may initiate a modification to the Schedule of Compliance Appendix D.

V.I.2. Modifications that are initiated and finalized by the Department according to proper procedure, as outlined in Appendix E, shall not be subject to administrative appeal.

V.I.3. Modifications to the Schedule of Compliance do not constitute a reissuance of the Permit.

V.J. Imminent Hazards

V.J.1. The Permittee shall report to the Department any imminent or existing hazard to public health or the environment from any release of hazardous waste or hazardous constituents. Such information shall be reported orally within 24 hours from such time the Permittee becomes aware of the circumstances. This report shall include the information specified under Conditions I.E.13.a. and b.

V.J.2. A written report shall also be provided to the Department within fifteen (15) calendar days of the time the Permittee becomes aware of the circumstances. The written report shall contain the information specified under Conditions I.E.13.a. and b.; a description of the release and its cause; the period of the release; whether the release has been stopped; and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the release.

V.K. Plan and Report Requirements

V.K.1. All plans and schedules shall be subject to approval by the Department prior to implementation. The Permittee shall revise all submittals and schedules as specified by the Department. Upon approval the Permittee shall implement all plans and schedules as written.

V.J.2. The results of all plans and reports shall be submitted in accordance with the approved schedule. Extensions of the due date for submittals may be granted by the Department based on the Permittee's demonstration that sufficient justification for the extension exists.

V.K.3. If the Permittee at any time determines that the SAR information required under Condition V.B., or RFI Workplan(s) required under Condition V.E. no longer satisfy the requirements of R.61-79.264.101 or this permit for prior or continuing releases of hazardous waste or hazardous constituents from solid waste management units and/or areas of concern, the permittee shall submit an amended RFI Workplan(s) to the Department within ninety (90) calendar days of such determination.

V.K.4. All reports shall be signed and certified in accordance with R.61-79.270.11.

V.K.5. Three (3) copies of all reports and plans shall be provided by the Permittee to S.C. DHEC at the following address:

Director
Division of Facility Engineering
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

ENCLOSURE #

MODULE VI - WASTE MINIMIZATION

VI.A General Requirements

Pursuant to R.61-79.264.73(b)(9), and Section 3005(h) of RCRA, 42 U.S.C. 6925(h), the permittee must certify, no less often than annually, that:

VI.A.1. The permittee has a program in place to reduce the volume and toxicity of hazardous waste to the degree determined by the permittee to be economically practicable; and

VI.A.2. The proposed method of treatment, storage or disposal is the most practicable method available to the permittee which minimizes the present and future threat to human health and the environment.

VI.B. Waste Minimization Record Keeping

The permittee shall maintain copies of this certification in the facility operating record as required by R.61-79.264.73(b)(9).

VI.C. Waste Minimization Program Objectives

The Waste Minimization program required under VI.A.1 above should address the objectives listed in Appendix F.

MODULE VII - LAND DISPOSAL RESTRICTIONS

VII.A. General Restrictions

VII.A.1. R.61-79.268 identifies hazardous wastes that are restricted from land disposal and defines those limited circumstances which an otherwise prohibited waste may continue to be placed on or in a land treatment, storage or disposal unit. The Permittee shall maintain compliance with the requirements of R.61-79.268. Where the Permittee has applied for an extension, waiver or variance under R.61-79.268 the Permittee shall comply with all restrictions on land disposal under this Part once the effective date for the waste has been reached pending final approval of such application.

VII.B Land Disposal Prohibitions and Treatment Standards

VII.B.1. A restricted waste identified in R.61-79.268 Subpart C may not be placed in a land disposal unit without further treatment unless the requirements of R.61-79 Part 268 Subparts C and/or D are met.

VII.B.2. The storage of hazardous wastes restricted from land disposal under R.61-79.268 is prohibited unless the requirements of R.61-79.268 Subpart E are met.

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MODULE VIII - AIR EMISSION REQUIREMENTS

VIII.A. General Requirements

The Permittee shall comply with the Organic Air Emissions Requirements of 40 CFR 264, Subpart AA (for process vents), and/or Subpart BB (for equipment leaks), and 270.24 and 270.25 as applicable. This portion of the Permit covers the equipment associated with SWMU No. 74, also referred to as Hazardous Waste Storage Tank No. 979.

VIII.B. Permitted Wastes

The liquid stored in Hazardous Waste Storage Tank No. 979 contains an estimated 90 + % organics by weight. The waste stream is a liquid consisting of predominately JP-5 with traces of water and additives. Through the use of published tables for jet fuels, the Permittee has determined the waste stream to be considered a heavy liquid as defined in the regulation with a vapor pressure of approximately 0.1 KPa at 20 C.

VIII.C. Permitted Equipment

The specific tank equipment subject to the Subpart BB Organic Air Emission Regulations includes the following:

Gate Valves and associated flanges	2
Quick-disconnnect fitting and flange	1
Capped fill connection on top of tank	1
Level gauge insertion connection	1
Manhole located on top of the tank	1

These items of equipment are shown on Figure D-6 in the Part B Application.

VIII.D. Monitoring and Inspection Schedules and Procedures

VIII.D.1. Equipment shall be inpsected according to the following schedule:

Gate Valves and associated flanges	Weekly
Quick-disconnnect fitting and flange	Weekly
Capped fill connection on top of tank	Weekly
Level gauge insertion connection	Daily/when in use
Manhole located on top of the tank	Weekly

ENCLOSURE (4)

VIII.D.2. The equipment listed in Section VIII.D.1. of this permit shall be considered in heavy liquid service, shall be monitored visually, audibly, by olfactory methods, or other detection methods, and shall comply with the requirements of 40 CFR 264.1058.

VIII.D.3. The Permittee shall keep on-file the following information: a listing of an identification number for each piece of equipment that contains or contacts hazardous waste with organic concentrations of at least 10 percent by weight; the respective hazardous waste management unit identificaiton; each piece of equipment's specific location at the facility; and the type of equipment (i.e., valve, pump, compressor, pressure relief device, open-ended valve or line, flange or other connector, associated air emission control device of system); the hazardous waste state at the equipment; the method of compliance with the standard as stated in 40 CFR 264.1064(b)(1); and a log documenting that equipment has been inspected according to the schedule in Section VIII.D.1. of this permit.

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APPENDIX A-3

List of Solid Waste Management Units regulated by the State's portion of the RCRA permit:

SWMU No.	Description
74	Hazardous Waste Storage Tank No. 979
75	Hazardous Waste Container Storage Facility

APPENDIX A-4

List of Solid Waste Management Units and Area of Concern requiring confirmatory sampling:

SWMU No.	Description
4	Southeast Point Disposal Area
17	FUNA FUTI Road Disposal Area
67	Sewage Treatment Plant
16	Storm Sewer Drainage and Outfall
AOC C	Mop Washing Area
AOC K	EOD Demonstration Site
AOC P	Miscellaneous Solid Waste Site

APPENDIX A-1

List of Solid Waste Management Units and Areas of Concern requiring an RFI:

SWMU/AOC No.	Description
1	Former Landfill (Fenced Area)
2	Lafrene Road Landfill
3	Borrow Pit Landfill
5	Pesticide Residue Pit Area
6	Inert Landfill seepage trenches
7	Day Tank Spill Area
8	Kavieng Street Landfill
9	Former Lube Oil Pits
12	Eastern Fire Training Pits
14	Inert Landfill
18	Current Fire Training Pits
57	MAG-31, Product Storage Area Bldg. 565

APPENDIX A-2

List of Solid Waste Management Units or Areas of Concern that require no further action at this time:

SWMU/AOC No.	Description
10	Tank Bottom Sludges Disposal Area
11	Former Ground Support Equipment Maintenance Area
13	Western Fire Training Pits
15	PCB Spill Area
19	Satellite Storage Tank (Bldg. 999)
20	Satellite Storage Tank (Bldg. 1000)
21	Satellite Storage Tank #1002
22	Satellite Storage Tank #996
23	Satellite Storage Tank #997
24	Satellite Storage Tank (Bldg. 998)
25	Satellite Storage Tank (Bldg. 995)
26	Satellite Storage Tank #994
27	Satellite Storage Tank #993
28	Satellite Storage Tank #992
29	Satellite Storage Tank (Bldg. 843)
31	Temporary Haz. Waste Storage Area Bldg. 414 SW
32	Temporary Haz. Waste Storage Area Bldg. 414 SE
33	Temporary Haz. Waste Storage Area Bldg. 728
34	Temporary Storage Area (Bldg. 729)
35	Temporary Haz. Waste Storage Area Bldg. 416 SW
36	Temporary Haz. Waste Storage Area Bldg. 416 SE
37	Temporary Haz. Waste Storage Area Bldg. 594 NE
38	Temporary Haz. Waste Storage Area Bldg. 838
39	Temporary Haz. Waste Storage Area Bldg. 418
40	Temporary Haz. Waste Storage Area Bldg. 551, 865
41	Temporary Haz. Waste Storage Area Bldg. 661, 663
42	Temporary Haz. Waste Storage Area Bldg. 662
43	Temporary Haz. Waste Storage Area Bldg. 780
44, 45	Temporary Haz. Waste Storage Area Bldg. 565
46	Temporary Haz. Waste Storage Area Bldg. 843
47	Temporary Haz. Waste Storage Area Bldg. 625
48	Temporary Storage Area (Bldg. 773)
53	Temporary Storage Area (Bldg. 816)
49	Temporary Haz. Waste Storage Area Bldg. 730
50	Temporary Haz. Waste Storage Area Bldg. 863
51	Temporary Haz. Waste Storage Area Bldg. (Ammo Popper)
52	Temporary Haz. Waste Storage Area Bldg. 617
54	Pressurized Leak Detection System (Bldg. 857)
55	Scrap Metal Waste Storage Area (Bldg. 594)
56	Contaminated Fuel Storage Tank
58	Dumpster
59	Safety Kleen Machines
60	Dirty Rag Containers

SWMU/AOC No.	Description
61	Floor Drains and Associated Sewer System
62	Waste Recovery Drums
64	65551
65	401402
66	Bldg. 426
68	East Fuel Vessels and Drainage System
69	West Fuel Vessels and Drainage System
70	Compressor
71	"Ammo Popper" (EOD Site)
72	Base Photo Lab (Bldg. 596)
73	Base Dental Clinic (Bldg. 598)a
AOC A	Stained Concrete Pad
AOC-B	Bldg. 594
AOC D	Container Storage Area (Bldg. 418) & associated "Drip Pan"
AOC-E	Bldg. 565
AOC-F	Bldg. 661
AOC G	Battery Repair Shop
AOC-H	Bldg. 816
AOC I	Automotive Parts Storage Area at Automotive Hobby Shop
AOC-J	Marine Corps Exchange Service Station
AOC L	Air Conditioner Filter
AOC M	Generator
AOC-N	Bldg. 663
AOC O	Solid Waste Disposal Site

APPENDIX B

RCRA Facility Investigation (RFI)
Workplan Outline

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APPENDIX B

RCRA FACILITY INVESTIGATION (RFI) WORKPLAN OUTLINE

I. RFI WORKPLAN REQUIREMENTS

The Permittee shall prepare a RCRA Facility Investigation (RFI) Workplan that meets the requirements of Part II of this document and the RFI Guidance, EPA-530/SW-89-031. This Workplan shall also include the development of the following plans, which shall be prepared concurrently:

A. Project Management Plan

Permittee shall prepare a Project Management Plan which will include a discussion of the technical approach, schedules and personnel. The Project Management Plan will also include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RCRA Facility Investigation.

B. Sampling and Analysis Plan(s)

The Permittee shall prepare a plan to document all monitoring procedures: field sampling, sampling procedures and sample analysis performed during the investigation to characterize the environmental setting, source, and releases of hazardous constituents, so as to ensure that all information and data are valid and properly documented. The Sampling Strategy and Procedures shall be in accordance with Characterization of Hazardous Waste Sites A Methods Manual: Volume II., Available Sampling Methods, EPA-600/4-84-076, or EPA Region IV Engineering Support Branch's Standard Operating Procedure and Quality Assurance Manual (SOP). Any deviations from these references must be requested by the applicant and approved by EPA. The Sampling and Analysis Plan must specifically discuss the following unless the EPA-600/4-84-076 or SOP procedures are specifically referenced.

1. Sampling Strategy

a. Selecting appropriate sampling locations, depths, etc.;

b. Obtaining all necessary ancillary data;

c. Determining conditions under which sampling should be conducted;

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d. *Determining which media are to be sampled (e.g., groundwater, air, soil, sediment, subsurface gas);*

e. *Determining which parameters are to be measured and where;*

f. *Selecting the frequency of sampling and length of sampling period;*

g. *Selecting the types of samples (e.g., composites vs. grabs) and number of samples to be collected.*

2. *Sampling Procedures*

a. *Documenting field sampling operations and procedures, including;*

i) *Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, preservatives, and absorbing reagents);*

ii) *Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;*

iii) *Documentation of specific sample preservation method;*

iv) *Calibration of field instruments;*

v) *Submission of field-biased blanks, where appropriate;*

vi) *Potential interferences present at the facility;*

vii) *Construction materials and techniques, associated with monitoring wells and piezometers;*

viii) *Field equipment listing and sampling containers;*

ix) *Sampling order; and*

x) *Decontamination procedures.*

b. *Selecting appropriate sample containers;*

c. *Sampling preservation; and*

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d. *Chain-of-custody, including:*

i) *Standardized field tracking reporting forms to establish sample custody in the field prior to shipment; and*

ii) *Pre-prepared sample labels containing all information necessary for effective sample tracking.*

3. *Sample Analysis*

Sample analysis shall be conducted in accordance with SW-846: "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods" (third edition). The sample analysis section of the Sampling and Analysis Plan shall specify the following:

a. *Chain-of-custody procedures, including:*

i) *Identification of a responsible party to act as sampling custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;*

ii) *Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracking report sheets; and*

iii) *Specification of laboratory sample custody procedures for sample handling, storage, and dispersement for analysis.*

b. *Sample storage;*

c. *Sample preparation methods;*

d. *Analytical Procedures, including:*

i) *Scope and application of the procedure;*

ii) *Sample matrix;*

iii) *Potential interferences;*

iv) *Precision and accuracy of the methodology; and*

v) *Method detection limits.*

e. *Calibration procedures and frequency;*

f. *Data reduction, validation and reporting;*

g. Internal quality control checks, laboratory performance and systems audits and frequency, including:

i) Method blank(s);

ii) Laboratory control sample(s);

iii) Calibration check sample(s);

iv) Replicate sample(s);

v) Matrix-spiked sample(s);

vii) Control charts;

viii) Surrogate samples;

ix) Zero and span gases; and

x) Reagent quality control checks.

h. Preventive maintenance procedures and schedules;

i. Corrective action (for laboratory problems); and

j. Turnaround time.

C. Data Management Plan

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

The data record shall include the following:

a. Unique sample or field measurement code;

b. Sampling or field measurement location and sample or measurement type;

c. Sampling or field measurement raw data;

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d. *Laboratory analysis ID number;*

e. *Property or component measures; and*

f. *Result of analysis (e.g. concentration).*

2. *Tabular Displays*

The following data shall be presented in tabular displays:

a. *Unsorted (raw) data;*

b. *Results for each medium, or for each constituent monitored;*

c. *Data reduction for statistical analysis, as appropriate;*

d. *Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and*

e. *Summary data*

3. *Graphical Displays*

The following data shall be presented in graphical formats (e. g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transits, three dimensional graphs, etc.):

a. *Display sampling location and sampling grid:*

b. *Indicate boundaries of sampling area, and area where more data are required;*

c. *Display geographical extent of contamination;*

d. *Illustrate changes in concentration in relation to distances from the source, time, depth or other parameters; and*

e. *Indicate features affecting inter-media transport and show potential receptors.*

II. RCRA Facility Investigation (RFI) Requirements

RCRA Facility Investigation:

The Permittee shall conduct those investigations necessary to: characterize the facility (Environmental Setting); define the source (Source Characterization); define the degree and extent of release of hazardous constituents (Contamination Characterization); and identify actual or potential receptors.

The investigations should result in data of adequate technical content and quality to support the development and evaluation of the corrective action plan if necessary. The information contained in a RCRA Part B permit application and/or RCRA Section 3019 Exposure Information Report may be referenced as appropriate.

All sampling and analyses shall be conducted in accordance with the Sampling and Analysis Plan. All sampling locations shall be documented in a log and identified on a detailed site map.

A. Environmental Setting

The Permittee shall collect information to supplement and/or verify Part B information on the environmental setting at the facility. The Permittee shall characterize the following as they relate to identified sources, pathways and areas of releases of hazardous constituents from Solid Waste Management Units.

1. Hydrogeology

The Permittee shall conduct a program to evaluate hydrogeologic conditions at the facility. This program shall provide the following information:

a. *A description of the regional and facility specific geologic and hydrogeologic characteristics affecting ground-water flow beneath the facility, including:*

   i) *Regional and facility specific stratigraphy: description of strata including strike and dip, identification of stratigraphic contacts;*

   ii) *Structural geology: description of local and regional structural features (e. g., folding, faulting, tilting, jointing, etc.);*

   iii) *Depositional history;*

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iv) *Regional and facility specific ground-water flow patterns; and*

v) *Identification and characterization of areas and amounts of recharge and discharge.*

b. *An analysis of any topographic features that might influence the ground-water flow system.*

c. *Based on field data, tests, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the facility (i. e., the aquifers and any intervening saturated and unsaturated units), including:*

i) *Hydraulic conductivity and porosity (total and effective);*

ii) *Lithology, grain size, sorting, degree of cementation;*

iii) *An interpretation of hydraulic interconnections between saturated zones; and*

iv) *The attenuation capacity and mechanisms of the natural earth materials (e. g., ion exchange capacity, organic carbon content, mineral content etc.).*

d. *Based on data obtained from groundwater monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source, a representative description of water level or fluid pressure monitoring including:*

i) *Water-level contour and/or potentiometric maps;*

ii) *Hydrologic cross sections showing vertical gradients;*

iii) *The flow system, including the vertical and horizontal components of flow; and*

iv) *Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences.*

e. *A description of man-made influences that may affect the hydrology of the site, identifying:*

i) *Local water-supply and production wells with an approximate schedule of pumping; and*

ii) *Man-made hydraulic structures (pipelines, french drains, ditches, etc.).*

2. *Soils*

The Permittee shall conduct a program to characterize the soil and rock units above the water table in the vicinity of contaminant release(s). Such characterization may include, but not be limited to, the following types of information as appropriate:

a. *Surface soil distribution;*
b. *Soil profile, including ASTM classification of soils;*
c. *Transects of soil stratigraphy;*
d. *Hydraulic conductivity (saturated and unsaturated);*
e. *Relative permeability;*
f. *Bulk density;*
g. *Porosity;*
h. *Soil sorption capacity;*
i. *Cation exchange capacity (CEC);*
j. *Soil organic content;*
k. *Soil pH;*
l. *Particle size distribution;*
m. *Depth of water table;*
n. *Moisture content;*
o. *Effect of stratification on unsaturated flow;*
p. *Infiltration;*
q. *Evapotranspiration;*
r. *Storage capacity;*
s. *Vertical flow rate; and*
t. *Mineral content.*

3. *Surface Water and Sediment*

The Permittee shall conduct a program to characterize the surface water bodies in the vicinity of the facility. Such characterization may include, but not be limited to, the following activities and information:

a. *Description of the temporal and permanent surface water bodies including:*

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i) *For lakes and estuaries: location, elevation, surface area, inflow, outflow, depth, temperature stratification, and volume;*

ii) *For impoundments: location, elevation, surface area, depth, volume, freeboard, and construction and purpose;*

iii) *For streams, ditches, and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, flooding tendencies (i. e., 100 year event), discharge point(s), and general contents.*

iv) *Drainage patterns; and*

v) *Evapotranspiration.*

b. *Description of the chemistry of the natural surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients, chemical oxygen demand, total organic carbon, specific contaminant concentrations, etc.*

c. *Description of sediment characteristics including:*

i) *Deposition area;*

ii) *Thickness profile; and*

iii) *Physical and chemical parameters (e. g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.)*

4. *Air*

The Permittee shall provide information characterizing the climate in the vicinity of the facility. Such information may include, but not be limited to:

a. *A description of the following parameters:*

i) *Annual and monthly rainfall averages;*

ii) *Monthly temperature averages and extremes;*

iii) *Wind speed and direction;*

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iv) Relative humidity/dew point;

v) Atmospheric pressure;

vi) Evaporation data;

vii) Development of inversions; and

viii) Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence. (i. e. Hurricanes)

b. A description of topographic and man-made features which affect air flow and emission patterns, including:

i) Ridges, hills or mountain areas;

ii) Canyons or valleys;

iii) Surface water bodies (e. g. rivers, lakes, bays, etc.); and

iv) Buildings.

B. Source Characterization

For those sources from which releases of hazardous constituents have been detected the Permittee shall collect analytical data to completely characterize the wastes and the areas where wastes have been placed, to the degree that is possible without undue safety risks, including: type, quantity; physical form; disposition (containment or nature of deposits); and facility characteristics affecting release (e. g., facility security, and engineering barriers). This shall include quantification of the following specific characteristics, at each source area:

1. Unit/Disposal Area Characteristics:

a. Location of unit/disposal area;
b. Type of unit/disposal area;
c. Design features;
d. Operating practices (past and present)
e. Period of operation;
f. Age of unit/disposal area;
g. General physical conditions; and
h. Method used to close the unit/disposal area.

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2. *Waste Characteristics*:

a. *Type of wastes placed in the unit;*

i) *Hazardous classification (e. g., flammable, reactive, corrosive, oxidizing or reducing agent);*

ii) *Quantity; and*

iii) *Chemical composition.*

b. *Physical and chemical characteristics such as;*

i) *Physical form (solid, liquid, gas);*

ii) *Physical description (e. g., powder, oily sludge);*

iii) *Temperature;*

iv) *pH;*

v) *General chemical class (e. g., acid, base, solvent);*

vi) *Molecular weight;*

vii) *Density;*

viii) *Boiling point;*

ix) *Viscosity;*

x) *Solubility in water;*

xi) *Cohesiveness of the waste; and*

xii) *Vapor pressure.*

c. *Migration and dispersal characteristics of the waste such as:*

i) *Sorption capability;*

ii) *Biodegradability, bioconcentration, biotransformation;*

iii) *Photodegradation rates;*

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iv) Hydrolysis rates; and

v) Chemical transformations.

The Permittee shall document the procedures used in making the above determinations.

C. Characterization of Releases of Hazardous Constituents

The Permittee shall collect analytical data on groundwater, soils, surface water, sediment, and subsurface gas contamination in the vicinity of the facility in accordance with the sampling and analysis plan as required above. These data shall be sufficient to define the extent, origin, direction, and rate of movement of contamination. Data shall include time and location of sampling, media sampled, concentrations found, conditions during sampling, and the identity of the individuals performing the sampling and analysis. The Permittee shall address the following types of contamination at the facility:

1. Groundwater Contamination

The Permittee shall conduct a groundwater investigation to characterize any plumes of contamination detected at the facility. This investigation shall at a minimum provide the following information:

a. A description of the horizontal and vertical extent of any plume(s) of hazardous constituents originating from or within the facility;

b. The horizontal and vertical direction of contamination movement;

c. The velocity of contaminant movement;

d. The horizontal and vertical concentration profiles of hazardous constituents in the plume(s);

e. An evaluation of factors influencing the plume movement; and

f. An extrapolation of future contaminant movement.

The Permittee shall document the procedures used in making the above determinations (e. g., well design, well construction, geophysics, modeling, etc.).

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2. Soil Contamination

The Permittee shall conduct an investigation to characterize the contamination of the soil and rock units above the saturated zone in the vicinity of any contaminant release. The investigation may include the following information:

a. A description of the vertical and horizontal extent of contamination;

b. A description of appropriate contaminant and soil chemical properties within the contaminant source area and plume. This may include contaminant solubility, speciation, absorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation;

c. Specific contaminant concentrations;

d. The velocity and direction of contaminant movement; and

e. An extrapolation of future contaminant movement.

The Permittee shall document the procedures used in making the above determinations.

3. Surface Water and Sediment Contamination

The Permittee shall conduct a surface water investigation to characterize contamination in surface water bodies resulting from releases of hazardous constituents at the facility.

The investigation may include, but not be limited to, the following information:

a. A description of the horizontal and vertical extent of any plume(s) originating from the facility, and the extent of contamination in underlying sediments;

b. The horizontal and vertical direction of contaminant movement;

c. The contaminant velocity;

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d. An evaluation of the physical, biological and chemical factors influencing contaminant movement;

e. An extrapolation of future contaminant movement; and

f. A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, specific contaminant concentrations, etc.

4. Air Contamination

The Permittee shall conduct an investigation to characterize gaseous releases of hazardous constituents into the atmosphere or any structures or buildings. This investigation may provide the following information:

a. A description of the horizontal and vertical direction and velocity of contaminant movement;

b. The rate and amount of the release; and

c. The chemical and physical composition of the contaminant(s) released, including horizontal and vertical concentration profiles.

The Permittee shall document the procedures used in making the above determinations.

D. Potential Receptors

The Permittee shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility. Chemical analysis of biological samples and/or data on observable effects in ecosystems may also be obtained as appropriate. The following characteristics shall be identified:

1. Current local uses and planned future uses of groundwater:

a. Type of use (e. g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial); and

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b. Location of ground water users, to include withdrawal and discharge wells, within one mile of the impacted area.

The above information should also indicate the aquifer or hydrogeologic unit used and/or impacted for each item.

2. Current local uses and planned future uses of surface waters directly impacted by the facility:

   a. Domestic and municipal (e. g., potable and lawn/gardening watering);
   b. Recreational (e. g. swimming, fishing);
   c. Agricultural;
   d. Industrial; and
   e. Environmental (e. g., fish and wildlife propagation).

3. Human use of or access to the facility and adjacent lands, including but not limited to:

   a. Recreation;
   b. Hunting;
   c. Residential;
   d. Commercial; and
   e. Relationship between population locations and prevailing wind direction.

4. A general description of the biota in surface water bodies on, adjacent to, or affected by the facility.

5. A general description of the ecology within area the area adjacent to the facility.

6. A general demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age; sex; and sensitive subgroups.

7. A description of any known or documented endangered or threatened species near the facility.

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Building 1040

Building 1059 Epoxy Curing Agent - Component A

Compound	Wt%	Wt % of VOC	Density of Compound (lb/gal)	Density of Volatile Fraction (lb/gal)
2-Propanol	10.00	11.11	6.558	0.729
n-Butyl Acetate	10.00	11.11	7.35	0.817
2-Ethoxyethyl Acetate	30.00	33.33	8.13	2.710
Methyl Ethyl Ketone	25.00	27.78	6.71	1.864
Toluene	10.00	11.11	7.16	0.795
Xylene	5.00	5.56	7.244	0.403
	90.00	100.00		7.318

Building 1040

Building 1059 Epoxy Curing Agent Component B

Compound	Wt%	Wt% of VOC	Density of Compound (lb/gal)	Density of Volatile Fraction (lb/gal)
1-Methoxy-2-propanol	10.00	22.22	7.673	1.705
Xylene	5.00	11.11	7.244	0.805
n-Butyl Acetate	5.00	11.11	7.35	0.817
2-Ethoxyethyl Acetate	10.00	22.22	8.13	1.806
Toluene	5.00	11.11	7.16	0.795
Methyl Ethyl Ketone	10.00	22.22	6.71	1.491
	45.00	100.0		7.419

Building 1059 So-Sure Primer (Zinc Chromate Green)

Compound	Wt%	Wt % of VOC	Density of Compound (lb/gal)	Density of Volatile Fraction (lb/gal)
VM&P Naphtha	5	3.57	6.28	0.224
Isobutyl Alcohol	5	3.57	6.722	0.240
Toluene	25	17.85	7.16	1.278
PGME**	5	3.57	7.51	0.268
Isobutyl Acetate	5	3.57	7.23	0.258
Acetone	25	17.85	6.64	1.185
Propane	18.3	13.07	4.166	0.544
Isobutane	4.44	3.17	4.629	0.147
n-Butane	7.31	5.22	4.854	0.253
Methylene Chloride*	40	28.56	11.07	3.16
	140.05	100.00		7.557

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*Not a regulated VOC, do not include in VOC emission estimate

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The following tables summarize the results of calculations for estimating the density of the volatile fraction of the paints indicated.

For a detailed calculation, see the example calculation for Spraybooth.

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5. Using the appropriate data from Section III, and equation 5 from Section V, the actual annual toluene emission rate is calculated:

$$\text{Actual annual toluene emission rate (lb/yr)} = 81.6\ \frac{gal}{yr} * 7.45\ \frac{lb}{gal} * \frac{10}{100}\ \frac{lb\ toluene}{lb}$$

$$= \boxed{60.8\ \frac{lb\ toluene}{yr}}$$

6. Using the appropriate data from Section III, the density of solids from 3 above, and equation 6 from Section V, the actual annual PM emission rate is calculated:

$$\text{Actual annual PM emissions (lb/yr)} = \left(1 - \frac{80.3}{100}\right) * 7.98\ \frac{lb\ solids}{gal\ solids} * 81.6\ \frac{gal}{yr} * 0.65 * 0.1 * (1 - 0.90)$$

$$= \boxed{0.834\ \frac{lb\ PM}{yr}}$$

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2. Using the resulting wt.% of VOC for each component 1 above, the component densities from Section III, and equation 2 from Section IV, the density of the volatile portion is calculated:

$$\text{Density of volatile portion (lb VOC/gal VOC)} = \frac{11.11}{100} * 6.558 + \frac{11.11}{100} * 7.35 + \frac{33.33}{100} * 8.13 + \frac{27.78}{100} * 6.24 + \frac{11.11}{100} * 7.16 + \frac{5.56}{100} * 7.244$$

$$= 7.32 \ \frac{\text{lb VOC}}{\text{gal VOC}}$$

3. Using the density of the volatile portion from 2 above, the appropriate inputs from Section III, and equation 3 from Section IV, the solids density is calculated:

$$\text{Density of solids (lb solids/gal solids)} = \frac{7.45 \ \frac{\text{lb}}{\text{gal paint}} \left(\frac{80.3}{100}\right) * 7.32 \ \frac{\text{lb VOC}}{\text{gal VOC}}}{1 - \frac{80.3}{100}}$$

$$= 7.98 \ \frac{\text{lb solids}}{\text{gal solids}}$$

4. Using the appropriate data from Section III, the density of the volatile portion from 2 above, and equation 4 from Section IV, the actual annual VOC emission rate is calculated:

$$\text{Actual annual VOC emissions (lb/yr)} = 81.6 \ \frac{\text{gal}}{\text{yr}} * \frac{80.3}{100} * 7.32 \ \frac{\text{lb}}{\text{gal}} = \boxed{486 \ \frac{\text{lb VOC}}{\text{yr}}}$$

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E. The actual annual toluene emission rate is calculated using the equation on page 1 of Calculation No. 6, rewritten as:

$$\text{Actual annual toluene emissions (lb/yr)} = \text{Annual paint consumption}\left(\frac{gal}{yr}\right) * \text{Product density}\left(\frac{lb}{gal}\right) * \frac{\text{wt\% toluene}}{100} \quad (5)$$

F. The actual annual PM emission rate is calculated using the equation on page 8 of Calculation No. 7, rewritten as:

$$\text{Actual annual PM emissions (lb/yr)} = \frac{\text{\% solids by volume}}{100} * \text{Density of solids}\left(\frac{lb\ solids}{gal\ solids}\right) * \text{Annual paint consumption}\left(\frac{gal}{yr}\right) \quad (6)$$

$$* \text{Fraction overspray} * \text{Fraction overspray reaching filters} * \left(1 - \text{Fraction PM removed by filters}\right)$$

where the density of solids is calculated using equation (3)

VI. EXAMPLE

1. Using equation (1) in Section II, the wt % of VOC for each component is calculated using the paint component information from Section III:

Wt % of:	2-Propanol	$= \frac{10}{90} * 100$	$= 11.11$
	n-Butyl acetate	$= \frac{10}{90} * 100$	$= 11.11$
	2-Ethoxyethyl acetate	$= \frac{30}{90} * 100$	$= 33.33$
	Methyl ethyl ketone	$= \frac{25}{90} * 100$	$= 27.78$
	Toluene	$= \frac{10}{90} * 100$	$= 11.11$
	Xylene	$= \frac{5}{90} * 100$	$= 5.56$

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V. TECHNICAL APPROACH

A. First, the weight percent of VOC is calculated for each component i using equation 2(i) on p. 5 of Calculation No. 7:

$$(\text{Wt\% of VOC})_i = \frac{(\text{Wt\%})_i}{\sum_i (\text{Wt\%})_i} \qquad (1)$$

where $\text{Wt\%}_i$ is the weight percent of VOC component i

B. Next, the volatile portion is calculated using equation 2(ii) on p. 5 of Calculation No. 7:

$$\text{Density of volatile portion}\left[\frac{\text{lb VOC}}{\text{gal VOC}}\right] = \sum_i \left[\left(\text{Wt\% of VOC}\right)_i * \left(\text{Component Density}\left(\frac{\text{lb}}{\text{gal}}\right)\right)_i\right] \qquad (2)$$

where the (Wt. % of VOC) is calculated using equation (1)

C. The solids density is calculated using equation 3 on p. 5 of Calculation No. 7:

$$\text{Density of solids}\left[\frac{\text{lb solids}}{\text{gal solids}}\right] = \frac{\text{Product density}\left(\frac{\text{lb}}{\text{gal paint}}\right) - \left(\frac{\text{\% VOC by volume}}{100}\right) * \text{Density of volatile portion}\left(\frac{\text{lb VOC}}{\text{gal VOC}}\right)}{1 - \left(\frac{\text{\% VOC by volume}}{100}\right)} \qquad (3)$$

where the (Density of the volatile portion) is calculated using equation (2)

D. The actual annual VOC emission rate is calculated using the equation on page 7 of Calculation Number 7:

$$\text{Actual annual VOC emission (lb/yr)} = \text{Annual paint consumption}\left(\frac{\text{gal}}{\text{yr}}\right) * \frac{\text{\% VOC by volume}}{100} * \text{Density of the volatile portion}\left(\frac{\text{lb VOC}}{\text{gal VOC}}\right) \qquad (4)$$

where the density of the volatile portion is calculated using equation (2)

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III. DATA

- Actual annual consumption = 81.6 gal/yr
- Product density = 7.45 lb/gal paint (Ref: MSDS)
- Percent VOC by volume = 80.3 (Ref: MSDS)

- Paint components:

Compound	Wt % (Ref: MSDS)	Density (lb/gal)
2-Propanol	10	6.558
n-Butyl Acetate	10	7.35
2-Ethoxyethyl acetate	30	8.13
Methyl Ethyl Ketone	25	6.77
Toluene	10	7.16
Xylene	5	7.244
Total	90	

- Fraction of overspray = 0.65
- Fraction of overspray reaching the filters = 0.10
- Fraction PM removed by filters = 0.90

IV. ASSUMPTIONS

- All solvent constituents are vaporized during the coating process

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PROJECT SOUTHDIV/MCAS-Beaufort JOB NO. 652-009-02

SUBJECT Spraybooths SHEET 1 OF 6 SHEETS

I. PURPOSE

This calculation is an example of the approach for estimating emissions from spraybooths. The general approach for estimating emissions from spraybooths is given in Calculation Numbers 6 and 7 (attached).

This calculation estimates the annual PM, VOC, and toluene emission rates from the MALS paintbooth in Building 1040 (Source ID: BEA-01-1040-4-512), resulting from the use of Epoxy Curing Agent Component A. Approach II in Calculation No. 7 is used for estimating the actual annual PM and VOC emission rates. Estimating the emission rates of PM, VOC, and other hazardous and toxic air pollutants from other points follows the same procedure.

If a toxic or hazardous air pollutant is a solid in its pure form (e.g. strontium chromate), the effects of overspray, fallout, and filter control efficiency must be accounted for, as with PM.

II. GIVEN INFORMATION

Paint booth type: Filter pad
Paint application method: Spray gun
Paint: Epoxy Curing Agent Component A

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15-minute:

$$\left(\begin{matrix}\text{\% Solids}\\ \text{by volume}\end{matrix}\right)\left(\begin{matrix}\text{Density}\\ \text{of solids}\end{matrix}\right)\left(\begin{matrix}\text{15-min}\\ \text{consumption}\end{matrix}\right)\left(1 - \begin{matrix}\text{Transfer}\\ \text{efficiency}\end{matrix}\right)\left(\begin{matrix}\text{\% of PM}\\ \text{reaching filter}\end{matrix}\right)\left(1 - \begin{matrix}\text{Collection}\\ \text{efficiency}\end{matrix}\right)$$

Example: White Lacquer Spray Aerosol

$$\text{Particulate matter} = \left(1 - \frac{85\%}{100}\right)\left(21.36\ \frac{\text{lb Sol}}{\text{gal Sol}}\right)\left(0.25\ \frac{\text{gal}}{\text{15 min}}\right)\left(1 - \frac{50\%}{100}\right)\left(\frac{10\%}{100}\right)\left(1 - \frac{90\%}{100}\right)$$

$$= 0.0040\ \frac{\text{lb solids}}{\text{15-min}}$$

The 24-hour and annual particulate matter emission rate equations are the same as the 15-min equation except the consumption rate for those time periods are used.

When calculating the total emissions of a pollutant from each spray booth, the following assumptions are made.

15-minute emissions:

It is only possible to spray one type of paint in a 15-minute period. Therefore, the paint with the highest emissions for each pollutant was used as the worst case.

24-hour and annual emissions:

It is possible to spray more than one type of paint throughout an eight-hour day or annually. Therefore, a representative sample of the quantities of different kinds of paints used in these time frames were selected based on interviews with base personnel. To calculate the total emissions for each painting operation, the emissions from each type of paint are summed with the total being the maximum potential emissions from the painting operations.

Actual Emission Rates

To calculate the actual emission rates of criteria pollutants, the same procedure is followed using actual recorded usage of each coating instead of projected maximum usage.

Example: White Lacquer Spray Aerosol

$$\text{VOC:} \quad \left(0.25 \frac{\text{gal}}{15 \text{ min}}\right)\left(\frac{85\% \text{ VOC}}{100}\right)\left(\frac{6.113 \text{ lb VOC}}{\text{gal VOC}}\right) = 1.30 \frac{\text{lb VOC}}{15 \text{ min}}$$

24-hour:

$$\text{VOC emission rate, } \frac{\text{lb}}{15 \text{ min}} = \left(\text{24-hr consumption}\right)\left(\text{\% VOC by volume}\right)\left(\text{Density of VOC}\right)$$

Annual:

$$\text{VOC emission rate, } \frac{\text{lb}}{\text{yr}} = \left(\text{Annual consumption}\right)\left(\text{\% VOC by volume}\right)\left(\text{Density of VOC}\right)$$

Particulate Matter

Particulate matter emissions from spray painting are related to the coating usage rates, solids fraction in the coating, fraction of overspray, fraction of overspray reaching the filters, and the efficiency of the filters in collecting particulate matter. The fraction of overspray can be determined from the transfer efficiency of the spray equipment. Many spray applications have a 65% transfer efficiency, owing to the equipment used and the large articles coated. Higher (80%) and lower (50%) transfer efficiencies are possible.

Not all particulate matter that is not applied to the article being coated reaches the filter. Because the articles are large and the filters are not in the line of the spray, only 10% of the overspray reaches the filter.

The efficiency of the filter collecting the particulate matter reaching the filter is relatively high. These filters are usually a fibrous pad design, and the particulate matter is at low velocity when it reaches the pad. Most spray booth filter pads achieve 90% collection of particulate matter. Some filters are guaranteed to achieve 95% reduction.

To calculate the particulate matter emissions, the following assumptions and equations were used with the 15-min, 24-hour, and annual consumption rates introduced in the VOC section.

Example:

$$\text{Density of solids} = \frac{8.4\ \text{lb/gal} - \left(\frac{85\%\ \text{VOC}}{100}\right)(6.113\ \text{lb/gal})}{1 - \frac{85\%\ \text{VOC}}{100}}$$

$$= 21.36\ \frac{\text{lb solids}}{\text{gal solids}}$$

4. Calculate the process weight rate (lb/hour) from the maximum hourly usage rate. In many cases, the maximum quantity of coating used in a 15-min period was also the maximum quantity for an hour.

$$\text{Process weight rate, } \frac{\text{lb}}{\text{hr}} = \left(\begin{array}{c}\text{hourly}\\ \text{consumption}\end{array}\right)\left(\begin{array}{c}\text{product}\\ \text{density}\end{array}\right)$$

Example: White Lacquer Spray Aerosol

$$0.25\ \frac{\text{gal}}{\text{hr}}\left(8.4\ \frac{\text{lb}}{\text{gal}}\right) = 2.1\ \frac{\text{lb}}{\text{hr}}$$

$$2.1\ \frac{\text{lb}}{\text{hr}}\left(\frac{1\ \text{ton}}{2{,}000\ \text{lb}}\right) = 0.0011\ \frac{\text{ton}}{\text{hr}}$$

5. Calculate the emission rates for different time periods based on the maximum quantity expected to be used during the given period:

<u>15-min</u>:

$$\begin{array}{c}\text{VOC}\\ \text{emission rate,}\end{array}\ \frac{\text{lb}}{15\ \text{min}} = \left(\begin{array}{c}\text{15-min}\\ \text{consumption}\end{array}\right)\left(\begin{array}{c}\text{\% VOC}\\ \text{by volume}\end{array}\right)\left(\begin{array}{c}\text{Density}\\ \text{of VOC}\end{array}\right)$$

Example: White Lacquer Spray Aerosol

Compound	Wt %	(i) Wt % of VOC	Density of Compound (lb/gal)	(ii) Density of Volatile Fraction (lb/gal)
Acetone	12	16	6.64	1.062
Toluene	26.5	35.33	7.16	2.530
VM&P Naphtha	5	6.67	6.28	0.418
Xylene	5	6.67	7.244	0.483
Propellant	26.5	35.33	4.585	1.620
Total	75	100		6.113

(i) $(\text{Wt \%})_i \div (\text{Total Wt \%}) = \text{Wt \% of VOC}$

(ii) $\sum (\text{Wt \% of VOC})_i \times (\text{Compound Density})_i = \text{Density of volatile portion} \left[\frac{\text{lb VOC}}{\text{gal VOC}} \right]$

The density of the volatile portion of the paint (white lacquer spray aerosol) is 6.113 $\frac{\text{lb VOC}}{\text{gal VOC}}$.

3. Calculate the solids density of each paint based on the following equation:

$$\text{Density of paint} = \text{\% VOC by volume} \left(\text{Density of VOC} \right) + \text{\% Solids by volume} \left(\text{Density of solids} \right)$$

$$\text{Density of solids} = \frac{\left[\text{Density of paint} - \left(\text{\% VOC by volume} \right) \left(\text{Density of VOC} \right) \right]}{\text{\% Solids by volume}}$$

24-hour and annual emissions:

It is possible to spray more than one type of paint throughout an eight-hour day or annually. Therefore, a representative sample of the quantities of different kinds of paints used in these time frames were selected based on interviews with base personnel. To calculate the total emissions for each painting operation, the emissions from each type of paint are summed with the total being the maximum potential emissions from the painting operations.

Actual Emission Rates

To calculate the actual emission rates of criteria pollutants, the same procedure is followed using actual recorded usage of each coating instead of projected maximum usage.

APPROACH II

Volatile Organic Compounds

The emission rate of VOC is calculated assuming all solvent constituents are vaporized during the coating process. Information from the MSDS is used to calculate the density of the volatile fraction of the coating and the fraction of solids contained in the coating mixture.

1. The product density and percent VOC by volume are obtained from the MSDS.

   Example: White Lacquer Spray Aerosol

   Product density: 8.4 lb coating/gal coating
   Percent VOC by volume: 85%

2. The density of the volatile fraction of product is calculated using the weight percent of the volatile components given in the MSDS.

have a 65% transfer efficiency, owing to the equipment used and the large articles coated. Higher (80%) and lower (50%) transfer efficiencies are possible.

Not all particulate matter that is not applied to the article being coated reaches the filter. Because the articles are large and the filters are not in the line of the spray, only 10% of the overspray reaches the filter.

The efficiency of the filter collecting the particulate matter reaching the filter is relatively high. These filters are usually a fibrous pad design, and the particulate matter is at low velocity when it reaches the pad. Most spray booth filter pads achieve 90% collection of particulate matter. Some filters are guaranteed to achieve 95% reduction.

To calculate the particulate matter emissions, the following assumptions and equations were used with the 15-min, 24-hour, and annual consumption rates introduced in the VOC section.

15-minute:

$$\left(\begin{array}{c}\text{Pounds of solids}\\ \text{per gallon of paint}\end{array}\right)\left(\begin{array}{c}\text{15-min}\\ \text{consumption}\end{array}\right)\left(1 - \begin{array}{c}\text{Transfer}\\ \text{efficiency}\end{array}\right)\left(\begin{array}{c}\text{\% of PM}\\ \text{reaching filter}\end{array}\right)\left(1 - \begin{array}{c}\text{Collection}\\ \text{efficiency}\end{array}\right).$$

Example: White Lacquer Spray Aerosol

$$\text{Particulate matter} = \left(2.1 \begin{array}{c}\text{Pounds of solids}\\ \text{per gallon of paint}\end{array}\right)\left(0.25 \frac{\text{gal}}{\text{15 min}}\right)\left(1 - \frac{50\%}{100}\right)\left(\frac{10\%}{100}\right)\left(1 - \frac{90\%}{100}\right)$$

$$= 0.0026 \frac{\text{lb solids}}{\text{15-min}}$$

The 24-hour and annual particulate matter emission rate equations are the same as the 15-min equation except the consumption rate for those time periods are used.

When calculating the total emissions of a pollutant from each spray booth, the following assumptions are made.

15-minute emissions:

It is only possible to spray one type of paint in a 15-minute period. Therefore, the paint with the highest emissions for each pollutant was used as the worst case.

Example:

$$\text{Pounds of solids per gallon of paint} = 8.4\ \frac{lb}{gal} - 6.3\ \frac{lb}{gal} = 2.1\ \frac{lb}{gal}$$

3. Calculate the emission rates for different time periods based on the maximum quantity expected to be used during the given period:

15-min:

$$\text{VOC emission rate, } \frac{lb}{15\ min} = \left(\text{15-min consumption}\right)\left(\text{Pounds of VOC per gallon of paint}\right)$$

Example: White Lacquer Spray Aerosol

$$\text{VOC: } \left(0.25\ \frac{gal}{15\ min}\right)\left(\frac{6.3\ lb\ VOC}{gal\ paint}\right) = 1.58\ \frac{lb\ VOC}{15\ min}$$

24-hour:

$$\text{VOC emission rate, } \frac{lb}{day} = \left(\text{24-hr consumption}\right)\left(\text{Pounds of VOC per gallon of paint}\right)$$

Annual:

$$\text{VOC emission rate, } \frac{lb}{yr} = \left(\text{Annual consumption}\right)\left(\text{Pounds of VOC per gallon of paint}\right)$$

Particulate Matter

Particulate matter emissions from spray painting are related to the coating usage rates, solids fraction in the coating, fraction of overspray, fraction of overspray reaching the filters, and the efficiency of the filters in collecting particulate matter. The fraction of overspray can be determined from the transfer efficiency of the spray equipment. Many spray applications

Criteria pollutants are emitted from the spray booths used for coating vehicles, equipment, and miscellaneous parts associated with military operations. The coating operations range from touch-up work with application by a brush or aerosol can to larger spray operations in spray booths capable of accommodating heavy equipment.

Military personnel involved in these operations will be interviewed to determine the type of coating done and the quantity of coatings used. This information along with information in the material safety data sheets (MSDSs) enables the determination of pollutant emission rates.

Emissions of volatile organic compounds (VOC) and particulate matter can be estimated in different ways, depending upon available information. This calculation describes two approaches: the first is applicable when weight percent of volatile constitutents is available; the second approach is applicable when only percent volatiles by volume is given.

APPROACH I

Volatile Organic Compounds

The emission rate of VOC is calculated assuming all solvent constituents are vaporized during the coating process. Information from the MSDS is used to calculate the density of the volatile fraction of the coating and the fraction of solids contained in the coating mixture.

1. The product density, percent VOC, and the pounds of VOC per gallon of paint are obtained from the MSDS.

   Example: White Lacquer Spray Aerosol

Product density:	8.4 lb/gal
Percent VOC by weight:	75%
Pounds of VOC per gallon of paint:	6.3

2. Calculate the pounds of solids per gallon of paint for each paint based on the following equation:

$$\text{Pounds of solids per gallon of paint} = \text{Product density} - \text{Pounds of VOC per gallon of paint}$$

SURFACE COATING

Emissions of air pollutants from surface coating at the MCAS-Beaufort were calculated as described generally in Calculation No. 6 and Approach II of Calculation No. 7 (attached), except that 15-min emission rates were not calculated. The following aspects of the calculations are specific to the MCAS-Beaufort.

- Emissions for squadron painting were calculated on a per squadron basis. Based on information provided by MCAS-Beaufort personnel, emissions were calculated for each averaging period based on the number of squadrons housed at each location as shown below:

Emission Rate	Number of Squadrons Assumed Per Location				
	Building 728	Building 729	Building 414	Building 416	Building 418
Maximum Daily	1	1	2	2	2
Maximum Annual	1	1	2	2	2
Actual Annual	0	1	2	2	1
Potential to Emit	1	1	2	2	2

- Hourly emissions for each pollutant were based on use of the materials that would result in the maximum emission rate for that pollutant.

- Daily maximum, actual annual, and maximum annual emission rates were based on estimates of material usage reported by site personnel.

- The potential to emit was estimated based on the maximum hourly emission rate and 8,760 hours per year of operation.

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D. Welding Type: Brazing
Rod: Brass

Length: 18 in
Diameter: 0.125 in } $= 1.278 \times 10^{-4}\ ft^3$

Max rods/min = 0.4 rods/min

Max hrs/day = 1 hr/day

Avg hrs/month = 8 hrs/month

Assume indoor brazing = outdoor brazing = 8 hrs/month

Density = 530 lb/ft³

$$\frac{lb\ max}{day} = \frac{1.278\times10^{-4}\ ft^3}{rod}\left|\frac{0.4\ rods}{min}\right|\frac{60\ min}{hr}\left|\frac{1\ hr}{day}\right|\frac{530\ lb}{ft^3}\right| = 1.63\ lb/day$$

$$\frac{lb\ avg}{yr} = \frac{1.278\times10^{-4}\ ft^3}{rod}\left|\frac{530\ lb}{ft^3}\right|\frac{0.4\ rods}{min}\left|\frac{60\ min}{hr}\right|\frac{8\ hrs}{month}\left|\frac{12\ mo}{yr}\right| = \frac{156\ lb}{yr}$$

ENCLOSURE (2)

RADIAN CORPORATION

CALCULATION SHEET

CALC. NO. _____

SIGNATURE _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO. _____

SUBJECT _____ SHEET _____ OF _____ SHEETS

C. Welding Type : ARC
Rod : Stainless Steel

Length: 36 in } 2.56×10^{-4} ft^3/rod
Diameter: 0.125 in }

Max rods/min = 0.2 rod/min

Max hr /day = 8 hrs/day

indoor Avg hrs/wk = 30 hrs/wks*(10%) = 3hrs/wk

outdoor Avg hrs/wk = 20 hrs/wk *(10%) = 2 hrs/wk

where 10% = percent of time spent using stainless steel rods

Density = 490 lb/ft^3

$$\frac{\text{lb max}}{\text{day}} = \frac{2.56\times10^{-4}\,\text{ft}^3}{\text{rod}}\left|\frac{490\,\text{lb}}{\text{ft}^3}\right|\frac{0.2\,\text{rod}}{\text{min}}\left|\frac{60\,\text{min}}{\text{hr}}\right|\frac{8\,\text{hr}}{\text{day}}\right| = \frac{12.04\,\text{lb}}{\text{day}}$$

outdoor welding
$$\frac{\text{lb avg}}{\text{yr}} = \frac{2.91\times10^{-4}\,\text{ft}^3}{\text{rod}}\left|\frac{490\,\text{lb}}{\text{ft}^3}\right|\frac{0.2\,\text{rod}}{\text{min}}\left|\frac{60\,\text{min}}{\text{hr}}\right|\frac{2\,\text{hr}}{\text{wk}}\left|\frac{52\,\text{wk}}{\text{yr}}\right| = \frac{156.6\,\text{lb}}{\text{yr}}$$

indoor welding
$$\frac{\text{lb avg}}{\text{yr}} = \frac{235\,\text{lb}}{\text{yr}}$$

ENCLOSURE (2)

91-3361

APPENDIX C

Corrective Measures Study (CMS)
Plan Outline

ENCLOSURE (4)

APPENDIX C

CORRECTIVE MEASURE STUDY (CMS) PLAN OUTLINE

I. Identification and Development of the Corrective Measure Alternatives

   A. Description of Current Situation
   B. Establishment of Corrective Action Objectives
   C. Screening of Corrective Measures Technologies
   D. Identification of the Corrective Measure Alternatives

II. Evaluation of the Corrective Measure Alternatives

   A. Technical/Environmental/Human Health/Institutional
   B. Cost Estimate

II. Justification and Recommendation of the Corrective Measure or Measures

   A. Technical
   B. Environmental
   C. Human Health

III. Reports

   A. Draft
   B. Final
   C. Public Review and Final Selection of Corrective Measure

ENCLOSURE (4)

I. IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE MEASURES ALTERNATIVES

Based on the results of the RCRA Facility Investigation and consideration of the identified potential corrective measure technologies, the Permittee shall identify, screen and develop the alternatives for removal, containment, treatment and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

The Permittee shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RCRA Facility Investigation (RFI) Report. The Permittee shall provide an update to information presented in the RFI regarding previous response activities and interim measures which have or are being implemented at the facility. The Permittee shall also make a facility-specific statement of the purpose for the response, based on the results of the RFI. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

The Permittee shall propose facility-specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RFI, EPA guidance, and the requirements of any applicable Federal statutes. At a minimum, all corrective actions concerning ground water releases from regulated units must be consistent with, and as stringent as, those required under 40 CFR §264.100.

C. Screening of Corrective Measure Technologies

The Permittee shall review the results of the RFI and assess the technologies which are applicable at the facility. The Permittee shall screen the corrective measure technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations.

ENCLOSURE (4)

Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. *Site Characteristics*

   Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration.

2. *Waste Characteristics*

   Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off-site).

3. *Technology Limitations*

   During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

D. *Identification of the Corrective Measure Alternatives*

The Permittee shall develop the Corrective measure alternatives based on the corrective action objectives and analysis of potential corrective measure technologies. The Permittee shall rely on engineering practice to determine which of the previously identified technologies appear most suitable for the site. Technologies can be combined to form the overall corrective action alternatives. The alternatives developed should represent a workable number of option(s) that each appear to adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Permittee shall document the reasons for excluding technologies.

II. *EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVES*

The Permittee shall describe each corrective measure alternative that passes through the initial screening and evaluate each corrective measure alternative and its components. The evaluation shall be based on technical, environmental, human health and institutional concerns. The Permittee shall also develop cost estimates of each corrective measure.

A. *Technical/Environmental/Human Health/Institutional*

The Permittee shall provide a description of each corrective measure alternative which includes but is not limited to the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Permittee shall evaluate each alternative in the four following areas:

1. *Technical;*

The Permittee shall evaluate each corrective measure alternative based on performance, reliability, implementability and safety.

a. *The Permittee shall evaluate performance based on the effectiveness and useful life of the corrective measure:*

i) *Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and*

ii) *Useful life is defined as the length of time the level of desired effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.*

b. *The Permittee shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability:*

i) *Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and*

ENCLOSURE (4)

ii) *Demonstrated and expected reliability is a way of measuring the risk and effect of failure. The Respondent should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.*

c. *The Permittee shall describe the implementability of each corrective measure including the relative ease of installation (constructability) and the time required to achieve a given level of response:*

i) *Constructability is determined by conditions both internal and external to the facility conditions and include such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). The Permittee shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and*

ii) *Time has two components that shall be addressed: the time it takes to implement a corrective measure and the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.*

d. *The Permittee shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider are fire, explosion, and exposure to hazardous substances.*

2. *Environmental;*

The Permittee shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short- and long-term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

3. *Human Health*

The Permittee shall assess each alternative in terms of the extent to which it mitigates short-and long-term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment will describe the concentrations and characteristics of the contaminants on-site, potential exposure routes, and potentially affected population. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to EPA.

4. *Institutional*

The Permittee shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, state and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative. If the selected remedy is capping and closure in place, a notation must be made in the land deed.

B. *Cost Estimate*

The Permittee shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs.

1. *Capital costs consist of direct (construction) and indirect (nonconstruction and overhead) costs.*

   a. *Direct capital costs include:*

      i) *Construction costs: Costs of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measure.*

      ii) *Equipment costs: Costs of treatment, containment, disposal and/or service equipment necessary to implement the action; these materials remain until the corrective action is complete;*

      iii) *Land and site-development costs: Expenses associated with purchase of land and development of existing property; and*

      iv) *Buildings and services costs: Costs of process and nonprocess buildings, utility connections, purchased services, and disposal costs.*

ENCLOSURE (4)

b. *Indirect capital costs include:*

i) *Engineering expenses: Costs of administration, design, construction supervision, drafting, and testing of corrective measure alternatives;*

ii) *Legal fees and license or permit costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;*

iii) *Startup and shakedown costs: Costs incurred during corrective measure startup; and*

iv) *Contingency allowances: Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.*

2. *Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. The Permittee shall consider the following operation and maintenance cost components:*

a. *Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operations;*

b. *Maintenance materials and labor costs: Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;*

c. *Auxillary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;*

d. *Purchased services: Sampling costs, laboratory fees, and professional fees for which the need can be predicted;*

e. *Disposal and treatment costs: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues, generated during operations;*

f. *Administrative costs: Costs associated with administration of corrective measure operation and maintenance not included under other categories;*

g. *Insurance, taxes, and licensing costs: Costs of such items as liability and sudden accident insurance; real estate taxes on purchased land or right-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;*

h. Maintenance reserve and contingency funds: Annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and

i. Other costs: Items that do not fit any of the above categories.

III. JUSTIFICATION AND RECOMMENDATION OF THE CORRECTIVE MEASURE OR MEASURES

The Permittee shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health risks, environmental effects, and other pertinent factors shall be highlighted. The Regional Administrator will select the corrective measure alternative or alternatives to be implemented based on the results obtained from work completed under Section II and III. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

A. Technical

1. Performance - corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;

2. Reliability - corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have proved effective under waste and facility conditions similar to those anticipated will be given preference;

3. Implementability - corrective measure or measures which can be constructed and operating to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and

4. Safety - corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

B. Human Health

The corrective measure(s) must comply with existing U.S. EPA criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

ENCLOSURE (4)

C. Environmental

The corrective measure(s) posing the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

IV. REPORTS

The Permittee shall prepare a Corrective Measure Study Report presenting the results obtained fron Sections I through III and recommending a corrective measure alternative. Copies of the preliminary report shall be provided by the Permittee to the Regional Administrator (RA) for review and approval.

A. Draft

The Report shall at a minimum include:

1. A description of the facility;

   a. Site topographic map & preliminary layouts.

2. A summary of the corrective measure(s) and rationale for selection;

   a. Description of the corrective measure(s) and rationale for selection;

   b. Performance expectations;

   c. Preliminary design criteria and rationale;

   d. General operation and maintenance requirements; and

   e. Long-term monitoring requirements.

3. A summary of the RCRA Facility Investigation and impact on the selected corrective measure or measures;

   a. Field studies (ground-water, surface water, soil, air); and

   b. Laboratory studies (bench scale, pick scale).

ENCLOSURE (4)

4. *Design and Implementation Precautions;*

   a. *Special technical problems;*

   b. *Additional engineering data required;*

   c. *Permits and regulatory requirements;*

   d. *Access, easements, right-of-way;*

   e. *Health and safety requirements; and*

   f. *Community relations activities.*

5. *Cost Estimates and Schedules;*

   a. *Capitol cost estimate;*

   b. *Operation and maintenance cost estimate; and*

   c. *Project schedule (design, construction, operation).*

Copies of the draft shall be provided by the Permittee to EPA.

B. *Final*

The Permittee shall finalize the Corrective Measure Study Report incorporating comments received from EPA on the Draft Corrective Measure Study Report. The report shall become final upon approval by the RA.

C. *Public Review and Final Selection of Corrective Measures*

Upon receipt of the Final Corrective Measure Study Report, EPA shall announce its availability to the public for review and comment. At the end of the comment period, the RA shall review the comments and then inform the Permittee of the final decision as to the approved Corrective Measures to be implemented.

ENCLOSURE 14E

APPENDIX D

Schedule of Compliance

ENCLOSURE (4)

APPENDIX D

Schedule of Compliance

Schedule of Compliance	Due Date
Notification of Newly Identified SWMUs and AOCs Condition V.B.1 and Condition V.B.2.	Withing fifteen (15) calendar days of discovery
SWMU Assessment Report Condition V.B.3.	Within ninety (90) calendar days of notification
Notification for Newly Discovered Releases at Previously Identified SWMUs and AOCs Condition V.C.1.	Within fifteen (15) calendar days of discovery
Confirmatory Sampling Workplan for SWMUs identified in APPENDIX A-4 Condition V.D.1.	Within ninety (90) calendar days after effective date of permit 28 JAN '92 + 50 EXT DAYS = 18 MAR '92
Confirmatory Sampling Report Condition V.D.4.	Within sixty (60) calendar days after approval of the CS Workplan
RFI Workplan for SWMU(s) identified in APPENDIX A-1, Condition V.E.1.a.	Within one hundred twenty (120) calendar days after effective date of permit EXT 27 FEB '92 + 35 DAYS = 2 APRIL '92
RFI Workplan for SWMU(s) and AOC(s) identified under Condition V.B.4., Condition V.C.2., and Condition V.D.5. Condition V.E.1.b.	Within ninety (90) calendar days after receipt of notification by the Department which SWMUs or AOCs require an RFI
RFI Progress Reports Condition V.E.3.a.	Quarterly, beginning ninety (90) calendar days from the start date specified by the Department *

ENCLOSURE (4)

Schedule of Compliance	Due Date
Draft RFI Report Condition V.E.3.b.	In accordance with the approved RFI Workplan
Final RFI Report Condition V.E.3.b.	Within thirty (30) calendar days after receipt of Department comments on Draft RFI Report
Interim Measures Plan Condition V.F.1.a.	Within thirty (30) calendar days of notification by the Department
Interim Measures Progress Reports Condition V.F.3.a.	Semi-annually, beginning one hundred eighty (180) days from start date specified by the Department**
Interim Measure Report Condition V.F.3.b.	Within ninety (90) calendar days of completion
CMS Plan Condition V.G.1.a.	Within ninety (90) calendar days of notification by the Department that a CMS is needed
Draft CMS Report Condition V.G.3.a.	Within ninety (90) calendar days of Department approval of CMS Plan
Final CMS Report Condition V.G.3.a.	Within thirty (30) calendar days of Department comments on draft CMS Report
Imminent Hazard Report Condition V.J.1. and V.J.2.	Oral within 24 hours; Written within fifteen (15) calendar days

ENCLOSURE (4)

Schedule of Compliance	Due Date
Waste Minimization Certification Condition VI	Annually from effective date of permit

The above reports must be signed and certified in accordance with R.61-79.270.11.

* This applies to Workplan execution that requires more than one hundred eighty (180) calendar days.

** This applies to Workplan execution that requires more than one year.

ENCLOSURE (4)

APPENDIX E

Modification of the Corrective Action Schedule of Compliance

ENCLOSURE (4 E

MODIFICATION OF THE CORRECTIVE ACTION SCHEDULE OF COMPLIANCE

I. If at any time the Department determines that modifications of the Corrective Action Schedule of Compliance is necessary, it may initiate a modification to the Schedule of Compliance according to this procedure. If the Department initiates a modification, it shall:

A. Notify the Permittee in writing of the proposed modification and the date by which comments on the proposed modification must be received; and

B. Publish a notice of the proposed modification in a locally distributed newspaper, mail a notice to all persons on the facility mailing list, and place a notice in the facility's information repository (i.e., a central source of all pertinent documents concerning the remedial action, usually maintained at the facility or some other public place, such as a public library, that is accessible to the public) if one is required.

1. If the Department receives no written comment on the proposed modification, the modification shall become effective five (5) calendar days after the close of the comment period.

2. If the Department receives written comment on the proposed modification, the Department shall make a final determination concerning the modification after the end of the comment period.

C. Notify the Permittee in writing of the final decision.

1. If no written comment was received, the Department shall notify the individuals on the facility mailing list in writing that the modification has become effective and shall place a copy of the modified Corrective Action Schedule of Compliance in the information repository, if a repository is required for the facility.

2. If written comment was received, the Department shall provide notice of the final modification decision in a locally distributed newspaper and place a copy of the modified Corrective Action Schedule of Compliance in the information repository, if a repository is required for the facility.

ENCLOSURE (4 E

II. Modifications that are initiated and finalized by the Department according to this procedure shall not be subject to administrative appeal.

III. Modifications to the Corrective Action Schedule of Compliance do not constitute a reissuance of the Permit.

APPENDIX F

Waste Minimization Certifications Ojectives

ENCLOSURE (4

APPENDIX F

Waste Minimization Certification Objectives

The Waste Minimization Program should include the following elements:

1. Top Management Support

- Dated and signed policy describing management support for waste minimization and for implementation of a waste minimization plan.
- Description of employee awareness and training programs designed to involve employees in waste minimization planning and implementation to the maximum extent feasible.
- Description of how a waste minimization plan has been incorporated into management practices so as to ensure ongoing efforts with respect to product design, capital planning, production operations, and maintenance.

2. Characterization of Waste Generation

- Identification of types, amounts, and hazardous constituents of waste streams, with the source and date of generation.

3. Periodic Waste Minimization Assessments

- Identification of all points in a process where materials can be prevented from becoming a waste, or can be recycled.
- Identification of potential waste reduction and recycling techniques applicable to each waste, with a cost estimate for capital investment and implementation.
- Description of technically and economically practical waste reduction/recycling options to be implemented, and a planned schedule for implementation.
- Specific performance goals, preferably quantitative, for the source reduction of waste by stream. Whenever possible, goals should be stated as weight of waste generated per standard unit of production, as defined by the generator.

4. Cost Allocation System

- Identification of waste management costs for each waste, factoring in liability, transportation, recordkeeping, personnel, pollution control, treatment, disposal, compliance and oversight costs to the extent feasible.
- Description of how departments are held accountable for the wastes they generate.
- Comparison of waste management costs with costs of potential reduction and recycling techniques applicable to each waste.

5. Technology Transfer

- Description of efforts to seek and exchange technical information on waste minimization from other parts of the company, other firms, trade associations, technical assistance programs, and professional consultants.

6. Program Evaluation

- Description of types and amounts of hazardous waste reduced or recycled.
- Analysis and quantification of progress made relative to each performance goal established and each reduction technique to be implemented.
- Amendments to waste minimization plan and explanation.
- Explanation and documentation of reduction efforts completed or in progress before development of the waste minimization plan.
- Explanation and documentation regarding impediments to hazardous waste reduction specific to the individual facility.

References: "Draft Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program", 54 FR 25056, June 12, 1989.

"Waste Minimization Opportunity Assessment Manual", EPA/625/7-88/003, July 1988.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

SEP 30 1991

4WD-RCRAFFB

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Colonel C. O. Hoelle, Jr.
Commanding Officer
Marine Corps Air Station
Beaufort, South Carolina 29904-5000

Re: Decision to Issue HSWA Portion of the RCRA Permit
Marine Corps Air Station, Beaufort, South Carolina
EPA I.D. Number SC1 750 216 169

Dear Mr. Hoelle:

This is notification of the Agency's decision to issue the corrective action portion of the Resource Conservation and Recovery Act (RCRA) Permit. The enclosed permit covers the requirements of the 1984 Hazardous and Solid Waste Amendments (HSWA). This portion, together with the hazardous waste permit issued by the State of South Carolina constitutes the full RCRA permit for Marine Corps Air Station located in Beaufort, South Carolina.

Comments were received during the public participation period. Attachment A, entitled "Summary of Changes to the Draft Permit," and Attachment B entitled, "Response to Comments for the Draft RCRA and HSWA Permits," are enclosed. In accordance with 40 CFR §124.15, the permit will become effective October 30, 1991 unless a review is requested under 40 CFR §124.19. A summary of the procedures to request an administrative review is enclosed.

All applicable RCRA regulations in effect at the time of permit issuance and referenced in the permit shall be complied with throughout the life of the permit, unless there are requests for modifications of the permit in accordance with 40 CFR 270.41 and 270.42.

ENCLOSURE (4)

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If there are any questions or concerns regarding this permit or the appeal procedures, please contact Mr. Kelly Ewing of my staff at (404) 347-3433.

Sincerely yours,

Michael D. Owen, Deputy

Donald J. Guinyard
Director
Waste Management Division

Enclosure: Summary of Requirements for Notice of Appeal/Petition Review; Permit; Attachment A; Attachment B; RCRA Regulations

cc: Mr. G. Randall Thompson
Hazardous Waste Permitting
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control

ENCLOSURE (4)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

NOTICE OF RCRA FINAL PERMIT DECISION

Facility Name:	Marine Corps Air Station
EPA I.D. Number:	SC1 750 216 169
Location:	Beaufort, South Carolina
Facility Operator:	Colonel C. O. Hoelle, Jr. Commanding Officer Marine Corps Air Station Department of Defense

After due consideration of the facts applicable to the above-named facility as they appear in the administrative record and the requirements and policies expressed in the Resource Conservation and Recovery Act (RCRA) and appropriate regulations, I determine that the permit should be issued with the changes identified in Attachment A, entitled "Summary of Changes to the Draft Permit". Comments were received during the public participation period concerning the draft HSWA permit. The Agency's responses are provided in Attachment B, entitled "Response to Comments for the Draft RCRA and HSWA Permits".

The administrative record with respect to this determination is maintained at the Agency's offices, 345 Courtland Street, N.E., Atlanta, Georgia 30365, and is available for public inspection between the hours of 9:00 a.m. and 3:00 p.m., Monday through Friday. For further information on this permit action contact Mr. Kelly Ewing at the above address.

Will D. Green, Deputy

Donald J. Guinyard
Director
Waste Management Division

30 Sept. 91

Date

ENCLOSURE (4)

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ATTACHMENT A

Summary of Changes to the Draft Permit

Marine Corps Air Station
Beaufort, South Carolina

Condition II.A.1	This condition has been modified to include AOCs.
Condition II.A.2	This condition has been modified to include AOCs.
Condition II.D	The Confirmatory Sampling Workplan and Report requirements have been inserted into the report as Condition II.D. Condition numbers and references in other portions of the permit have been revised to be consistent with this change.
Condition II.D.1.d-g	Conditions II.D.1.d-g in the Draft Permit were deleted, and Condition II.D.1.h. in the Draft Permit was renumbered II.D.1.d. in the final Permit.
Condition II.F.2	The time allowed for the Corrective Measures Study to begin has been changed from fifteen (15) days to ninety (90) days.
Condition II.G.3	This condition has been deleted.
PART V - AIR EMISSION REQUIREMENTS	The conditions in this part of the permit have been revised to incorporate specific information from Revision No. 7 to Section D of the Part B Permit Application. This revision is dated January 31, 1991 and was received by EPA Region IV on February 6, 1991.
APPENDIX A-1	SWMU 4 in the Draft Permit has been relabeled SWMU 5. Appendix A-1 was modified to clarify which items are SWMUs and which items are AOCs.

ENCLOSURE (4)

	SWMUs 10, 11, 13, 19, 20, 24, 25, 29, 34, 48, 53, and 70, and AOCs D, I, and M, have been moved to Appendix A-2.
APPENDIX A-2	Appendix A-2 has been modified to clarify which items are SWMUs and which items are AOCs.
APPENDIX A-4	Appendix A-4 has been modified to clarify which items are SWMUs and which items are AOCs.
	SWMUs 61, 64, and 66, and AOCs A, C, G, K, L, O, and P have been moved to Appendix A-2.
Appendix D	The Confirmatory Sampling Workplan is due ninety (90) days after the effective date of the permit instead of ten (10) days as stated in the Draft Permit.

ENCLOSURE (4)

ATTACHMENT B

RESPONSE TO COMMENTS
on the
DRAFT RCRA AND HSWA PERMITS
for
MARINE CORPS AIR STATION
BEAUFORT, SOUTH CAROLINA
SC1 750 216 169

HSWA Permit Comments and Responses

SECTION	COMMENT NO.		COMMENTS(C) and RESPONSES(R)
II.A.1	1.	C	It appears that this paragraph should also include AOCs.
		R	The Agency agrees with this comment. Section II.A.1. has been modified to include AOCs.
II.A.2	2.	C	It appears that this paragraph should also include AOCs.
		R	The Agency agrees with this comment. Section II.A.2. has been modified to include AOCs.
II.D	3.	C	The Confirmatory Sampling Workplan and Confirmatory Sampling Report requirements mentioned in Appendix D appear to be missing from this section.
		R	The Permit has been modified to include the Confirmatory Sampling Workplan and Confirmatory Sampling Report requirements.
II.D.1.d-g	4.	C	The appendices referenced and SWMUs described by these paragraphs do not seem to pertain to the SWMUs listed in the appendices.
		R	The Agency has reviewed the Draft Permit and the Administrative Record to verify the inconsistencies identified in this comment. The permit has been modified to delete the inappropriate paragraphs.

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II.G.3	5.	C	Applicability of this paragraph to a Federal Government facility is questioned.
		R	The Agency agrees that this paragraph does not apply to a Federal Government facility. Section II.G.3 has been deleted.
APPENDIX A-1	6.	C	SWMU 5 appears to be mislabeled as SWMU 4.
		R	SWMU 5 was mislabeled as SWMU 4 and the correction has been made.
	7.	C	It is recommended that the list of SWMUs/AOCs be separated into a list of SWMUs and a list of AOCs. As written there appears to be no way to determine a SWMU from an AOC.
		R	Appendix A-1 has been modified to clarify which items are SWMUs and which items are AOCs.
	8.	C	SWMUs 1,2,3,5,6,7,8,12, & 14 are being evaluated by the Installation Restoration Program. Therefore, they will not be evaluated by the RFI.
		R	Evaluation by the Installation Restoration Program(IRP) does not exempt a SWMU or AOC from the conditions of this permit or the RFI requirements, however, information collected as part of the IRP may be submitted to satisfy these conditions and requirements. SWMUs 1,2,3,5,6,7,8,12, and 14 will remain in Appendix A-1.
	9.	C	Per the minutes of the March, 1988 Work Plan review meeting at MCAS, no further action is required at SWMUs 70,34,48,53,19,20,24,25,29, Areas D, I, and M.
		R	After reviewing the administrative record and the minutes of the March, 1988 Work Plan Review meeting at MCAS, EPA has

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			determined that no further action is required at SWMUs/AOCs 70, 34, 48, 53, 19, 20, 24, 25, 29, D, I, and M.
	10.	C	Per the minutes by Mr. David Baize of the meeting in August, 1989, no further action is required at sites 10, 11, & 13.
		R	After reviewing the administrative record and the minutes of the meeting in August, 1989 as drafted by Mr. David Baize, SWMUs 10, 11, and 13 have been removed from Appendix A-1.
APPENDIX A-2	11.	C	See comment 7. above.
		R	APPENDIX A-2 has been modified to clarify which items are SWMUs and which items are AOCs.
APPENDIX A-4	12.	C	See comment 7. above.
		R	APPENDIX A-4 has been modified to clarify which items are SWMUs and which items are AOCs.
	13.	C	Per the minutes of the March, 1988 Work Plan review no further sampling is required at SWMUs 64, 65, 66, 61, and Units G, and L. Also no further action was required at Units A and O.
		R	After reviewing the administrative record and the minutes of the March, 1988 Work Plan Review meeting at MCAS, it has been determined that no further action is required at SWMUs/AOCs 61, 64, 65, 66, G, L, A, and O.
	14.	C	SWMU 16 will be evaluated by the Installation Restoration Program. Therefore it will not be sampled and the results of the IRP will be submitted.
		R	Evaluation by the Installation Restoration Program(IRP) does not exempt a SWMU or AOC from the conditions of this permit or the RFI requirements, however,

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			information collected as part of the IRP may be submitted to satisfy these conditions and requirements.
APPENDIX D	15.	C	Many of the paragraphs referenced here do not appear to agree with the body of the permit. In addition, the Confirmatory Sampling Workplan, Confirmatory Sampling Report, and paragraph V.D.4 items mentioned in Appendix D appear to be missing from the body of the permit.
		R	The Agency has reviewed the Draft Permit and the Administrative Record to verify the inconsistencies identified by this comment. The Permit has been modified to correct the items addressed in this comment.
	16.	C	Without knowing the requirements of the Confirmatory Sampling Workplan it is difficult to determine whether the short 10 calendar day after effective permit date deadline is sufficient time to prepare the Confirmatory Sampling Workplan.
		R	The requirements of the Confirmatory Sampling Workplan have been included in the permit. The Confirmatory Sampling Workplan is due ninety (90) calendar days after the effective date of the permit.
	17.	C	Developing any type of plan in less than 90 days is not practical under the contracting and funding constructions of government activities without serious reduction in quality.
		R	The time period has been increased to ninety (90) calendar days to accommodate the time required for contracting.

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RCRA Permit Comments and Responses

SECTION	COMMENT NO.		COMMENTS(C) and RESPONSES(R)
V.D.1.g	9.	C	No developed methods or standards available for many Appendix VIII hazardous constituents.
		R	This condition was deleted in as the result of Comment No. 4 on the HSWA Draft Permit. No other modification of the Permit is required.
V.D.3.c	10.	C	Refers to schedule and approval in accordance with Condition V.D.1.d. This does not appear applicable.
		R	The response to Comment No. 4 on the HSWA Draft Permit resulted in changes that resolved the inconsistency identified by this comment. No additional changes are required as the result of this comment.
V.F.2	11.	C	The time allowed for the Corrective Measures Study to begin should be increased to 90 days to allow for contracting.
		R	The time period has been increased to ninety (90) calendar days to accommodate the time required for contracting.
V.H.2	13.	C	This denial of administrative due process would force MCAS Beaufort to seek legal remedy.
		R	One of the Agency's overriding goals in the management of corrective action programs is to expedite cleanup results by requiring sensible early actions to control environmental problems. This section of the permit is necessary to ensure that this goal is realized. The procedure described in Section V.H provides for a public notice and a comment period. The Regional Administrator

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believes that this will provide sufficient opportunity for the facility to seek an acceptable remedy. Due to the nature of the circumstances that might make it necessary for the Regional Administrator to initiate a permit modification under Section V.H.2, it is imperative that a lengthy appeal process be avoided. The condition will remain as stated in the draft permit.

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HSWA PORTION OF THE RCRA PERMIT

OWNER: Department of Defense
Marine Corps Air Station
Beaufort, South Carolina 29904

Identification Number SC1 750 216 169
Permit Number SC1 750 216 169

Pursuant to the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 USC §6901 et seq., commonly known as RCRA) and regulations promulgated thereunder by the U.S. Environmental Protection Agency (EPA) (codified and to be codified in Title 40 of the Code of Federal Regulations), a permit is issued to the Department of Defense (hereafter called the Permittee), who operates a hazardous waste facility located in Beaufort, South Carolina latitude 32°24'000" North and longitude 080°43'000" West.

This Permit, in conjunction with the Hazardous Waste Management Permit issued by the State of South Carolina, constitutes the RCRA permit for this facility. The Permittee shall be required to investigate any releases of hazardous waste or hazardous constituents pursuant to this permit at the facility regardless of the time at which waste was placed in such unit and to take appropriate corrective action for any releases. The Permit also requires the Permittee to comply with all land disposal restrictions applicable to this facility and to certify annually that on-site generation of hazardous waste is minimized to the extent practicable.

The Permittee must comply with all terms and conditions of this permit. This permit consists of the conditions contained herein (including those in any attachments) and applicable regulations contained in 40 CFR Parts 260 through 264, 266, 268, 270, and 124 as specified in the permit and statutory requirements of RCRA, as amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984, P.L. 98-616. Nothing in this permit hall preclude the Regional Administrator from reviewing and modifying the permit at any time during its term in accordance with 40 CFR §270.41 and Appendix E, as contained herein.

This Permit is based on the information and reports submitted to date, and subsequent to issuance of this permit by the Permittee are accurate. Any inaccuracies found in this information may be grounds for termination or modification of this permit in accordance with 40 CFR §270.41, §270.42, and §270.43 and potential enforcement action. The Permittee must inform EPA of any deviation from or changes in the information in the application which would affect the Permittee's ability to comply with the applicable regulations or permit conditions.

The authority to perform all actions necessary to issue, modify, enforce, or revoke this permit has been delegated by the Regional Administrator to the Waste Management Division Director.

This Permit is effective as of October 30, 1991, and shall remain in effect until October 31, 1996, unless revoked and reissued, or terminated under 40 CFR §270.41 and §270.43 or continued in accordance with 40 CFR §270.51(a). All obligations for performance of Corrective Action are in effect until deemed complete by the Regional Administrator.

If any conditions of this permit are appealed in accordance with 40 CFR §124.19, the effective date of the conditions determined to be stayed in accordance with 40 CFR §124.16 shall be determined by final agency action as specified under 40 CFR §124.19.

30 Sept. 91
Issue Date

Donald J. Guinyard
Director
Waste Management Division

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PART I - STANDARD CONDITIONS

I.A. EFFECT OF PERMIT

Compliance with this RCRA permit constitutes compliance, for purposes of enforcement, with Subtitle C of RCRA except for those requirements not included in the permit which become effective by statute, which are promulgated, or those which restrict placement of hazardous waste in or on the land. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of state or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any order issued or any action brought under Section 3008(a), 3008(h), 3007, 3013, 3004(v), 3008(c) or Section 7003 of RCRA, Sections 104, 106(a), 106(e), or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq., commonly known as CERCLA), or any other law providing for protection of public health or the environment.

I.B. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR §§270.41, 270.42, and 270.43 except for the Corrective Action schedule of compliance which shall be modified in accordance with Condition II.H. of this permit. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition.

I.C. SEVERABILITY

The provisions of this permit are severable, as specified in 40 CFR §124.16 and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

I.D. DUTIES AND REQUIREMENTS

I.D.1. Duty to Comply

The Permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance, other than noncompliance authorized by

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an emergency permit, constitutes a violation of RCRA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

I.D.2. Duty to Reapply

If the Permittee will continue an activity allowed or required by this permit after the expiration date of this permit, the Permittee shall submit a complete application for a new permit at least one hundred eighty (180) calendar days before this permit expires, unless permission for a later date has been granted by the Regional Administrator.

I.D.3. Obligation for Corrective Action

Owners and operators of hazardous waste management units must have all necessary permits during the active life (including the closure period) of the unit, and for any period necessary to comply with the corrective action requirements (HSWA section) of this permit.

I.D.4. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

I.D.5. Duty to Mitigate

In the event of noncompliance with the permit, the Permittee shall take all reasonable steps to minimize releases of hazardous waste or hazardous constituents to the environment, and shall carry out such measures as are reasonable to prevent significant adverse effects on human health or the environment.

I.D.6. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

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I.D.7. Duty to Provide Information

The Permittee shall furnish to the Regional Administrator, within a reasonable time, any relevant information which the Regional Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Regional Administrator, upon request, copies of records required to be kept by this permit.

I.D.8. Inspection and Entry

The Permittee shall allow the Regional Administrator, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

I.D.8.a. Enter at reasonable times upon the Permittee's premises where a regulated activity is located or conducted, or where records must be kept under the conditions of this permit;

I.D.8.b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

I.D.8.c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated, or required under this permit; and

I.D.8.d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by RCRA, any substances or parameters at any location.

I.D.9. Monitoring and Records

I.D.9.a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample to be analyzed must be the appropriate method from Appendix I of 40 CFR Part 261 or an equivalent method approved by the Regional Administrator. Laboratory methods must be those specified in the most recent edition of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, or an equivalent method approved by the Regional Administrator.

I.D.9.b. The Permittee shall retain at the facility, or other appropriate location as provided for under 40 CFR Part 264, records of all monitoring information required under the terms of this permit, including all calibration and maintenance records, records of all data used to prepare documents required by this permit, copies of all reports and records required by this permit, the certification required by 40 CFR §264.73(b)(9), and records of all data used to complete the application for this permit for a period of at least three years from the date of the sample, measurement,

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report, certification or application, or until corrective action is completed, whichever date is later. As a generator of hazardous waste, the Permittee shall retain on-site a copy of all notices, certifications, demonstrations, waste analysis data, and other documentation produced pursuant to 40 CFR Part 268 for at least five years from the date that the waste which is the subject of such documentation was last sent to on-site or off-site treatment, storage, or disposal, or until corrective action is completed, whichever date is later. At a facility permitted to operate an incinerator, the permittee shall retain on-site all records for a period of five years. These periods may be extended by request of the Regional Administrator at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.

I.D.9.c. Records of monitoring information shall specify:

i. The dates, exact place, and times of sampling, or measurements;

ii. The individuals who performed the sampling or measurements;

iii. The dates analyses were performed;

iv. The individuals who performed the analyses;

v. The analytical techniques or methods used; and

vi. The results of such analyses.

.D.10. Reporting Planned Changes

The Permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility as defined in 40 CFR §270.2. This would apply to all contiguous land, structures, other appurtenances and improvements on the land, used for the treatment, storage or disposal of hazardous waste.

I.D.11. Anticipated Noncompliance

The Permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with the requirements of this permit.

I.D.12. Transfer of Permit

This permit may be transferred to a new owner or operator only after notice to the Regional Administrator and only if it is modified or revoked and reissued pursuant to 40 CFR §270.40(b) or §270.41(b)(2) to identify the new permittee and

incorporate such other requirements as may be necessary under the appropriate Act. Before transferring ownership or operation of the facility during its operating life, or of a disposal facility during the post-closure care period, the Permittee shall notify the new owner or operator in writing of the requirements of 40 CFR Parts 264 and 270, HSWA and this permit.

I.D.13. Compliance Schedules

Written notification of compliance or noncompliance with any item identified in the compliance schedule of this permit shall be submitted according to each schedule date. If the Permittee does not notify the Regional Administrator within fourteen (14) calendar days of its compliance or noncompliance with the schedule, the Permittee shall be subject to an enforcement action. Submittal of a required item according to the schedule constitutes notification of compliance.

I.D.14. Twenty-four Hour Reporting

I.D.14.a. The Permittee shall report any noncompliance which may endanger human health or the environment. Any such information shall be reported orally to the Regional Administrator within 24 hours from the time the Permittee becomes aware of the circumstances. This report shall include:

i. Information concerning the release of any hazardous waste or hazardous constituents which may endanger public drinking water supplies.

ii. Information concerning the release or discharge of any hazardous waste or hazardous constituents, or of a fire or explosion at the facility, which could threaten the environment or human health outside the facility.

I.D.14.b. The description of the occurrence and its cause shall include:

i. Name, address, and telephone number of the owner or operator;

ii. Name, address, and telephone number of the facility;

iii. Date, time, and type of incident;

iv. Name and quantity of materials involved;

v. The extent of injuries, if any;

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vi. An assessment of actual or potential hazard to the environment and human health outside the facility; and

vii. Estimated quantity and disposition of recovered material that resulted from the incident.

I.D.14.c. A written report shall also be provided to the Regional Administrator within fifteen (15) calendar days of the time the Permittee becomes aware of the circumstances. The written report shall contain the information specified under Conditions I.D.14.a and b; a description of the noncompliance and its cause; the periods of noncompliance (including exact dates and times); whether the noncompliance has been corrected; and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

I.D.15. Other Noncompliance

The Permittee shall report all other instances of noncompliance not otherwise required to be reported above, at the time written reports as required by this permit are submitted. The reports shall contain the information listed in Condition I.D.14. as appropriate.

I.D.16. Other Information

Whenever the Permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in any document(s) submitted to the Regional Administrator, the Permittee shall promptly submit such facts or information.

I.E. SIGNATORY REQUIREMENT

All applications, reports, or information submitted to the Regional Administrator shall be signed and certified in accordance with 40 CFR §270.11.

I.F. CONFIDENTIAL INFORMATION

The Permittee may claim confidential any information required to be submitted by this permit in accordance with 40 CFR §270.12.

I.G. DEFINITIONS

For purposes of this permit, terms used herein shall have the same meaning as those in RCRA and 40 CFR Parts 124, 260, 261, 264, 268 and 270, unless this permit specifically provides otherwise. Where terms are not defined in the regulation, the permit, or EPA guidelines or publications, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

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I.G.1. The term "solid waste" means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).

I.G.2. A "hazardous constituent" for purposes of this permit are those substances listed in 40 CFR Part 261 Appendix VIII.

I.G.3. A "solid waste management unit" (SWMU) for the purposes of this permit includes any unit which has been used for the treatment, storage, or disposal of solid waste at any time, irrespective of whether the unit is or ever was intended for the management of solid waste. RCRA regulated hazardous waste management units are also solid waste management units. SWMUs include areas that have been contaminated by routine and systematic releases of hazardous waste or hazardous constituents, excluding one-time accidental spills that are immediately remediated and cannot be linked to solid waste management activities (e.g. product or process spills).

I.G.4. A "unit" for the purposes of this permit includes, but is not limited to, any landfill, surface impoundment, waste pile, land treatment unit, incinerator, injection well, tank, container storage area, septic tank, drain field, wastewater treatment unit, elementary neutralization unit, transfer station, or recycling unit.

I.G.5. A "release" for purposes of this permit includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of any hazardous waste or hazardous constituents.

I.G.6. "Corrective measures" for purposes of this permit, include all corrective action necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in the unit, as required under 40 CFR §264.101. Corrective measures may address releases to air, soils, surface water or groundwater.

I.G.7. "Area of concern" (AOC) for purposes of this permit includes any area having a probable release of a hazardous waste or hazardous constituent which is not from a solid waste

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management unit and is determined by the Regional Administrator to pose a current or potential threat to human health or the environment. Such areas of concern may require investigations and remedial action as required under Section 3005(c)(3) of the Resource Conservation and Recovery Act and 40 CFR §270.32(b)(2) in order to ensure adequate protection of human health and the environment.

I.G.8. "Facility" for purposes of this permit includes any contiguous property and structures, other appurtenances, and improvements on the property, under the control of the owner or operator seeking a permit under Subtitle C of RCRA.

I.G.9. "Land Disposal" for purposes of this permit and 40 CFR Part 268 means placement in or on the land and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, underground mine or cave, or concrete vault or bunker intended for disposal purposes.

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PART II - CORRECTIVE ACTION

II.A. APPLICABILITY

The Conditions of this Part apply to:

II.A.1. The solid waste management units (SWMUs) and areas of concern (AOCs) identified in Appendix A-1, which require further investigation.

II.A.2. The SWMUs and AOCs identified in Appendix A-2, and A-3 which require no further investigation at this time or are addressed under the State permit.

II.A.3. Any additional SWMUs or AOCs discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means.

II.B. NOTIFICATION AND ASSESSMENT REQUIREMENTS FOR NEWLY IDENTIFIED SWMUs AND AOCs

II.B.1. The Permittee shall notify the Regional Administrator in writing, within fifteen (15) calendar days of discovery, of any additional SWMUs as discovered under Condition II.A.3.

II.B.2. The Permittee shall notify the Regional Administrator in writing, within fifteen (15) calendar days of discovery, of any Areas of Concern (AOCs) as discovered under Condition II.A.3. The notification shall include, at a minimum, the location of the AOC and all available information pertaining to the nature of the release (e.g., media affected, hazardous constituents released, magnitude of release, etc.). If the Regional Administrator determines that further investigation of an AOC is required, the permit will be modified in accordance with 40 CFR §270.41.

II.B.3. The Permittee shall prepare and submit to the Regional Administrator, within ninety (90) calendar days of notification, a SWMU Assessment Report (SAR) for each SWMU identified under Condition II.B.1. At a minimum, the SAR shall provide the following information:

a. Location of unit(s) on a topographic map of appropriate scale such as required under 40 CFR §270.14(b)(19).

b. Designation of type and function of unit(s).

c. General dimensions, capacities and structural description of unit(s) (supply any available plans/drawings).

d. Dates that the unit(s) was operated.

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e. Specification of all wastes that have been managed at/in the unit(s) to the extent available. Include any available data on 40 CFR Part 261, Appendix VIII constituents contained in the wastes.

f. All available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (to include groundwater data, soil analyses, air, and/or surface water data).

II.B.4. Based on the results of the SAR, the Regional Administrator shall determine the need for further investigations at the SWMUs covered in the SAR. If the Regional Administrator determines that such investigations are needed, the Permittee shall be required to prepare a plan for such investigations as outlined in Condition II.E.1.b.

II.C. NOTIFICATION REQUIREMENTS FOR NEWLY DISCOVERED RELEASES AT PREVIOUSLY IDENTIFIED SWMUs and AOCs

II.C.1. The Permittee shall notify the Regional Administrator in writing of any newly discovered release(s) of hazardous waste or hazardous constituents discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, within fifteen (15) calendar days of discovery. Such newly discovered releases may be from SWMUs or AOCs identified in Condition II.A.2. or SWMUs identified in Condition II.A.3. for which further investigation under Condition II.B.4. was not required.

II.C.2. If the Regional Administrator determines that further investigation of the SWMUs is needed, the Permittee shall be required to prepare a plan for such investigations as outlined in Condition II.B.3.

II.D. CONFIRMATORY SAMPLING (CS)

II.D.1. The Permittee shall prepare and submit to the Regional Administrator, within ninety (90) calendar days of the effective date of this permit, a Confirmatory Sampling (CS) Workplan to determine any release from SWMUs and AOCs identified in Condition II.A.3 and Appendix A-4. The CS Workplan shall include schedules of implementation and completion of specific actions necessary to determine a release. It should also address applicable requirements and affected media. Completion of all Confirmatory Sampling shall not exceed forty-five (45) days.

II.D.2. The CS Workplan must be approved by the Regional Administrator, in writing, prior to implementation. The Regional Administrator shall specify the start date of the CS Workplan schedule in the letter approving the CS Workplan. If the Regional Administrator disapproves the CS Workplan, the

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Regional Administrator shall either (1) notify the Permittee in writing of the CS Workplan's deficiencies and specify a due date for submission of a revised CS Workplan, or (2) revise the CS Workplan and notify the Permittee of the revisions.

II.D.3. The Permittee shall implement the confirmatory sampling in accordance with the approved CS Workplan.

II.D.4. The Permittee shall prepare and submit to the Regional Administrator in accordance with the approved schedule, a Confirmatory Sampling (CS) Report, within sixty (60) calendar days after approval of the CS work plan, identifying those SWMUs and AOCs listed in Condition II.A.3 and Appendix A-4 that have released hazardous waste or hazardous constituents into the environment. The CS Report shall include all data, including raw data, and a summary and analysis of the data, that supports the above determination.

II.D.5. Based on the results of the CS Report, the Regional Administrator shall determine the need for further investigations at the SWMUs and AOCs covered in the CS Report. If the Regional Administrator determines that such investigations are needed, the Permittee shall be required to prepare a plan for such investigations as outlined in Condition II.E.1.b. The RA will notify the permittee of any no further action decision.

II.E. <u>RCRA FACILITY INVESTIGATION (RFI)</u>

II.E.1. <u>RFI Workplan(s)</u>

II.E.1.a. The Permittee shall prepare and submit to the Regional Administrator, within one hundred twenty (120) calendar days of the effective date of this permit, a RCRA Facility Investigation (RFI) Workplan for those units identified in Condition II.A.1. This Workplan shall be developed to meet the requirements of Condition II.E.1.c.

II.E.1.b. The Permittee shall prepare and submit to the Regional Administrator, within ninety (90) calendar days of notification by the Regional Administrator, an RFI Workplan for those units identified under Condition II.B.4. or Condition II.C.2. This RFI Workplan(s) shall be developed to meet the requirements of Condition II.E.1.c.

II.E.1.c. The RFI Workplan(s) shall meet the requirements of Appendix B at a minimum. The Workplan(s) shall include schedules of implementation and completion of specific actions necessary to determine the nature and extent of releases and the potential pathways of contaminant releases to the air,

land, surface water, and groundwater. The Permittee must provide sufficient justification and/or documentation that a release is not probable if a unit or a media/pathway associated with a unit (groundwater, surface water, soil, subsurface gas, or air) is not included in the RFI Workplan(s). Such deletions of a unit, media or pathway from the RFI(s) are subject to the approval of the Regional Administrator. The Permittee shall provide sufficient written justification for any omissions or deviations from the minimum requirements of Appendix B. Such omissions or deviations are subject to the approval of the Regional Administrator. The RFI Workplan may be phased to allow for subsequent investing activity to be contingent upon the initial phase findings. If the scope of the Workplan is designed to be an initial phase, the initial phase work must summarize all potential final phase activities needed to meet the requirements of this condition. In addition, the scope of the RFI Workplan(s) shall include all investigations necessary to ensure compliance with 40 CFR §264.101(c).

II.E.1.d. The RFI Workplan(s) must be approved by the Regional Administrator, in writing, prior to implementation. The Regional Administrator shall specify the start date of the RFI Workplan schedule in the letter approving the RFI Workplan(s). If the Regional Administrator disapproves the RFI Workplan(s), the Regional Administrator shall either (1) notify the Permittee in writing of the RFI Workplan's deficiencies and specify a due date for submission of a revised RFI Workplan, or (2) revise the RFI Workplan and notify the Permittee of the revisions and the start date of the schedule within the approved RFI Workplan.

II.E.2. <u>RFI Implementation</u>

The Permittee shall implement the RFI(s) in accordance with the approved RFI Workplan(s) and Appendix B.

II.E.3. <u>RFI Reports</u>

II.E.3.a. If the time required to conduct the RFI(s) is greater than one hundred eighty (180) calendar days, the Permittee shall provide the Regional Administrator with quarterly RFI Progress Reports (90 day intervals) beginning ninety (90) calendar days from the start date specified by the Regional Administrator in the RFI Workplan approval letter. The Progress Reports shall contain the following information at a minimum:

i. A description of the portion of the RFI completed;

ii. Summaries of findings;

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iii. Summaries of all deviations from the approved RFI Workplan during the reporting period;

iv. Summaries of all problems or potential problems encountered during the reporting period;

v. Projected work for the next reporting period; and

vi. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

II.E.3.b. The Permittee shall prepare and submit to the Regional Administrator Draft and Final RCRA Facility Investigation Report(s) for the investigations conducted pursuant to the Workplan(s) submitted under Condition II.E.1. The Draft RFI Report(s) shall be submitted to the Regional Administrator for review in accordance with the schedule in the approved RFI Workplan(s). The Final RFI Report(s) shall be submitted to the Regional Administrator within thirty (30) calendar days of receipt of the Regional Administrator's comments on the Draft RFI Report. The RFI Report(s) shall include an analysis and summary of all required investigations of SWMUs and AOCs and their results. The summary shall describe the type and extent of contamination at the facility, including sources and migration pathways, and a description of actual or potential receptors. The Report(s) shall also describe the extent of contamination (qualitative/quantitative) in relation to background levels indicative of the area. If the draft RFI Report is a summary of the initial phase investigatory work, the report shall include a workplan for the final phase investigatory actions required based on the initial findings. Approval of the final phase workplan shall be carried out in accordance with Condition II.E.1.d. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support a Corrective Measures Study, if necessary.

II.E.3.c. The Regional Administrator will review the Final RFI Report(s) and notify the Permittee of the need for further investigative action and/or the need for a Corrective Measures Study to meet the requirements of II.G and 40 CFR §264.101. The Regional Administrator will notify the permittee of any no further action decision. Any further investigative action required by the Regional Administrator shall be prepared and submitted in accordance with a schedule specified by the Regional Administrator and approved in accordance with Condition II.E.1.d.

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II.F. INTERIM MEASURES (IM)

II.F.1. IM Workplan

II.F.1.a. Upon notification by the Regional Administrator, the Permittee shall prepare and submit an Interim Measures (IM) Workplan for any SWMU which the Regional Administrator determines poses a current or potential threat to human health or the environment. The IM Workplan shall be submitted within thirty (30) calendar days of such notification and shall include the elements listed in II.F.1.b. Such interim measures may be conducted concurrently with investigations required under the terms of this permit. The Permittee may initiate IM by submitting an IM Workplan for approval and reporting in accordance with the requirements under Condition II.F.

II.F.1.b. The IM Workplan shall ensure that the interim measures are designed to mitigate any current or potential threat(s) to human health or the environment and to be consistent with and integrated into any long-term solution at the facility. The IM Workplan shall include: the interim measures objectives, procedures for implementation (including any designs, plans, or specifications), and schedules for implementation.

II.F.1.c. The IM Workplan must be approved by the Regional Administrator, in writing, prior to implementation. The Regional Administrator shall specify the start date of the IM Workplan schedule in the letter approving the IM Workplan. If the Regional Administrator disapproves the IM Workplan, the Regional Administrator shall either (1) notify the Permittee in writing of the IM Workplan's deficiencies and specify a due date for submission of a revised IM Workplan, or (2) revise the IM Workplan and notify the Permittee of the revisions and the start date of the schedule within the approved IM Workplan.

II.F.2. IM IMPLEMENTATION

II.F.2.a. The Permittee shall implement the interim measures in accordance with the approved IM Workplan.

II.F.2.b. The Permittee shall give notice to the Regional Administrator as soon as possible of any planned changes, reductions or additions to the IM Workplan.

II.F.2.c. Final approval of corrective action required under 40 CFR §264.101 which is achieved through interim measures shall be in accordance with 40 CFR §270.41 and Condition II.H. as a permit modification.

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II.F.3. IM Reports

II.F.3.a. If the time required for completion of interim measures is greater than six (6) months, the Permittee shall provide EPA with progress reports semi-annually beginning 180 calendar days from the start date specified by the Regional Administrator in the IM Workplan approval letter. The Progress Reports shall contain the following information at a minimum:

i. A description of the portion of the interim measures completed;

ii. Summaries of all deviations from the IM Workplan during the reporting period;

iii. Summaries of all problems or potential problems encountered during the reporting period;

iv. Projected work for the next reporting period; and

v. Copies of laboratory/monitoring data.

II.F.3.b. The Permittee shall prepare and submit to the Regional Administrator, within ninety (90) calendar days of completion of interim measures conducted under Condition II.F, an IM Report. The IM Report shall contain the following information at a minimum:

a. A description of interim measures implemented;

b. Summaries of results;

c. Summaries of all problems encountered;

d. Summaries of accomplishments and/or effectiveness of interim measures; and

e. Copies of all relevant laboratory/monitoring data, etc. in accordance with Condition I.D.9.

II.G. CORRECTIVE MEASURES STUDY

II.G.1. Corrective Measures Study (CMS) Plan

II.G.1.a. The Permittee shall prepare and submit a CMS Plan for those units requiring a CMS within ninety (90) calendar days of notification by the Regional Administrator that a CMS is required. This CMS Plan shall be developed to meet the requirements of Condition II.G.1.b.

II.G.1.b. The CMS Plan shall meet the requirements of Appendix C. The CMS Plan shall include schedules of implementation and completion of specific actions necessary to complete a

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CMS. The Permittee must provide sufficient justification and/or documentation for any unit identified in accordance with Condition II.G.1.a. which is deleted from the CMS Plan. Such deletion of a unit is subject to the approval of the Regional Administrator. The CMS shall be conducted in accordance with the approved CMS Plan. The Permittee shall provide sufficient written justification for any omissions or deviations from the minimum requirements of Appendix C. Such omissions or deviations are subject to the approval of the Regional Administrator. The scope of the CMS Plan shall include all investigations necessary to ensure compliance with 3005(c)(3), 40 CFR §264.101, and §270.32(b)(3). The Permittee shall implement corrective actions beyond the facility boundary, where necessary to protect human health and the environment, unless the Permittee demonstrates to the satisfaction of the Regional Administrator that, despite the Permittee's best efforts, as determined by the Regional Administrator, the Permittee was unable to obtain the necessary permission to undertake such actions. The Permittee is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis. Assurances of financial responsibility for completion of such off-site corrective action will be required.

II.G.1.c. The Regional Administrator shall either approve or disapprove, in writing, the CMS plan. If the Regional Administrator disapproves the CMS Plan, the Regional Administrator shall either (1) notify the Permittee in writing of the CMS Plan's deficiencies and specify a due date for submittal of a revised CMS Plan, or (2) revise the CMS Plan and notify the Permittee of the revisions. This modified CMS Plan becomes the approved CMS Plan.

II.G.2. <u>Corrective Measures Study Implementation</u>

The Permittee shall begin to implement the Corrective Measures Study according to the schedules specified in the CMS Plan, no later than ninety (90) calendar days after the Permittee has received written approval from the Regional Administrator for the CMS Plan. The CMS shall be conducted in accordance with the approved CMS Plan approved in accordance with Condition II.G.1.c.

II.G.3. <u>CMS Report</u>

II.G.3.a. The Permittee shall prepare and submit to the Regional Administrator a draft and final CMS Report for the study conducted pursuant to the approved CMS Plan. The draft CMS Report shall be submitted to the Regional Administrator within ninety (90) calendar days from the Regional Administrator's approval of the CMS Plan. The final CMS

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Report shall be submitted to the Regional Administrator within thirty (30) days of receipt of the Regional Administrator's comments on the draft CMS Report. The CMS Report shall summarize any bench-scale or pilot tests conducted. The CMS Report must include an evaluation of each remedial alternative and recommend the preferred alternative. The CMS Report shall present all information gathered under the approved CMS Plan. The CMS Final Report must contain adequate information to support the Regional Administrator's decision on the recommended remedy, described under Permit Condition II.H.

II.G.3.b. If the Regional Administrator determines that the CMS Final Report does not fully satisfy the information requirements specified under Permit Condition II.G.3.a., the Regional Administrator may disapprove the CMS Final Report. If the Regional Administrator disapproves the CMS Final Report, the Regional Administrator shall notify the Permittee in writing of deficiencies in the CMS Final Report and specify a due date for submittal of a revised CMS Final Report. The Regional Administrator will notify the Permittee of any no further action decision.

II.G.3.c. As specified under Permit Condition II.G.3.b., based on preliminary results and the CMS Final Report, the Regional Administrator may require the Permittee to evaluate additional remedies or particular elements of one or more proposed remedies.

II.H. <u>REMEDY APPROVAL AND PERMIT MODIFICATION</u>

II.H.1 A remedy shall be selected by the Regional Administrator from the remedial alternatives evaluated in the CMS. It will be based at a minimum on protection of human health and the environment, as per specific site conditions, existing regulations, and guidance.

II.H.2. Pursuant to 40 CFR §270.41, a permit modification will be initiated by the Regional Administrator upon concurrence of a remedy selected in accordance with Condition II.H.1.

II.I. <u>MODIFICATION OF THE CORRECTIVE ACTION SCHEDULE OF COMPLIANCE</u>

II.I.1. If at any time the Regional Administrator determines that modification of the Corrective Action Schedule of Compliance is necessary, the Regional Administrator may initiate a modification to the Schedule of Compliance Appendix D.

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II.I.2. Modifications that are initiated and finalized by the Regional Administrator according to proper procedure, as outlined in Appendix E, shall not be subject to administrative appeal.

II.I.3. Modifications to the Schedule of Compliance do not constitute a reissuance of the Permit.

II.J. IMMINENT HAZARDS

II.J.1. The Permittee shall report to the Regional Administrator any imminent or existing hazard to public health or the environment from any release of hazardous waste or hazardous constituents. Such information shall be reported orally within 24 hours from such time the Permittee becomes aware of the circumstances. This report shall include the information specified under Conditions I.D.14.a and b.

II.J.2. A written report shall also be provided to the Regional Administrator within fifteen (15) calendar days of the time the Permittee becomes aware of the circumstances. The written report shall contain the information specified under Conditions I.D.14.a and b; a description of the release and its cause; the period of the release; whether the release has been stopped; and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the release.

II.K. PLAN AND REPORT REQUIREMENTS

II.K.1. All plans and schedules shall be subject to approval by the Regional Administrator prior to implementation. The Permittee shall revise all submittals and schedules as specified by the Regional Administrator. Upon approval the Permittee shall implement all plans and schedules as written.

II.K.2. The results of all plans and reports shall be submitted in accordance with the approved schedule. Extensions of the due date for submittals may be granted by the Regional Administrator based on the Permittee's demonstration that sufficient justification for the extension exists.

II.K.3. If the Permittee at any time determines that the SAR information required under Condition II.B, or RFI Workplan(s) required under Condition II.E. no longer satisfy the requirements of 40 CFR §264.101 or this permit for prior or continuing releases of hazardous waste or hazardous constituents from solid waste management units and/or areas of concern, the permittee shall submit an amended RFI Workplan(s) to the Regional Administrator within ninety (90) calendar days of such determination.

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II.K.4. All reports shall be signed and certified in accordance with 40 CFR §270.11.

II.K.5. Two (2) copies of all reports and plans shall be provided by the Permittee to the Regional Administrator in care of Mr. James H. Scarbrough at the following address:

Mr. James H. Scarbrough, P.E.
Chief, RCRA and Federal Facilities Branch
Waste Management Division
Environmental Protection Agency
Region IV
345 Courtland Street
Atlanta, Georgia 30365

For Federal Facilities all reports and plans shall be provided by the Permittee to the Regional Administrator in care of the Remedial Project Officer at the following address:

Remedial Project Manager
Federal Facilities Section
RCRA and Federal Facilities Branch
Waste Management Division
Environmental Protection Agency
Region IV
345 Courtland Street
Atlanta, Georgia 30365

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PART III - WASTE MINIMIZATION

III.A. General Requirements

Pursuant to 40 CFR §264.73(b)(9), and Section 3005(h) of RCRA, 42 U.S.C. 6925(h), the Permittee must certify, no less often than annually, that:

III.A.1. The permittee has a program in place to reduce the volume and toxicity of hazardous waste to the degree determined by the Permittee to be economically practicable; and

III.A.2. The proposed method of treatment, storage or disposal is the most practicable method available to the permittee which minimizes the present and future threat to human health and the environment.

III.B. Waste Minimization Record Keeping

The Permittee shall maintain copies of this certification in the facility operating record as required by 40 CFR §264.73(b)(9).

III.C. Waste Minimization Program Objectives

The Waste Minimization program required under III.A. above should address the objectives listed in Appendix F.

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PART IV - LAND DISPOSAL RESTRICTIONS

IV.A. GENERAL RESTRICTIONS

IV.A.1. 40 CFR Part 268 identifies hazardous wastes that are restricted from land disposal and defines those limited circumstances which an otherwise prohibited waste may continue to be placed on or in a land treatment, storage or disposal unit. The Permittee shall maintain compliance with the requirements of 40 CFR Part 268. Where the Permittee has applied for an extension, waiver or variance under 40 CFR Part 268 the Permittee shall comply with all restrictions on land disposal under this Part once the effective date for the waste has been reached pending final approval of such application.

IV.B. LAND DISPOSAL PROHIBITIONS AND TREATMENT STANDARDS

IV.B.1. A restricted waste identified in 40 CFR Part 268 Subpart C may not be placed in a land disposal unit without further treatment unless the requirements of 40 CFR Part 268 Subparts C and/or D are met.

IV.B.2. The storage of hazardous wastes restricted from land disposal under 40 CFR Part 268 is prohibited unless the requirements of 40 CFR Part 268 Subpart E are met.

PART V - AIR EMISSION REQUIREMENTS

V.A. General Requirements

The Permittee shall comply with the Organic Air Emissions Requirements of 40 CFR 264, Subpart AA (for process vents), and/or Subpart BB (for equipment leaks), and 270.24 and 270.25 as applicable. This portion of the Permit covers the equipment associated with SWMU No. 74, also referred to as Hazardous Waste Storage Tank No. 979.

V.B. Permitted Wastes

The liquid stored in Hazardous Waste Storage Tank No. 979 contains an estimated 90+% organics by weight. The waste stream is a liquid consisting of predominately JP-5 with traces of water and additives. Through the use of published tables for jet fuels, the Permittee has determined the waste stream to be considered a heavy liquid as defined in the regulation with a vapor pressure of approximately 0.1 KPa at 20 C.

V.C. Permitted Equipment

The specific tank equipment subject to the Subpart BB Organic Air Emission Regulations includes the following:

Gate Valves and associated flanges	2
Quick-disconnect fitting and flange	1
Capped fill connection on top of tank	1
Level gauge insertion connection	1
Manhole located on top of the tank	1

These items of equipment are shown on Figure D-6 in the Part B Application.

V.D. Monitoring and Inspection Schedules and Procedures

V.D.1 Equipment shall be inspected according to the following schedule:

Gate Valves and associated flanges	Weekly
Quick-disconnect fitting and flange	Weekly
Capped fill connection on top of tank	Weekly
Level Gauge insertion connection	Daily/when in use
Manhole located on top of the tank	Weekly

V.D.2 The equipment listed in Section V.D.1. of this permit shall be considered in heavy liquid service, shall be monitored visually, audibly, by olfactory methods, or other detection methods, and shall comply with the requirements of 40 CFR 264.1058.

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V.D.3 The Permittee shall keep on-file the following information: a listing of an identification number for each piece of equipment that contains or contacts hazardous waste with organic concentrations of at least 10 percent by weight; the respective hazardous waste management unit identification; each piece of equipment's specific location at the facility; and the type of equipment (i.e., valve, pump, compressor, pressure relief device, open-ended valve or line, flange or other connector, associated air emission control device or system); the hazardous waste state at the equipment; the method of compliance with the standard as stated in 40 CFR 264.1064(b)(1); and a log documenting that equipment has been inspected according to the schedule in Section V.D.1. of this permit.

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APPENDIX A

Summary of Solid Waste Management Units and Areas of Concern

ENCLOSURE (4)

APPENDIX A-1

List of Solid Waste Management Units and Areas of Concern requiring an RFI:

SWMU No./AOC	Description
1	Former Landfill (Fenced Area)
2	Lafrene Road Landfill
3	Borrow Pit Landfill
5	Pesticide Residue Pit Area
6	Inert Landfill seepage trenches
7	Day Tank Spill Area
8	Kavieng Street Landfill
9	Former Lube Oil Pits
12	Eastern Fire Training Pits
14	Inert Landfill
18	Current Fire Training Pits
5[illegible]	MAG-31, Product Storage Area (Bldg. #565)

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APPENDIX A-2

List of Solid Waste Management Units or Areas of Concern that require no further action at this time.

SWMU No./AOC	Description
10	Tank Bottom Sludges Disposal Area
11	Former Ground Support Equipment Maintenance Area
13	Western Fire Training Pits
15	PCB Spill Area
19	Satellite Storage Tank (Bldg. #999)
20	Satellite Storage Tank (Bldg. #1000)
21	Satellite Storage Tank #1002
22	Satellite Storage Tank #996
23	Satellite Storage Tank #997
24	Satellite Storage Tank (Bldg. #998)
25	Satellite Storage Tank (Bldg. #995)
26	Satellite Storage Tank #994
27	Satellite Storage Tank #993
28	Satellite Storage Tank #992
29	Satellite Storage Tank (Bldg. #843)
31	Temporary Hazardous Waste Storage Area Bldg. #414(SW)
32	Temporary Hazardous Waste Storage Area Bldg. #414(SE)
33	Temporary Hazardous Waste Storage Area Bldg. #728
34	Temporary Storage Area (Bldg. #729)
35	Temporary Hazardous Waste Storage Area Bldg. #416(SW)
36	Temporary Hazardous Waste Storage Area Bldg. #416(SE)
37	Temporary Hazardous Waste Storage Area Bldg. #594(NE)
38	Temporary Hazardous Waste Storage Area Bldg. #838
39	Temporary Hazardous Waste Storage Area Bldg. #418
40	Temporary Hazardous Waste Storage Area Bldg. #551, 865
41	Temporary Hazardous Waste Storage Area Bldg. #661, 663
42	Temporary Hazardous Waste Storage Area Bldg. #662
43	Temporary Hazardous Waste Storage Area Bldg. #780
44, 45	Temporary Hazardous Waste Storage Area Bldg. #565
46	Temporary Hazardous Waste Storage Area Bldg. #843
47	Temporary Hazardous Waste Storage Area Bldg. #625
48	Temporary Storage Area (Bldg. #773)
49	Temporary Hazardous Waste Storage Area Bldg. #730
50	Temporary Hazardous Waste Storage Area Bldg. #863
51	Temporary Hazardous Waste Storage Area Bldg.(Ammo Popper)
52	Temporary Hazardous Waste Storage Area Bldg. 617
53	Temporary Storage Area (Bldg. #816)
54	Pressurized Leak Detection System (Bldg. #857)
55	Scrap Metal Waste Storage Area (Bldg. 594)
56	Contaminated Fuel Storage Tank
58	Dumpster
59	Safety Kleen Machines
60	Dirty Rag Containers

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APPENDIX A-2
(continued)

61	Floor Drains and Associated Sewer System
62	Waste Recovery Drums
63	Oil/Water Separators
64	Oil/Water Separators (ID #8655511)
65	Oil/Water Separators (ID #401402)
66	Bldg. 426
68	East Fuel Vessels and Drainage System
69	West Fuel Vessels and Drainage System
70	Compresor
71	"Ammo Popper" (EOD Site)
72	Base Photo Lab (Bldg. 596)
73	Base Dental Clinic (Bldg. 598)
AOC A	Stained Concrete Pad
AOC-B	Bldg. 594
AOC-D	Container Storage Area (Bldg. #418) & associated "Drip Pan"
AOC-E	Bldg. 565
AOC-F	Bldg. 661
AOC G	Battery Repair Shop
AOC-H	Bldg. 816
AOC-I	Automotive Parts Storage Area at Automotive Hobby Shop
AOC-J	Maring Corps Exchange Service Station
AOC L	Air Conditioner Filter
AOC-M	Generator
AOC-N	Bldg. 663
AOC O	Solid Waste Disposal Site

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APPENDIX A-3

List of Solid Waste Management Units regulated by the State's portion of the RCRA permit:

SWMU No.	Description
74	Hazardous Waste Storage Tank No. 979
75	Hazardous Waste Container Storage Facility

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APPENDIX A-4

List of Solid Waste Mangement Units and Areas of Concern Requiring Confirmatory Sampling

SWMU No./AOC	Description
~~4~~	Southeast Point Disposal Area
~~17~~	Funa Futi Road Disposal Area
~~67~~	Sewage Treatment Plant
~~16~~	Storm Sewer Drainage and Outfall
~~AOC C~~	Mop Washing Area
~~AOC K~~	EOD Demonstration Site
~~AOC P~~	Miscellaneous Solid Waste Site

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APPENDIX B

RCRA Facility Investigation (RFI)
Workplan Outline

ENCLOSURE (4)

APPENDIX B

RCRA FACILITY INVESTIGATION (RFI) WORKPLAN OUTLINE

I. RFI WORKPLAN REQUIREMENTS

The Permittee shall prepare a RCRA Facility Investigation (RFI) Workplan that meets the requirements of Part II of this document and the RFI Guidance, EPA-530/SW-89-031. This Workplan shall also include the development of the following plans, which shall be prepared concurrently:

A. Project Management Plan

Permittee shall prepare a Project Management Plan which will include a discussion of the technical approach, schedules and personnel. The Project Management Plan will also include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RCRA Facility Investigation.

B. Sampling and Analysis Plan(s)

The Permittee shall prepare a plan to document all monitoring procedures: field sampling, sampling procedures and sample analysis performed during the investigation to characterize the environmental setting, source, and releases of hazardous constituents, so as to ensure that all information and data are valid and properly documented. The Sampling Strategy and Procedures shall be in accordance with Characterization of Hazardous Waste Sites A Methods Manual: Volume II., Available Sampling Methods, EPA-600/4-84-076, or EPA Region IV Engineering Support Branch's Standard Operating Procedure and Quality Assurance Manual (SOP). Any deviations from these references must be requested by the applicant and approved by EPA. The Sampling and Analysis Plan must specifically discuss the following unless the EPA-600/4-84-076 or SOP procedures are specifically referenced.

1. Sampling Strategy

a. Selecting appropriate sampling locations, depths, etc.;

b. Obtaining all necessary ancillary data;

c. Determining conditions under which sampling should be conducted;

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d. Determining which media are to be sampled (e.g., groundwater, air, soil, sediment, subsurface gas);

e. Determining which parameters are to be measured and where;

f. Selecting the frequency of sampling and length of sampling period;

g. Selecting the types of samples (e.g., composites vs. grabs) and number of samples to be collected.

2. Sampling Procedures

a. Documenting field sampling operations and procedures, including;

i) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, preservatives, and absorbing reagents);

ii) Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;

iii) Documentation of specific sample preservation method;

iv) Calibration of field instruments;

v) Submission of field-biased blanks, where appropriate;

vi) Potential interferences present at the facility;

vii) Construction materials and techniques, associated with monitoring wells and piezometers;

viii) Field equipment listing and sampling containers;

ix) Sampling order; and

x) Decontamination procedures.

b. Selecting appropriate sample containers;

c. Sampling preservation; and

d. Chain-of-custody, including:

i) Standardized field tracking reporting forms to establish sample custody in the field prior to shipment; and

ii) Pre-prepared sample labels containing all information necessary for effective sample tracking.

3. Sample Analysis

Sample analysis shall be conducted in accordance with SW-846: "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods" (third edition). The sample analysis section of the Sampling and Analysis Plan shall specify the following:

a. Chain-of-custody procedures, including:

i) Identification of a responsible party to act as sampling custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;

ii) Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracking report sheets; and

iii) Specification of laboratory sample custody procedures for sample handling, storage, and dispersement for analysis.

b. Sample storage;

c. Sample preparation methods;

d. Analytical Procedures, including:

i) Scope and application of the procedure;

ii) Sample matrix;

iii) Potential interferences;

iv) Precision and accuracy of the methodology; and

v) Method detection limits.

e. Calibration procedures and frequency;

f. Data reduction, validation and reporting;

g. Internal quality control checks, laboratory performance and systems audits and frequency, including:

i) Method blank(s);

ii) Laboratory control sample(s);

iii) Calibration check sample(s);

iv) Replicate sample(s);

v) Matrix-spiked sample(s);

vii) Control charts;

viii) Surrogate samples;

ix) Zero and span gases; and

x) Reagent quality control checks.

h. Preventive maintenance procedures and schedules;

i. Corrective action (for laboratory problems); and

j. Turnaround time.

C. Data Management Plan

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

The data record shall include the following:

a. Unique sample or field measurement code;

b. Sampling or field measurement location and sample or measurement type;

c. Sampling or field measurement raw data;

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d. Laboratory analysis ID number;

e. Property or component measures; and

f. Result of analysis (e.g. concentration).

2. Tabular Displays

The following data shall be presented in tabular displays:

a. Unsorted (raw) data;

b. Results for each medium, or for each constituent monitored;

c. Data reduction for statistical analysis, as appropriate;

d. Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and

e. Summary data

3. Graphical Displays

The following data shall be presented in graphical formats (e. g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transits, three dimensional graphs, etc.):

a. Display sampling location and sampling grid:

b. Indicate boundaries of sampling area, and area where more data are required;

c. Display geographical extent of contamination;

d. Illustrate changes in concentration in relation to distances from the source, time, depth or other parameters; and

e. Indicate features affecting inter-media transport and show potential receptors.

II. RCRA Facility Investigation (RFI) Requirements

RCRA Facility Investigation:

The Permittee shall conduct those investigations necessary to: characterize the facility (Environmental Setting); define the source (Source Characterization); define the degree and extent of release of hazardous constituents (Contamination Characterization); and identify actual or potential receptors.

The investigations should result in data of adequate technical content and quality to support the development and evaluation of the corrective action plan if necessary. The information contained in a RCRA Part B permit application and/or RCRA Section 3019 Exposure Information Report may be referenced as appropriate.

All sampling and analyses shall be conducted in accordance with the Sampling and Analysis Plan. All sampling locations shall be documented in a log and identified on a detailed site map.

A. Environmental Setting

The Permittee shall collect information to supplement and/or verify Part B information on the environmental setting at the facility. The Permittee shall characterize the following as they relate to identified sources, pathways and areas of releases of hazardous constituents from Solid Waste Management Units.

1. Hydrogeology

The Permittee shall conduct a program to evaluate hydrogeologic conditions at the facility. This program shall provide the following information:

a. A description of the regional and facility specific geologic and hydrogeologic characteristics affecting ground-water flow beneath the facility, including:

i) Regional and facility specific stratigraphy: description of strata including strike and dip, identification of stratigraphic contacts;

ii) Structural geology: description of local and regional structural features (e. g., folding, faulting, tilting, jointing, etc.);

iii) Depositional history;

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iv) Regional and facility specific ground-water flow patterns; and

v) Identification and characterization of areas and amounts of recharge and discharge.

b. An analysis of any topographic features that might influence the ground-water flow system.

c. Based on field data, tests, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the facility (i. e., the aquifers and any intervening saturated and unsaturated units), including:

i) Hydraulic conductivity and porosity (total and effective);

ii) Lithology, grain size, sorting, degree of cementation;

iii) An interpretation of hydraulic interconnections between saturated zones; and

iv) The attenuation capacity and mechanisms of the natural earth materials (e. g., ion exchange capacity, organic carbon content, mineral content etc.).

d. Based on data obtained from groundwater monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source, a representative description of water level or fluid pressure monitoring including:

i) Water-level contour and/or potentiometric maps;

ii) Hydrologic cross sections showing vertical gradients;

iii) The flow system, including the vertical and horizontal components of flow; and

iv) Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences.

e. A description of man-made influences that may affect the hydrology of the site, identifying:

i) Local water-supply and production wells with an approximate schedule of pumping; and

ii) Man-made hydraulic structures (pipelines, french drains, ditches, etc.).

2. Soils

The Permittee shall conduct a program to characterize the soil and rock units above the water table in the vicinity of contaminant release(s). Such characterization may include, but not be limited to, the following types of information as appropriate:

a. Surface soil distribution;
b. Soil profile, including ASTM classification of soils;
c. Transects of soil stratigraphy;
d. Hydraulic conductivity (saturated and unsaturated);
e. Relative permeability;
f. Bulk density;
g. Porosity;
h. Soil sorption capacity;
i. Cation exchange capacity (CEC);
j. Soil organic content;
k. Soil pH;
l. Particle size distribution;
m. Depth of water table;
n. Moisture content;
o. Effect of stratification on unsaturated flow;
p. Infiltration;
q. Evapotranspiration;
r. Storage capacity;
s. Vertical flow rate; and
t. Mineral content.

3. Surface Water and Sediment

The Permittee shall conduct a program to characterize the surface water bodies in the vicinity of the facility. Such characterization may include, but not be limited to, the following activities and information:

a. Description of the temporal and permanent surface water bodies including:

i) For lakes and estuaries: location, elevation, surface area, inflow, outflow, depth, temperature stratification, and volume;

ii) For impoundments: location, elevation, surface area, depth, volume, freeboard, and construction and purpose;

iii) For streams, ditches, and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, flooding tendencies (i. e., 100 year event), discharge point(s), and general contents.

iv) Drainage patterns; and

v) Evapotranspiration.

b. Description of the chemistry of the natural surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients, chemical oxygen demand, total organic carbon, specific contaminant concentrations, etc.

c. Description of sediment characteristics including:

i) Deposition area;

ii) Thickness profile; and

iii) Physical and chemical parameters (e. g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.)

4. <u>Air</u>

The Permittee shall provide information characterizing the climate in the vicinity of the facility. Such information may include, but not be limited to:

a. A description of the following parameters:

i) Annual and monthly rainfall averages;

ii) Monthly temperature averages and extremes;

iii) Wind speed and direction;

iv) Relative humidity/dew point;

v) Atmospheric pressure;

vi) Evaporation data;

vii) Development of inversions; and

viii) Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence. (i. e. Hurricanes)

b. A description of topographic and man-made features which affect air flow and emission patterns, including:

i) Ridges, hills or mountain areas;

ii) Canyons or valleys;

iii) Surface water bodies (e. g. rivers, lakes, bays, etc.); and

iv) Buildings.

B. Source Characterization

For those sources from which releases of hazardous constituents have been detected the Permittee shall collect analytical data to completely characterize the wastes and the areas where wastes have been placed, to the degree that is possible without undue safety risks, including: type, quantity; physical form; disposition (containment or nature of deposits); and facility characteristics affecting release (e. g., facility security, and engineering barriers). This shall include quantification of the following specific characteristics, at each source area:

1. Unit/Disposal Area Characteristics:

a. Location of unit/disposal area;
b. Type of unit/disposal area;
c. Design features;
d. Operating practices (past and present)
e. Period of operation;
f. Age of unit/disposal area;
g. General physical conditions; and
h. Method used to close the unit/disposal area.

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2. Waste Characteristics:

a. Type of wastes placed in the unit;

i) Hazardous classification (e. g., flammable, reactive, corrosive, oxidizing or reducing agent);

ii) Quantity; and

iii) Chemical composition.

b. Physical and chemical characteristics such as;

i) Physical form (solid, liquid, gas);

ii) Physical description (e. g., powder, oily sludge);

iii) Temperature;

iv) pH;

v) General chemical class (e. g., acid, base, solvent);

vi) Molecular weight;

vii) Density;

viii) Boiling point;

ix) Viscosity;

x) Solubility in water;

xi) Cohesiveness of the waste; and

xii) Vapor pressure.

c. Migration and dispersal characteristics of the waste such as:

i) Sorption capability;

ii) Biodegradability, bioconcentration, biotransformation;

iii) Photodegradation rates;

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iv) Hydrolysis rates; and

v) Chemical transformations.

The Permittee shall document the procedures used in making the above determinations.

C. Characterization of Releases of Hazardous Constituents

The Permittee shall collect analytical data on groundwater, soils, surface water, sediment, and subsurface gas contamination in the vicinity of the facility in accordance with the sampling and analysis plan as required above. These data shall be sufficient to define the extent, origin, direction, and rate of movement of contamination. Data shall include time and location of sampling, media sampled, concentrations found, conditions during sampling, and the identity of the individuals performing the sampling and analysis. The Permittee shall address the following types of contamination at the facility:

1. Groundwater Contamination

The Permittee shall conduct a groundwater investigation to characterize any plumes of contamination detected at the facility. This investigation shall at a minimum provide the following information:

a. A description of the horizontal and vertical extent of any plume(s) of hazardous constituents originating from or within the facility;

b. The horizontal and vertical direction of contamination movement;

c. The velocity of contaminant movement;

d. The horizontal and vertical concentration profiles of hazardous constituents in the plume(s);

e. An evaluation of factors influencing the plume movement; and

f. An extrapolation of future contaminant movement.

The Permittee shall document the procedures used in making the above determinations (e. g., well design, well construction, geophysics, modeling, etc.).

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2. Soil Contamination

The Permittee shall conduct an investigation to characterize the contamination of the soil and rock units above the saturated zone in the vicinity of any contaminant release. The investigation may include the following information:

a. A description of the vertical and horizontal extent of contamination;

b. A description of appropriate contaminant and soil chemical properties within the contaminant source area and plume. This may include contaminant solubility, speciation, absorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation;

c. Specific contaminant concentrations;

d. The velocity and direction of contaminant movement; and

e. An extrapolation of future contaminant movement.

The Permittee shall document the procedures used in making the above determinations.

3. Surface Water and Sediment Contamination

The Permittee shall conduct a surface water investigation to characterize contamination in surface water bodies resulting from releases of hazardous constituents at the facility.

The investigation may include, but not be limited to, the following information:

a. A description of the horizontal and vertical extent of any plume(s) originating from the facility, and the extent of contamination in underlying sediments;

b. The horizontal and vertical direction of contaminant movement;

c. The contaminant velocity;

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d. An evaluation of the physical, biological and chemical factors influencing contaminant movement;

e. An extrapolation of future contaminant movement; and

f. A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, specific contaminant concentrations, etc.

4. Air Contamination

The Permittee shall conduct an investigation to characterize gaseous releases of hazardous constituents into the atmosphere or any structures or buildings. This investigation may provide the following information:

a. A description of the horizontal and vertical direction and velocity of contaminant movement;

b. The rate and amount of the release; and

c. The chemical and physical composition of the contaminant(s) released, including horizontal and vertical concentration profiles.

The Permittee shall document the procedures used in making the above determinations.

D. Potential Receptors

The Permittee shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility. Chemical analysis of biological samples and/or data on observable effects in ecosystems may also be obtained as appropriate. The following characteristics shall be identified:

1. Current local uses and planned future uses of groundwater:

a. Type of use (e. g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial); and

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b. Location of ground water users, to include withdrawal and discharge wells, within one mile of the impacted area.

The above information should also indicate the aquifer or hydrogeologic unit used and/or impacted for each item.

2. Current local uses and planned future uses of surface waters directly impacted by the facility:

   a. Domestic and municipal (e. g., potable and lawn/gardening watering);
   b. Recreational (e. g. swimming, fishing);
   c. Agricultural;
   d. Industrial; and
   e. Environmental (e. g., fish and wildlife propagation).

3. Human use of or access to the facility and adjacent lands, including but not limited to:

   a. Recreation;
   b. Hunting;
   c. Residential;
   d. Commercial; and
   e. Relationship between population locations and prevailing wind direction.

4. A general description of the biota in surface water bodies on, adjacent to, or affected by the facility.

5. A general description of the ecology within area the area adjacent to the facility.

6. A general demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age; sex; and sensitive subgroups.

7. A description of any known or documented endangered or threatened species near the facility.

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APPENDIX C

Corrective Measures Study (CMS) Plan Outline

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APPENDIX C

CORRECTIVE MEASURE STUDY (CMS) PLAN OUTLINE

I. Identification and Development of the Corrective Measure Alternatives

   A. Description of Current Situation
   B. Establishment of Corrective Action Objectives
   C. Screening of Corrective Measures Technologies
   D. Identification of the Corrective Measure Alternatives

II. Evaluation of the Corrective Measure Alternatives

   A. Technical/Environmental/Human Health/Institutional
   B. Cost Estimate

II. Justification and Recommendation of the Corrective Measure or Measures

   A. Technical
   B. Environmental
   C. Human Health

III. Reports

   A. Draft
   B. Final
   C. Public Review and Final Selection of Corrective Measure

ENCLOSURE (4)

I. IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE MEASURES ALTERNATIVES

Based on the results of the RCRA Facility Investigation and consideration of the identified potential corrective measure technologies, the Permittee shall identify, screen and develop the alternatives for removal, containment, treatment and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

The Permittee shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RCRA Facility Investigation (RFI) Report. The Permittee shall provide an update to information presented in the RFI regarding previous response activities and interim measures which have or are being implemented at the facility. The Permittee shall also make a facility-specific statement of the purpose for the response, based on the results of the RFI. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

The Permittee shall propose facility-specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RFI, EPA guidance, and the requirements of any applicable Federal statutes. At a minimum, all corrective actions concerning ground water releases from regulated units must be consistent with, and as stringent as, those required under 40 CFR §264.100.

C. Screening of Corrective Measure Technologies

The Permittee shall review the results of the RFI and assess the technologies which are applicable at the facility. The Permittee shall screen the corrective measure technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations.

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Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics

   Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration.

2. Waste Characteristics

   Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off-site).

3. Technology Limitations

   During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

D. Identification of the Corrective Measure Alternatives

The Permittee shall develop the Corrective measure alternatives based on the corrective action objectives and analysis of potential corrective measure technologies. The Permittee shall rely on engineering practice to determine which of the previously identified technologies appear most suitable for the site. Technologies can be combined to form the overall corrective action alternatives. The alternatives developed should represent a workable number of option(s) that each appear to adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Permittee shall document the reasons for excluding technologies.

II. EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVES

The Permittee shall describe each corrective measure alternative that passes through the initial screening and evaluate each corrective measure alternative and its components. The evaluation shall be based on technical, environmental, human health and institutional concerns. The Permittee shall also develop cost estimates of each corrective measure.

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A. Technical/Environmental/Human Health/Institutional

The Permittee shall provide a description of each corrective measure alternative which includes but is not limited to the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Permittee shall evaluate each alternative in the four following areas:

1. Technical;

The Permittee shall evaluate each corrective measure alternative based on performance, reliability, implementability and safety.

a. The Permittee shall evaluate performance based on the effectiveness and useful life of the corrective measure:

i) Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

ii) Useful life is defined as the length of time the level of desired effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.

b. The Permittee shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability:

i) Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and

ii) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. The Respondent should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.

c. The Permittee shall describe the implementability of each corrective measure including the relative ease of installation (constructability) and the time required to achieve a given level of response:

i) Constructability is determined by conditions both internal and external to the facility conditions and include such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). The Permittee shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and

ii) Time has two components that shall be addressed: the time it takes to implement a corrective measure and the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

d. The Permittee shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider are fire, explosion, and exposure to hazardous substances.

2. Environmental;

The Permittee shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short- and long-term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

3. Human Health

The Permittee shall assess each alternative in terms of the extent to which it mitigates short-and long-term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment will describe the concentrations and characteristics of the contaminants on-site, potential exposure routes, and potentially affected population. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to EPA.

4. Institutional

The Permittee shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, state and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative. If the selected remedy is capping and closure in place, a notation must be made in the land deed.

B. Cost Estimate

The Permittee shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs.

1. Capital costs consist of direct (construction) and indirect (nonconstruction and overhead) costs.

   a. Direct capital costs include:

      i) Construction costs: Costs of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measure.

      ii) Equipment costs: Costs of treatment, containment, disposal and/or service equipment necessary to implement the action; these materials remain until the corrective action is complete;

      iii) Land and site-development costs: Expenses associated with purchase of land and development of existing property; and

      iv) Buildings and services costs: Costs of process and nonprocess buildings, utility connections, purchased services, and disposal costs.

b. Indirect capital costs include:

i) Engineering expenses: Costs of administration, design, construction supervision, drafting, and testing of corrective measure alternatives;

ii) Legal fees and license or permit costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;

iii) Startup and shakedown costs: Costs incurred during corrective measure startup; and

iv) Contingency allowances: Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.

2. Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. The Permittee shall consider the following operation and maintenance cost components:

a. Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operations;

b. Maintenance materials and labor costs: Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;

c. Auxillary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;

d. Purchased services: Sampling costs, laboratory fees, and professional fees for which the need can be predicted;

e. Disposal and treatment costs: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues, generated during operations;

f. Administrative costs: Costs associated with administration of corrective measure operation and maintenance not included under other categories;

g. Insurance, taxes, and licensing costs: Costs of such items as liability and sudden accident insurance; real estate taxes on purchased land or right-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;

h. Maintenance reserve and contingency funds: Annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and

i. Other costs: Items that do not fit any of the above categories.

III. JUSTIFICATION AND RECOMMENDATION OF THE CORRECTIVE MEASURE OR MEASURES

The Permittee shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health risks, environmental effects, and other pertinent factors shall be highlighted. The Regional Administrator will select the corrective measure alternative or alternatives to be implemented based on the results obtained from work completed under Section II and III. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

A. Technical

1. Performance - corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;

2. Reliability - corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have proved effective under waste and facility conditions similar to those anticipated will be given preference;

3. Implementability - corrective measure or measures which can be constructed and operating to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and

4. Safety - corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

B. Human Health

The corrective measure(s) must comply with existing U.S. EPA criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

C. Environmental

The corrective measure(s) posing the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

IV. REPORTS

The Permittee shall prepare a Corrective Measure Study Report presenting the results obtained fron Sections I through III and recommending a corrective measure alternative. Copies of the preliminary report shall be provided by the Permittee to the Regional Administrator (RA) for review and approval.

A. Draft

The Report shall at a minimum include:

1. A description of the facility;

   a. Site topographic map & preliminary layouts.

2. A summary of the corrective measure(s) and rationale for selection;

   a. Description of the corrective measure(s) and rationale for selection;

   b. Performance expectations;

   c. Preliminary design criteria and rationale;

   d. General operation and maintenance requirements; and

   e. Long-term monitoring requirements.

3. A summary of the RCRA Facility Investigation and impact on the selected corrective measure or measures;

   a. Field studies (ground-water, surface water, soil, air); and

   b. Laboratory studies (bench scale, pick scale).

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4. Design and Implementation Precautions;

   a. Special technical problems;

   b. Additional engineering data required;

   c. Permits and regulatory requirements;

   d. Access, easements, right-of-way;

   e. Health and safety requirements; and

   f. Community relations activities.

5. Cost Estimates and Schedules;

   a. Capitol cost estimate;

   b. Operation and maintenance cost estimate; and

   c. Project schedule (design, construction, operation).

Copies of the draft shall be provided by the Permittee to EPA.

B. Final

The Permittee shall finalize the Corrective Measure Study Report incorporating comments received from EPA on the Draft Corrective Measure Study Report. The report shall become final upon approval by the RA.

C. Public Review and Final Selection of Corrective Measures

Upon receipt of the Final Corrective Measure Study Report, EPA shall announce its availability to the public for review and comment. At the end of the comment period, the RA shall review the comments and then inform the Permittee of the final decision as to the approved Corrective Measures to be implemented.

APPENDIX D

Schedule of Compliance

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APPENDIX D

Schedule of Compliance

Schedule of Compliance	Due Date
Notification of Newly Identified SWMUs and AOCs Condition II.B.1 and Condition II.B.2.	Within fifteen (15) calendar days of discovery
SWMU Assessment Report Condition II.B.3.	Within ninety (90) calendar days of notification
Notification for Newly Discovered Releases at Previously Identified SWMUs and AOCs Condition II.C.1.	Within fifteen (15) calendar days of discovery
Confirmatory Sampling Workplan for SWMUs identified in APPENDIX A-4 Condition II.D.1	Within ninety (90) calendar days after effective date of permit 28JAN92 + EXT 50 DAYS = 18MAR92 + EXT
Confirmatory Sampling Report Condition II.D.4.	Within sixty (60) calendar days after approval of the CS Workplan
RFI Workplan for SWMU(s) identified in APPENDIX A-1, Condition II.E.1.a	Within one hundred twenty (120) calendar days after effective date of permit 27FEB92 + EXT 35 DAYS = 1APRIL92 + EXT
RFI Workplan for SWMU(s) and AOC(s) identified under Condition II.B.4., Condition II.C.2., and Condition II.D.5. Condition II.E.1.b.	Within ninety (90) calendar days after receipt of notification by RA which SWMUs or AOCs require an RFI
RFI Progress Reports Condition II.E.3.a.	Quarterly, beginning ninety (90) calendar days from the start date specified by the RA*
Draft RFI Report Condition II.E.3.b.	In accordance with the approved RFI Workplan

ENCLOSURE (4)

Schedule of Compliance	Due Date
Final RFI Report Condition II.E.3.b.	Within thirty (30) calendar days after receipt of RA comments on Draft RFI Report
Interim Measures Plan Condition II.F.1.a.	Within thirty (30) calendar days of notification by RA
Interim Measures Progress Reports Condition II.F.3.a.	Semi-annually, beginning 180 days from start date specified by the RA**
Interim Measure Report Condition II.F.3.b.	Within ninety (90) calendar days of completion
CMS Plan Condition II.G.1.a.	Within ninety (90) calendar days of notification by RA that a CMS is needed
Draft CMS Report Condition II.G.3.a	Within ninety (90) calendar days of RA's approval of CMS Plan
Final CMS Report Condition II.G.3.a.	Within thirty (30) calendar days of RA's comments on draft CMS Report
Imminent Hazard Report Condition II.J.1. and II.J.2.	Oral within 24 hours; Written within fifteen (15) calendar days
Waste Minimization Certification Condition III	Annually from effective date of permit

The above reports must be signed and certified in accordance with 40 CFR §270.11.

* This applies to Workplan execution that requires more than one hundred eighty (180) calendar days.

** This applies to Workplan execution that requires more than one year.

ENCLOSURE (4)

APPENDIX E

Modification of the Corrective Action Schedule of Compliance

ENCLOSURE (4)

MODIFICATION OF THE CORRECTIVE ACTION SCHEDULE OF COMPLIANCE

I. If at any time the Regional Administrator determines that modifications of the Corrective Action Schedule of Compliance is necessary, he or she may initiate a modification to the Schedule of Complaince according to this procedure. If the Regional Administrator initiates a modification, he or she shall:

A. Notify the Permittee in writing of the proposed modification and the date by which comments on the proposed modification must be received; and

B. Publish a notice of the proposed modification in a locally distributed newspaper, mail a notice to all persons on the facility mailing list maintained according to 40 CFR §124.10(c)(viii), and place a notice in the facility's information repository (i.e., a central source of all pertinent documents concerning the remedial action, usually maintained at the facility or some other public place, such as a public library, that is accessible to the public) if one is required.

1. If the Regional Administrator receives no written comment on the proposed modification, the modification shall become effective five (5) calender days after the close of the comment period.

2. If the Regional Administrator receives written comment on the proposed modification, the Regional Administrator shall make a final determination concerning the modification after the end of the comment period.

C. Notify the Permittee in writing of the final decision.

1. If no written comment was received, the Regional Administrator shall notify individuals on the facility mailing list in writing that the modification has become effective and shall place a copy of the modified Corrective Action Schedule of Compliance in the information repository, if a repository is required for the facility.

2. If written comment was received, the Regional Administrator shall provide notice of the final modification decision in a locally distributed newspaper and place a copy of the modified Corrective Action Schedule of Compliance in the information repository, if a repository is required for the facility.

ENCLOSURE (4)

II. Modifications that are initiated and finalized by the Regional Administrator according to this procedure shall not be subject to administrative appeal.

III. Modifications to the Corrective Action Schedule of Compliance do not constitute a reissuance of the Permit.

ENCLOSURE (4)

APPENDIX F

Waste Minimization Objectives

ENCLOSURE 14 E

APPENDIX F

Waste Minimization Certification Objectives

The Waste Minimization Program should include the following elements:

1. Top Management Support

   - Dated and signed policy describing management support for waste minimization and for implementation of a waste minimization plan.
   - Description of employee awareness and training programs designed to involve employees in waste minimization planning and implementation to the maximum extent feasible.
   - Description of how a waste minimization plan has been incorporated into management practices so as to ensure ongoing efforts with respect to product design, capital planning, production operations, and maintenance.

2. Characterization of Waste Generation

   - Identification of types, amounts, and hazardous constituents of waste streams, with the source and date of generation.

3. Periodic Waste Minimization Assessments

   - Identification of all points in a process where materials can be prevented from becoming a waste, or can be recycled.
   - Identification of potential waste reduction and recycling techniques applicable to each waste, with a cost estimate for capital investment and implementation.
   - Description of technically and economically practical waste reduction/recycling options to be implemented, and a planned schedule for implementation.
   - Specific performance goals, preferably quantitative, for the source reduction of waste by stream. Whenever possible, goals should be stated as weight of waste generated per standard unit of production, as defined by the generator.

4. Cost Allocation System

   - Identification of waste management costs for each waste, factoring in liability, transportation, recordkeeping, personnel, pollution control, treatment, disposal, compliance and oversight costs to the extent feasible.
   - Description of how departments are held accountable for the wastes they generate.
   - Comparison of waste management costs with costs of potential reduction and recycling techniques applicable to each waste.

ENCLOSURE (4)

5. Technology Transfer

- Description of efforts to seek and exchange technical information on waste minimization from other parts of the company, other firms, trade associations, technical assistance programs, and professional consultants.

6. Program Evaluation

- Description of types and amounts of hazardous waste reduced or recycled.
- Analysis and quantification of progress made relative to each performance goal established and each reduction technique to be implemented.
- Amendments to waste minimization plan and explanation.
- Explanation and documentation of reduction efforts completed or in progress before development of the waste minimization plan.
- Explanation and documentation regarding impediments to hazardous waste reduction specific to the individual facility.

References: "Draft Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program", 54 FR 25056, June 12, 1989.

"Waste Minimization Opportunity Assessment Manual", EPA/625/7-88/003, July 1988.

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

R. D. STEARNS
NAME (Please type or print)

R D Stearns
Signature

COMMANDING OFFICER
Title

Date 23 MAY 1994

MCAS BEAUFORT SC
Activity

Data Call # 33

Data Call 33
MCAS Beaufort

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

F. MCCORKLE
NAME (Please type or print)

F McCorkle
Signature

Commanding General
Title

1 June 1994
Date

Marine Corps Air Bases East
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J.A. BRABHAM
LIEUTENANT GENERAL, U.S. MARINE CORPS
DEPUTY CHIEF OF STAFF FOR
INSTALLATIONS AND LOGISTICS
NAME (Please type or print)

Signature

25 July 1994
Date

7

MCAS BEAUFORT DATA CALL 33 PAGE CHANGES

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief. (BRAC '95 BSAT Data Call Amplification)

NEXT ECHELON LEVEL (if applicable)

F. MCCORKLE — NAME (Please type or print)

FMccorkle — Signature

Commanding General — Title

19 Oct 94 — Date

Marine Corps Air Bases East — Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print) — Signature

Title — Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

NAME (Please type or print) — Signature

Title — Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)

DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

R. K. RIGGS — NAME (Please type or print)

R. K. Riggs — Signature

Acting Deputy Chief of Staff for Installations and Logistics — Title

9 Nov 1994 — Date

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

R. D. STEARNS
NAME (Please type or print)

Signature M Stearns

COMMANDING OFFICER
Title

Date 13 Oct 94

MCAS BEAUFORT
Activity

ENCLOSURE (1)

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DATA CALL: 33

ACTIVITY: MCAS Beaufort

PAGE (S): 3, 3a, 28, 29, 29a

BSWG REVIEW OFFICIAL

G.W. MOORE MAJOR
NAME (Please type or print)

LONG RANGE LAND USE PLANNER
Title

GW Moore
Signature

5 NOV 94
Date

DATA CALL 64

CONSTRUCTION COST AVOIDANCES

Table 1: Military Construction (MILCON) Projects (Excluding Family Housing Construction Projects)

Installation Name:	**BEAUFORT SC MCAS**
Unit Identification Code (UIC):	**M~~60169~~** 02030 #7
Major Claimant:	**MARCORPS**

Project FY	Project No.	Description	Appn	Project Cost Avoid ($000)
1994	368	BEQ PH II	MCON	1,498
1994	381	JET FUEL DELIVERY SYSTEM IMPROVEMENTS	MCON	482
1994	391	CONTROLLED HUMIDITY WAREHOUSE	MCON	244
		Sub-Total - 1994		**2,224**
		Grand Total		**2,224**

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

J. E. BUFFINGTON, RADM, CEC, USN
NAME (Please type or print)

Signature

COMMANDER
Title

7/13/94
Date

NAVAL FACILITIES ENGINEERING COMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER
NAME (Please type or print)

Signature

Title

7/18/94
Date

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MARK E. DONALDSON
NAME (Please type or print)

Signature

CDR, CEC, USN
Title

12 July 1994
Date

MILCON PROGRAMMING DIVISION
Division

FACILITIES PROGRAMMING AND CONSTRUCTION DIRECTORATE
Department

NAVAL FACILITIES ENGINEERING COMMAND
Activity

Enclosure (1)

BRAC DATA CALL NUMBER 64
CONSTRUCTION COST AVOIDANCE

Information on cost avoidance which could be realized as the result of cancellation of on-going or programmed construction projects is provided in Tables 1 (MILCON) and 2 (FAMILY HOUSING). These tables list MILCON/FAMILY HOUSING projects which fall within the following categories:

1. all programmed construction projects included in the FY1996 - 2001 MILCON/FAMILY HOUSING Project List,

2. all programmed projects from FY1995 or earlier for which cost avoidance could still be obtained if the project were to be canceled by 1 OCT 1995, and,

3. all programmed BRAC MILCON/FAMILY HOUSING projects for which cost avoidance could still be obtained if the project were to be canceled by 1 OCT 1995.

Projects listed in Tables 1 and 2 with potential cost avoidance were determined as meeting any one of the following criteria:

Projects with projected Work in Place (WIP) less than 75% of the Current Working Estimate (CWE) as of 1 OCT 1995 .

Projects with projected completion dates or Beneficial Occupancy Dates subsequent to 31 March 1996.

Projects with projected CWE amount greater than $15M.

The estimated cost avoidance for projects terminated after construction award would be approximately one-half of the CWE for the remaining work. Close-out, claims and other termination costs can consume the other half.

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DATA CALL 64

CONSTRUCTION COST AVOIDANCES

Table 1: Military Construction (MILCON) Projects (Excluding Family Housing Construction Projects)

Installation Name:	**BEAUFORT SC MCAS**
Unit Identification Code (UIC):	**M60169**
Major Claimant:	**MARCORPS**

Project FY	Project No.	Description	Appn	Project Cost Avoid ($000)
1994	381	JET FUEL DELIVERY SYSTEM IMPROVEMENTS *	MCON	556
		Sub-Total - 1994		**556**
1995	394	SUPPORT FACILITIES RENOVATION	MCON	10,800
		Sub-Total - 1995		**10,800**
		Grand Total		**11,356**

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

J. E. BUFFINGTON, RADM, CEC, USN
NAME (Please type or print)

Signature

COMMANDER
Title

12/9/94
Date

NAVAL FACILITIES ENGINEERING COMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER
NAME (Please type or print)

Signature

Title

12-17-94
Date

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MICHAEL D. THORNTON
NAME (Please type or print)

Signature

CDR, CEC, USN
Title

9 Dec 94
Date

MILCON PROGRAMMING DIVISION
Division

NAVAL FACILITIES ENGINEERING COMMAND
Activity