Chastain), Fort Huachuca, Arizona 85613–6000.

FOR FURTHER INFORMATION CONTACT: Major Dan Williams or Ms. Tanya Linton at (520) 533–1287 or 533–2752.

SUPPLEMENTARY INFORMATION: The Department of the Army prepared a Draft Environmental Impact Statement (DEIS) which assessed the environmental and human health impacts of the proposed action at Fort Huachuca, Arizona, and the surrounding communities. An NOA was published on June 10, 1998, in the **Federal Register** by the U.S. Environmental Protection Agency, which provided notice that the DEIS was available for comment. A public Information meeting was held on June 30, 1998. Comments from the DEIS and public meeting have been considered and included along with responses in the FEIS.

The proposed action is to approve three updates to the Installation RPMP: (1) Long-Range Component, (2) the Short-Range Component, and (3) the Capital Investment Strategy, which will be used to guide real property and facilities management at Fort Huachuca. The alternatives to the proposed action considered in the FEIS are (1) No Action (continuation of current management conditions) and (2) Other Action—approval of the Long-Range Component update but not the Short-Range Component and Capital Investment Strategy updates.

Approval of the three RPMP component updates as discussed in the proposed action would allow Fort Huachuca to establish a framework for managing limited financial and real property resources and ensure installation management is compatible with local community development. Minor positive impact to land use and personnel safety would result from corrections of land use incompatibilities within the cantonment. Minor indirect positive socio-economic impact may occur at Fort Huachuca as a result of approving steps toward the implementation of programmed construction projects.

The FEIS concludes that no significant environmental impacts to cultural resources, air quality, noise, geology and soils, hydrology and water resources, biological resources (including federally listed threatened and endangered species and critical habitat), energy, waste management, or transportation would result from the proposed action or either of the two alternatives.

The FEIS is available for public review at the Sierra Vista Public Library, 2950 E. Tacoma street, Sierra Vista, AZ 85635.

Dated: December 13, 1999.

Raymond J. Fatz,

Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health) OASA(I&E).

[FR Doc. 99–33514 Filed 12–23–99; 8:45 am]

BILLING CODE 3710–08–M

DEPARTMENT OF DEFENSE

Department of the Navy

Record of Decision for the Introduction of the V–22 to the Second Marine Aircraft Wing in Eastern North Carolina

AGENCY: Department of the Navy, Department of Defense.

ACTION: Notice of Record of Decision.

SUMMARY: The Department of the Navy, after carefully weighing the operational, environmental, and cost factors associated with the introduction of the V–22 'Osprey' as a replacement for the CH–46E helicopters in present use by the Second Marine Aircraft Wing (2d MAW), announces its Carolina. The squadrons receiving the new aircraft are already decision to base the replacement aircraft at MCAS New River, North based at MCAS New River, so no relocation of personnel and family members will be required.

FOR FURTHER INFORMATION CONTACT: LtCol D.B. Bixler, USMC; Long Range Planner, Installations and Logistics Dept (LFL–3), Headquarters, U.S. Marine Corps, 2 Navy Annex, Washington DC 20380–1775; Telephone 703 695–8240.

SUPPLEMENTARY INFORMATION: The text of the entire Record of Decision (ROD) is attached as follows:

The Department of the Navy (DoN), pursuant to Section 102 (c) of the National Environmental Policy Act (NEPA) of 1969 (42 USC Section 4331 *et. seq.*), and the regulations of the Council of Environmental Quality that implement NEPA procedures (40 CFR Parts (1500–1508), hereby announces its decision to introduce the V–22 ''Osprey'', a new type of tiltrotor, aircraft, to the Second Marine Aircraft Wing of the US Marine Corps, based at Marine Corps Air Station, New River, North Carolina. The decision includes the replacement or renovation of the facilities used to house and maintain the aircraft, and development within the USMC of the skills needed to employ the new aircraft during wartime.

The introduction of the V–22, as mandated by Congress, is part of a Marine Corps-wide process of replacing the CH–46E and CH–53D helicopters currently used by the USMC MAWs. The USMC relies on a veteran fleet of CH–46Es and CH–53Ds for medium-lift operations, such as the delivery of troops and equipment in amphibious assault operations. These Fleet aircraft will be replaced by the V–22 on an essentially one-to-one basis.

The CH–46E aircraft represent 1960s technology, and are nearing the end of their lifecycles. The CH–46E cannot travel great distances, and is not well equipped for night or adverse weather operations. The V–22 is a tiltrotor aircraft capable of vertical/short takeoffs and landings, and significantly greater flight distances, at a faster speed and with a greater payload than the CH–46Es and CH–53Ds.

The basing and operating of the V–22 by the 2d MAW will be as described in the Final Environment Impact Statement (FEIS) of October, 1999. The FEIS identifies the basing of the V–22 at MCAS New River as the Preferred Alternative. To support the personnel, operations, and maintenance effort associated with basing the V–22 at MCAS New River, four construction projects will be required at that air station. These projects include constructing an aircraft rinse facility, widening taxiways, expanding the aircraft parking apron, and providing an addition to an existing training building to accommodate additional training simulators. Additionally, repavement of the runways at Outlying Landing Field Oak Grove, in Jones County, is planned.

Operations will include training activities by the V–22 Fleet Replacement and Fleet Replacement Enlisted Skills Training (FRS/FREST) squadrons to develop initial capabilities in piloting and maintaining the new aircraft. The action also includes readiness operations by the V–22 tactical squadrons to develop proficiency in use of the V–22 for warfighting. These training and readiness operations are similar to those that have been conducted in Eastern North Carolina by the CH–46 FRS and tactical squadrons in recent years.

Training and readiness operations will be conducted at established outlying landing fields (OLFs); established special use airspace such as military operations areas (MOAs) and restricted areas; established military training routes (MTRs), terrain-following routes (TERFs), and low altitude routes (LATs); established targets and landing zones (LZs); and civilian airports. No new OLFs, MOAS, MTRs, TERFs, LATs, or restricted areas will be required as the result of the proposed action.

The first V–22 aircraft will be delivered to the V–22 Fleet Replacement Squadron (FRS) during fiscal years 2000 and 2001, at which point that squadron will reach Initial Operating Capability.

The V–22 FRS squadron will receive 20 V–22 aircraft during the first five years of the program. The first four 2d MAW CH–46E tactical squadrons will be transitioned to the V–22 by about fiscal year 2006, and will each receive 12 V–22s, for a total of 48 V–22 aircraft.

Ultimately, by about fiscal year 2008, the six 2d MAW tactical squadrons that presently use the CH–46E helicopters will be re-equipped with the V–22. These Fleet squadrons are part of Marine Aircraft Group 26 and 29, currently stationed at MCAS New River. Initiating deployment through MCAS New River will therefore allow the DoN to take advantage of the existing facilities and organizational structure at the site.

The V–22 FRS staff will begin training in the operation and maintenance of the V–22 upon arrival of the first V–22, scheduled for February 2000. The training of these personnel will be completed during March 2001, at which time they will begin to train tactical squadron personnel, starting with the first four of the 2d MAW tactical squadrons that are to be equipped.

The air emissions from sources associated with construction and operation of the proposed action would occur in counties within the Southern Coastal Plain Intrastate Air Quality Control Region. Each of these counties is an air quality area for purposes of National Ambient Air Quality Standards (NAAQS) designations under the Clean Air Act (CAA), and each has been designated as being in attainment for all criteria pollutants (40 C.F.R. 81.334). Thus, the Federal General Conformity Rule implementing the CAA Sec. 176, and the North Carolina General Conformity Rule (15A NCAC 2D.1600) are not applicable.

Process

The NOI to prepare an Environmental Impact Statement (EIS) for the introduction of the V–22 to the 2d MAW was published in the **Federal Register** on August 14, 1998. Four public scoping meetings were held between August 31, 1998 and September 3, 1998 in the four North Carolina communities closest to where V–22 operations would occur: Atlantic, Pollocksville, Jacksonville, and Havelock.

The public scoping meetings were attended by a total of 25 persons, with only one formal comment offered. An additional 13 individuals and state/local agencies submitted comments via letter, facsimile, or electronic mail.

The Draft Environmental Impact Statement (DEIS) was distributed to Congressional members and committees, agencies and officials of federal, state, and local governments, citizen groups and organizations, and other interested parties during the week of June 14–18, 1999.

The Notice of Availability for the DEIS was published in the **Federal Register** on June 25, 1999. The DEIS was subject to public review during a 45-day public comment period. The Marine Corps also held four public hearings during the public comment period as follows: July 19, 1999—Jacksonville, NC; July 20, 1999—Havelock, NC; July 21, 1999—Atlantic, NC; and July 22, 1999—Pollocksville, NC.

Comments on the DEIS were received by letter, by oral statements provided to the court recorder at the public hearings, and written statements received by facsimile. Written and oral statements were received from a total of 21 commentors, including federal, state, regional, and local agencies, and private individuals. All comments received were reviewed and addressed in the FEIS.

The FEIS was distributed for public comment on October 25, 1999. The public comment period ended on December 6, 1999. Two comments were received on the FEIS, and were reviewed before issuing this ROD.

Alternatives Considered

The DoN conducted a two-tiered screening process to identify reasonable alternatives that would fulfull the purpose and need for the proposed action. The first stage identified all DoD aviation facilities that would meet certain fundamental criteria that are essential for the introduction of the V–22 within the 2d NAW. The second stage of the process screened those facilities that met the fundamental criteria against several preferential criteria that would significantly affect the cost and efficiency of the proposed action. The fundamental criteria included location within 200 nautical miles (nm) (370 kilometers [km]) of the ground forces that are supported by the 2d MAW (these ground forces are located at Marine Corps Base (MCB) Camp Lejeune); and the presence at the facility of a Marine Aviation Logistics Squadron (MALS).

The first criterion is based on the specified radius of action (200 nm) for the Marine Corps version of the V–22. It reflects the distance the V–22 can travel and return, without refueling with a full load of 18 to 24 combat troops.

The second criterion is necessary because the V–22 is a new aircraft, and there has been no opportunity to develop a maintenance capability through a MALS. The first opportunity for development of this capability will occur as the new aircraft is introduced to the FRS and initial fleet tactical squadrons. It is important that the V–22 squadrons be home-based at the same air station as a MALS, to avoid significant degradation of the maintenance, logistics, and training support that a MALS provides. Collocation with other USMC aviation assets would also significantly aid the integration of the new aircraft into the overall USMC aviation team.

Under these circumstances, establishing a new MALS at a non-Marine Corps facility would not be reasonable, as it would require the Marine Corps to undertake a change in force structure, necessitating higher support costs, and duplication of personnel and facilities at a time when DoD is streamlining.

Only two sites meet both fundamental criteria: MCAS Cherry Point and MCAS New River. These sites were then evaluated against the preferential criteria, namely operational readiness factors such as: the availability of adequate training areas (MTRs, LATs, TERFs, OLFs, LZs, restricted areas and associated targets, MOAs, and Warning Areas) within a reasonable distance of the home base; collocation of the FRS/FREST squadron with the majority of the V–22 Fleet squadrons; available capacity at the facility to accommodate the aircraft and personnel; costs associated with implementation of the alternative; and, proximity of the selected facility to the Fleet ground combat element (CGEs) requiring rotorcraft support at MCB Camp Lejeune. While MCAS New River is clearly the preferred alternative when evaluated against these factors, full basing at MCAS Cherry Point or partial basing of the FRS/FREST and six tactical squadrons at both New River or Cherry Point would also be reasonable. Thus, the EIS addressed the environmental impacts of these three alternatives.

Because Congress directed replacement, the No Action Alternative was not analyzed in detail.

Environmental Impacts

The DoN analyzed the potential impacts of the selected action on 15 categories of resources, namely: airfields and airspace, land use and coastal zone management, socioeconomics, community facilities and services, ground traffic and transportation, air

quality, noise, infrastructure and utilities, cultural resources, hazardous materials management, topography and soils, vegetation and wetlands, wildlife, water resources, and rare and protected species. The DoN also considered potential cumulative impacts of the proposed action and consistency of the proposed action with federal policies addressing environmental justice. None of the impacts of the preferred alternative are considered to be significant. This record of decision focuses on the issues of most concern to the public or other government agencies.

Noise—Public comments throughout the EIS process have indicated concern for aircraft noise, particularly overflights of national and state parks and other natural areas. The Day-Night Average Sound Level (DNL) was used to assess changes in the noise environment around the air stations and landing fields. The Onset-Rate Adjusted Day-Night Average Sound Level (L_{dnmr}) was used to assess changes along MTRs, within MOAs, and within Restricted Areas/Ranges. The Sound Exposure Level was used for representative sensitive receptor locations.

Full basing of the V–22 at MCAS New River will result in little change in flight patterns or noise levels in the vicinity of the air station. The V–22 is slightly less noisy than the CH–46E helicopter, and will conduct somewhat fewer operations than the CH–46Es. The same will be true for many of the areas to be used for training, including the OLFs, TERFs, MTRs and MOAs. In some areas, there will be a decrease in the noise levels due to a decrease in the number of flight operations projected for not only the V–22 (former CH–46E) squadrons, but also other aircraft squadrons, as well (Executive Summary).

There will be an increase in operations and therefore noise impacts at both OLF Oak Grove and the Albert J. Ellis Airport, in Jacksonville, NC. However, although the area affected by 65-dB DNL or greater will increase at both OLF Oak Grove and the Albert J. Ellis airport, it will not extend beyond the airport property, and will not, therefore, significantly impact people or dwellings.

Noise along the TERF routes will not change significantly. three of the TERF routes are located almost wholly over the Croatan National Forest and Hofmann Forest. The fourth TERF Route (Holly Shelter) is located over forest and agricultural land. The number of operations along the TERF routes will actually decrease. Average noise levels along the Great White and Ellis Lake routes are anticipated to remain the same; the average noise level on the Hofman Forest route will decrease by one dB; and the average level on Holly Shelter route will increase by one dB. Average noise levels would not exceed the 65 dB standard considered to be protective of humans and wildlife along any of the routes. While the number of operations along the MTRs will increase (the CH–46E helicopters do not use MTRs, but the V–22 aircraft will use these routes), these noise levels along these routes would remain below the 55 dB DNL.

Air Quality—The proposed action and alternatives occur in air quality areas (counties), that have always been designated as being in attainment of NAAQS for all criteria pollutants. Given this fact, the DoN selected the major stationary source definition from the CAA prevention of significant deterioration program—250 tons per year (tpy) or more of any air pollutant—that applies in these counties as the criteria for determining the potential significance of air quality impacts.

The DoN carefully analyzed the air quality impacts of the replacement of CH–46E operations with V–22 operations, and has continued to update and refine the analysis as new information has become available.

The most recent refinement (post FEIS) of the air quality impacts analysis included recalculating emissions attributable to CH–46E aircraft using new gaseous and particulate emission factors developed by the Navy's Aircraft Environmental Support Office during November and December 1999. Initial recalculations revealed potentially significant NO_x emissions for Onslow County. However, since all emissions from training areas were attributed in the FEIS analysis to Onslow County, even though they actually partially occur in neighboring counties, the NO_x emissions are still considered to be insignificant. When operational emissions are more accurately attributed among the counties that include the areas north and west of MCAS New River, the conclusion for all counties remains the same. The net increase in emissions for each county within the AQCR resulting from the proposed action and the alternatives (including operations at outlying landing fields and training areas) would be below 250tpy for all criteria pollutants. Thus, neither the proposed action nor any of the alternatives would have a potential significant adverse impact on air quality. The new emissions factors and the results of recalculation of operational emissions are not significant new information requiring re-publication of the FEIS.

Refinements of FEIS Tables 3.6–2; 4.6–2; 4.6–3; E–1 through E–3; E–7; and E–9 through E–1-, incorporating the recent CH–46E emission factors and distributing emissions among the counties that include the areas north and west of MCAS New River, appear in Appendix A of this Record of Decision.

Water Resources—Several agencies expressed concern over the filling of a channelized stream in connection with expansion of the aircraft parking apron at MCAS New River. An Army Corps of Engineers permit will be required under Section 404/401 of the Clean Air Act for relocating or culverting the stream channel. This channel has been previously modified as part of the stormwater conveyance system at MCAS New River. Mitigation for the loss of habitat will be developed as part of the Section 404/401 permitting process. Work at OLF Oak Grove will not directly impact any surface waters. Runoff would be carefully controlled during construction to comply with all applicable state policies, rules and regulations.

Wildlife, Threatened and Endangered Species—No protected (threatened or endangered) or significantly are species are documented as occurring within the construction areas at MCAS New River, MCAS Cherry Point, or OLF Oak Grove. At OLF Atlantic, no federally protected (threatened or endangered) species have been documented as occurring. One state endangered/federal species of concern, the Carolina goldenrod, and four state significantly rare species are present near the runways at OLF Atlantic. While no construction would occur at OLF Atlantic under the proposed action, downdraft from the V–22 could damage fragile species.

The U.S. Fish and Wildlife Service's comments on the DEIS expressed concern over low-level flight exercises, and their impact on bald eagles, red-cockaded woodpeckers, and other federally-listed coastal birds. They also expressed concern over colonial waterbirds and waterfowl. V–22 flights will mainly take place along the MTRs, the Holly Shelter, Hofmann Forest, Great White, and Ellis Lake TERF routes, and the LAT route within R–5306A. These routes have been in use many years. While flights along the MTRs would increase by 548 operations, flights along TERF routes would decrease by about 979 operations as compared to the level of CH–46E operations in recent years. Also, many of the flights on the MTRs occur at higher altitudes (300 ft to over 1,000 ft) [91 m to 305 m] than the operations

along the TERF routes. The DON does not anticipate that the proposed action will cause adverse impacts, such as changes in species distribution or populations within these areas, because the operational patterns and associated noise levels will be similar to current operations.

Response To Comments Received Regarding the Final Environmental Impact Statement

Two written letters were received. One commentor, EPA Region 4, Atlanta restated the Agency's lack of objection to the proposal. The State of North Carolina also submitted a comment which concurred with the proposed action.

Conclusions

In determining where to introduce the V–22 to the 2d MAW, I have considered the following: all DoD air facilities with an existing MALS within the operational radius of the aircraft; environmental impacts; operational readiness factors such as the availability of adequate training areas within a reasonable distance of the home base and collocation of the FRS/FREST squadron with the V–22 Fleet squadrons; available capacity at the selected facility to accommodate the aircraft and personnel; costs associated with implementation of the alternative; proximity of the selected facility to the units of the Ground Combat Element requiring rotorcraft support at MCB Camp Lejeune; and comments received during the DEIS and FEIS public involvement periods.

After carefully weighing all of these factors, analyzing the data presented in the FEIS along with the additional information concerning air emissions, and considering public comments, I have determined that the Preferred Alternative, homebasing of the V–22 at MCAS New River, best meets the operational requirements for the V–22, and is the least costly of the alternatives evaluated. This alternative is also the environmentally preferred alternative. Therefore, on behalf of the Department of the Navy, I have decided to implement the proposed action by basing the V–22 aircraft at MCAS New River.

Dated: December 20, 1999.

Duncan Holaday,

Deputy Assistant Secretary of the Navy (Installations and Facilities).

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Table 3.6-2
Existing CH-46 Emission Levels

Site	Criteria Pollutant Emissions (tpy)				
	CO	NO_x	VOCs	SO_x	PM10
MCAS New River	193.6	12.5	50.1	1.6	15.9
MCAS Cherry Point	0.0	0.0	**0.0**	0.0	0.0
Oak Grove	6.0	1.0	0.7	0.1	1.0
Camp Davis	13.1	2.1	1.6	0.3	2.2
Albert J. Ellis Airport	2.0	0.3	0.3	0.0	0.3
MCB Camp Lejeune	43.4	5.4	6.2	0.6	6.1
Other Training Areas	45.7	5.6	6.6	0.6	6.5
Total Emissions	303.8	26.9	65.5	3.2	32.0

Table 4.6-2
Summary of Net Changes in Emissions between CH-46E and V-22 Operations

Area	Criteria Pollutant Emissions (tpy)				
	CO	NO_x	VOCs	SO_2	PM10
Airfield – V-22 Based at MCAS New River					
MCAS New River	-151.0	78.6	-48.4	2.8	0.3
MCAS Cherry Point	0.0	0.0	0.0	0.0	0.0
Airfield – V-22 Based at MCAS Cherry Point					
MCAS New River	-193.6	-12.5	-50.1	-1.6	-15.9
MCAS Cherry Point	42.6	91.1	1.7	4.4	16.2
Airfield – V-22 Based at Both Air Stations					
MCAS New River	-163.8	51.3	-48.9	1.5	-4.6
MCAS Cherry Point	12.8	27.3	0.5	1.3	4.9
LFs – Common for All Alternatives					
Oak Grove	-5.3	11.6	-0.7	0.3	0.6
Camp Davis	-12.1	17.1	-1.6	0.3	-0.3
Atlantic	0.1	1.1	0.0	0.0	0.1
Bogue	0.0	0.7	0.0	0.0	0.1
Albert J. Ellis Airport	-1.5	7.9	0.3	0.3	0.8
Training Areas – Common for All Alternatives					
MCB Camp Lejeune	-38.7	73.7	-6.1	2.0	4.5
Other Areas	-40.1	131.6	-6.2	3.1	9.4
Total Net Emissions	-249.2	322.4	-63.6	9.0	16.1

Note: Refer to Table 4.6-3 for total net emissions of NO_x by county.

Table 4.6-3
Net Changes in NO_x Emissions between CH-46E and V-22 Operations by County

Area	NOx Emissions (tpy)				
	Onslow	Craven	Carteret	Jones	Others Counties
Airfield - V-22 Based at the MCAS New River					
MCAS New River	78.6	0.0	0.0	0.0	0.0
MCAS Cherry Point	0.0	0.0	0.0	0.0	0.0
LFs	25.0	0.0	1.8	11.6	0.0
Training Areas	120.6	0.0	0.0	13.2	71.5
Total Net Emissions	224.2	0.0	1.8	24.8	71.5
Airfield - V-22 Based at the MCAS Cherry Point					
MCAS New River	-12.5	0.0	0.0	0.0	0.0
MCAS Cherry Point	0.0	91.1	0.0	0.0	0.0
LFs	25.0	0.0	1.8	11.6	0.0
Training Areas	120.6	0.0	0.0	13.2	71.5
Total Net Emissions	133.1	91.1	1.8	24.8	71.5
Airfield - V-22 Based at Both Air Stations					
MCAS New River	51.3	0.0	0.0	0.0	0.0
MCAS Cherry Point	0.0	27.3	0.0	0.0	0.0
LFs	25.0	0.0	1.8	11.6	0.0
Training Areas	120.6	0.0	0.0	13.2	71.5
Total Net Emissions	196.9	27.3	1.8	24.8	71.5

Note: Operational emissions attributable to the areas north and west of MCAS New River were proportionally distributed among the counties in which they occur.

Table E-1
CH-46E Emissions Calculation Worksheet

Engine Type: T58-GE-16 APU Type: Solar T-62T-11 Scenario: Existing Condition and No Action Alternative Location: MCAS New River

Type of Operation	Operating Mode	Power Setting[1]	Time (hours)[2]	Fuel flow rate(lb/hr)[1]	Emission Factors (lb/1000lb)[1] CO	NOx	VOC	SO2	PM10	No. of Engines	Fuel Usage (tons)	Emission (tons/year) CO	NOx	VOC	SO2	PM10
APUs (4678 LTOs)[3]			1,169.6	102	42.77	3.94	9.04	0.40	0.22	1	60	2.55	0.24	0.54	0.02	0.01
Idling	Taxi in/out	20%Q	6,453.0	270	72.28	2.28	22.25	0.40	4.00	2	1742	125.93	3.97	38.77	0.70	6.97
Departure	Hover	45%Q	316.7	460	28.51	3.53	4.07	0.40	4.00	2	146	4.15	0.51	0.59	0.06	0.58
	Climbout	58%Q	633.3	570	18.15	4.08	1.52	0.40	4.00	2	361	6.55	1.47	0.55	0.14	1.44
Arrival	Approach	40%Q	1,069.0	420	34.22	3.30	5.82	0.40	4.00	2	449	15.36	1.48	2.61	0.18	1.80
Touch-and-Go[4]	Approach	40%Q	143.0	420	34.22	3.30	5.82	0.40	4.00	2	60	2.06	0.20	0.35	0.02	0.24
	Climbout	60%Q	226.5	590	16.88	4.17	1.27	0.40	4.00	2	134	2.26	0.56	0.17	0.05	0.53
	Circle	51%Q	226.5	510	22.99	3.79	2.60	0.40	4.00	2	116	2.66	0.44	0.30	0.05	0.46
Ground Controlled Approach (GCA) Pattern[4]	Approach	40%Q	237.3	420	34.22	3.30	5.82	0.40	4.00	2	100	3.41	0.33	0.58	0.04	0.40
	Climbout	60%Q	114.3	590	16.88	4.17	1.27	0.40	4.00	2	67	1.14	0.28	0.09	0.03	0.27
	Circle	51%Q	527.4	510	22.99	3.79	2.60	0.40	4.00	2	269	6.18	1.02	0.70	0.11	1.08
Low Work	Hover/Circle	45%Q	725.0	460	28.51	3.53	4.07	0.40	4.00	2	334	9.51	1.18	1.36	0.13	1.33
In-frame maintenance testing[5]												11.80	0.82	3.52	0.10	0.81
									Emissions Subtotal (tons/year):			193.56	12.50	50.12	1.63	15.93

Note:

1. Engine power settings, fuel flow rates and emission indices are provided in AESO report (Report No. 9816, Revision C, December 1999).
2. Time used under each operation type are provided in ATAC report (March 1999).
3. APU usage data was determined by multiplying total LTOs (ATAC, March 1999) excluding hot seat swaps by unit APU time in each LTO (AESO Report No. 9816, Revision C, December 1999)
4. Touch-and-Go and GCA Pattern cycle time are divided into approach, climbout and circle hours based on information provided by ATAC (Huber, December 31, 1998)
5. In-frame maintenance testing emissions were estimated based on the data provided in AESO report (Report No. 9816, Revision C, December 1999) .

Table E-2
CH-46E Emissions Calculation Worksheet

Engine Type: T58-GE-16 **Scenario: Existing Condition and No Action Alternative** **Location: Outlying Landing Fields**

Type of Operation	Operating Mode	Power Setting[1]	Time[2] (hours)	Fuel flow rate(lb/hr)[1]	Emission Factors (lb/1000lb)[1] CO	NOx	VOC	SO2	PM10	No. of Engines	Fuel Usage (tons)	Emission (tons/year) CO	NOx	VOC	SO2	PM10
Camp Davis Touch-and-Go[3]	Approach	40%Q	200.2	420	34.22	3.30	5.82	0.40	4.00	2	84	2.88	0.28	0.49	0.03	0.34
	Climbout	60%Q	317.0	590	16.88	4.17	1.27	0.40	4.00	2	187	3.16	0.78	0.24	0.07	0.75
	Circle	51%Q	317.0	510	22.99	3.79	2.60	0.40	4.00	2	162	3.72	0.61	0.42	0.06	0.65
Camp Davis Low Work	Hover/Circle	45%Q	257.9	460	28.51	3.53	4.07	0.40	4.00	2	119	3.38	0.42	0.48	0.05	0.47
Oak Grove Touch-and-Go[3]	Approach	40%Q	95.1	420	34.22	3.30	5.82	0.40	4.00	2	40	1.37	0.13	0.23	0.02	0.16
	Climbout	60%Q	150.6	590	16.88	4.17	1.27	0.40	4.00	2	89	1.50	0.37	0.11	0.04	0.36
	Circle	51%Q	150.6	510	22.99	3.79	2.60	0.40	4.00	2	77	1.77	0.29	0.20	0.03	0.31
Oak Grove Low Work	Hover/Circle	45%Q	106.8	460	28.51	3.53	4.07	0.40	4.00	2	49	1.40	0.17	0.20	0.02	0.20
Albert Ellis Touch-and-Go[3]	Approach	40%Q	25.1	420	34.22	3.30	5.82	0.40	4.00	2	11	0.36	0.03	0.06	0.00	0.04
	Climbout	60%Q	39.8	590	16.88	4.17	1.27	0.40	4.00	2	23	0.40	0.10	0.03	0.01	0.09
	Circle	51%Q	39.8	510	22.99	3.79	2.60	0.40	4.00	2	20	0.47	0.08	0.05	0.01	0.08
Albert Ellis Low Work	Hover/Circle	45%Q	59.3	460	28.51	3.53	4.07	0.40	4.00	2	27	0.78	0.10	0.11	0.01	0.11
											Emissions Subtotal (tons/year):	21.17	3.36	2.63	0.36	3.55

Note:

1. Engine power settings, fuel flow rates and emission indices are provided in AESO report (Report No. 9816, Revision C, December 1999).
2. Time used under each operation type are provided in ATAC report (March 1999).
3. Touch-and-Go and GCA Pattern cycle time are divided into approach, climbout and circle hours based on information provided by ATAC (Huber, December 31, 1998)

Table E-3
CH-46E Emissions Calculation Worksheet

Engine Type: T58-GE-16 **Scenario: Existing Condition and No Action Alternative** **Location: Training Areas**

Type of Operation	Operating Mode	Power Setting[1]	Time[2] (hours)	Fuel flow rate(lb/hr)[1]	Emission Factors (lb/1000lb)[1]					No. of Engines	Fuel Usage (tons)	Emission (tons/year)				
					CO	NOx	VOC	SO2	PM10			CO	NOx	VOC	SO2	PM10
Camp Lejeune	Cruise	45%Q	3,306.0	460	28.51	3.53	4.07	0.40	4.00	2	1521	43.36	5.37	6.19	0.61	6.08
Great White/Ellis TERF	Cruise	45%Q	503.0	460	28.51	3.53	4.07	0.40	4.00	2	231	6.60	0.82	0.94	0.09	0.93
Hoffmann Forest TERF	Cruise	45%Q	328.0	460	28.51	3.53	4.07	0.40	4.00	2	151	4.30	0.53	0.61	0.06	0.60
Holly Shelter TERF	Cruise	45%Q	368.0	460	28.51	3.53	4.07	0.40	4.00	2	169	4.83	0.60	0.69	0.07	0.68
Area North of MCAS New River	Cruise	45%Q	709.0	460	28.51	3.53	4.07	0.40	4.00	2	326	9.30	1.15	1.33	0.13	1.30
Area West of MCAS New River	Cruise	45%Q	1,135.0	460	28.51	3.53	4.07	0.40	4.00	2	522	14.89	1.84	2.12	0.21	2.09
R-5306A	Cruise	45%Q	264.0	460	28.51	3.53	4.07	0.40	4.00	2	121	3.46	0.43	0.49	0.05	0.49
Transit corrdor to/from R-5306A	Cruise	45%Q	178.0	460	28.51	3.53	4.07	0.40	4.00	2	82	2.33	0.29	0.33	0.03	0.33
										Emissions Subtotal (tons/year):		89.06	11.03	12.71	1.25	12.50

Note:

1. Engine power settings, fuel flow rates and emission indices are provided in AESO report (Report No. 9816, Revision C, December 1999).
2. Time used under each operation type are provided in ATAC report (March 1999).

Table E-7
Air Emissions Summary for No Action Alternative (Using CH-46E)

Area	Pollutant (tons per year)				
	CO	NO_x	VOC	SO_2	PM10
Airfield					
MCAS New River	193.6	12.5	50.1	1.6	15.9
MCAS Cherry Point	0.0	0.0	0.0	0.0	0.0
LFs					
Camp Davis	13.1	2.1	1.6	0.3	2.2
Oak Grove	6.0	1.0	0.7	0.1	1.0
Bogue	0.0	0.0	0.0	0.0	0.0
Atlantic	0.0	0.0	0.0	0.0	0.0
Albert J. Ellis Airport	2.0	0.3	0.3	0.0	0.3
Training Areas					
Camp Lejeune	43.4	5.4	6.2	0.6	6.1
Great White/Ellis TERF	6.6	0.8	0.9	0.1	0.9
Hoffman Forest TERF	4.3	0.5	0.6	0.1	0.6
Holly Shelter TERF	4.8	0.6	0.7	0.1	0.7
Area North of MCAS New River	9.3	1.2	1.3	0.1	1.3
Area West of MCAS New River	14.9	1.8	2.1	0.2	2.1
R-5306A	3.5	0.4	0.5	0.1	0.5
Transit Corridor to/from R-5306A	2.3	0.3	0.3	0.0	0.3
Visual MTR	0.0	0.0	0.0	0.0	0.0
Total Emissions for No Action Alternative	303.8	26.9	65.5	3.2	32.0

Table E-9
Summary of Net Changes in Emissions between CH-46E and V-22 Operations

Area	Pollutant (tons per year)				
	CO	NO_x	VOC	SO_2	PM10
Airfield - MCAS New River Alternative					
MCAS New River	-151.0	78.6	-48.4	2.8	0.3
MCAS Cherry Point	0.0	0.0	0.0	0.0	0.0
Airfield - MCAS Cherry Point Alternative					
MCAS New River	-193.6	-12.5	-50.1	-1.6	-15.9
MCAS Cherry Point	42.6	91.1	1.7	4.4	16.2
Airfield – Partial Basing at Both Air Stations					
MCAS New River	-163.8	51.3	-48.9	1.5	-4.6
MCAS Cherry Point	12.8	27.3	0.5	1.3	4.9
LFs - Common to All Action Alternatives					
Camp Davis	-12.1	17.1	-1.6	0.3	0.3
Oak Grove	-5.3	11.6	-0.7	0.3	0.6
Bogue	0.0	0.7	0.0	0.0	0.1
Atlantic	0.1	1.1	0.0	0.0	0.1
Albert J. Ellis Airport	-1.5	7.9	-0.3	0.3	0.8
Training Areas - Common to All Action Alternatives					
Camp Lejeune	-38.7	73.7	-6.1	2.0	4.5
Great White/Ellis TERF	-6.5	0.7	-0.9	0.0	-0.7
Hoffman Forest TERF	-4.2	0.6	-0.6	-0.1	-0.4
Holly Shelter TERF	-4.7	1.0	-0.7	0.0	-0.5
Area North of MCAS New River	-8.0	33.2	-1.3	0.8	2.7
Area West of MCAS New River	-13.3	41.0	-2.1	1.0	2.9
R-5306A	-2.3	33.9	-0.5	0.9	3.4
Preferred Routes	-1.5	10.2	-0.1	0.3	0.8
Visual MTR	0.4	11.0	0.0	0.3	1.2
Total Net Emissions for All Action Alternatives	-249.2	322.4	-63.6	9.0	16.1
Note: Refer to Table E-10 for total net emissions of NO_x by county.					

Table E-10
Net Changes in NO_x Emissions between CH-46E and V-22 Operations by County

Area	NO_x Emissions (tpy)				
	Onslow	Craven	Carteret	Jones	Others Counties
Airfield - V-22 Based at the MCAS New River					
MCAS New River	78.6	0.0	0.0	0.0	0.0
MCAS Cherry Point	0.0	0.0	0.0	0.0	0.0
LFs	25.0	0.0	1.8	11.6	0.0
Training Areas	120.6	0.0	0.0	13.2	71.5
Total Net Emissions	224.2	0.0	1.8	24.8	71.5
Airfield - V-22 Based at the MCAS Cherry Point					
MCAS New River	-12.5	0.0	0.0	0.0	0.0
MCAS Cherry Point	0.0	91.1	0.0	0.0	0.0
LFs	25.0	0.0	1.8	11.6	0.0
Training Areas	120.6	0.0	0.0	13.2	71.5
Total Net Emissions	133.1	91.1	1.8	24.8	71.5
Airfield - V-22 Based at Both Air Stations					
MCAS New River	51.3	0.0	0.0	0.0	0.0
MCAS Cherry Point	0.0	27.3	0.0	0.0	0.0
LFs	25.0	0.0	1.8	11.6	0.0
Training Areas	120.6	0.0	0.0	13.2	71.5
Total Net Emissions	196.9	27.3	1.8	24.8	71.5

Note: Operational emissions attributable to the areas north and west of MCAS New River were proportionally distributed among the counties in which they occur.

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