



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX
75 Hawthorne Street
San Francisco, CA 94105

September 29, 2015

Craig B. Whelden
Executive Director
U.S. Marine Corps Forces Pacific
Camp H. M. Smith, Hawaii 96861-4139

Subject: Draft Environmental Impact Statement (DEIS) for Commonwealth of the Northern Mariana Islands Joint Military Training (CEQ # 20150088)

Dear Mr. Whelden:

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

The Draft EIS (DEIS) evaluates the environmental impacts associated with the construction and use of live-fire ranges and maneuver areas on the islands of Tinian and Pagan in the Commonwealth of the Northern Mariana Islands (CNMI). On Tinian, the proposed action includes construction of an amphibious assault vehicle landing ramp on a coral reef at Unai Chulu, as well as construction of a permanent base camp with a wastewater treatment plant, potable water system, improvements at the Port of Tinian, and other facilities. The action on Pagan involves utilizing the entire island for training, including a live-fire bombing range on Mount Pagan.

Based on our review of the DEIS, EPA has identified a number of substantial issues that warrant further analysis and consideration of additional alternatives. We have communicated this to the Department of the Navy (DON), and we fully support the DON's recent decision to prepare a Supplemental Draft EIS (SDEIS) to address these and other comments that the DON has received. EPA will defer issuing a rating until the SDEIS is circulated for public review and comment. To facilitate the preparation of the Supplemental DEIS, the remainder of this letter outlines the major issues that we have identified. Please see the enclosed Detailed Comments for further discussion of these and other concerns.

Adverse environmental impacts to valuable coral resources

The DEIS discloses that the proposed project would result in significant impacts to coral reef ecosystems on Tinian. In-water dredging and construction of the Amphibious Assault Vehicle landing area would permanently remove 10.3 acres of high-quality coral reef at Unai Chulu. Projected indirect impacts to another 10.3 acres bring the total projected impact at this beach to 20.6 acres. These actions would be subject to a Clean Water Act Section 404 permit. The DEIS does not adequately evaluate a full range of alternatives and demonstrate that the ramp at Unai Chulu is the Least Environmentally Damaging Practicable Alternative as required by the Clean Water Act 404(b)(1) Guidelines. It also does not identify appropriate mitigation to offset the projected impacts nor indicate whether the Navy could mitigate the impacts in accordance with the CWA Section 404 compensatory mitigation rule. Based on

our experience, mitigation of coral impacts has had limited success in the Pacific Islands. The project also proposes amphibious landings, which include Landing Craft Air Cushion (LCAC) use, on two additional beaches on Tinian that have high-quality corals, and on four beaches on Pagan. EPA has determined that these impacts are also significant. We recommend that DON avoid the use of South Beach on Pagan, which has the best-developed coral reef of those surveyed on Pagan and contains almost 100% of the colonies of threatened coral species affected. We also recommend that DON seriously consider additional avoidance of coral impacts on Tinian. The severity and long-term nature of the projected impacts to corals underscore the need for rigorous evaluation of any options that could avoid or reduce impacts to these highly valued resources.

Analysis of impacts to drinking water system on Tinian

Information in the DEIS and in the technical appendices is inconsistent regarding potential impacts to the public water system on Tinian, which consists of a sole municipal well operated by the Commonwealth Utilities Corporation (CUC). The proposed permanent base camp on Tinian would require increases in groundwater pumping during both the construction and operations phases. The DEIS technical appendices note that the well is already operating near full capacity, and states that, while the current system should be able to meet the projected demand during the wet season, the CUC system may not have the capacity to meet the increased demand during the dry season or during drought. Thus it appears the proposed action could have a major impact on the CUC system that might need to be addressed in the future by the CUC. Despite this, the DEIS concludes that impacts to the utility would be less than significant and does not propose mitigation measures. CUC is under a Stipulated Order to bring its drinking water system into compliance with the Safe Drinking Water Act and is in “severe distress” financially, according to a recent CUC quarterly report. If the military action would place an additional financial burden on CUC, as the appendices suggest, this would be an unacceptable impact to the utility and could compromise the public’s access to drinking water.

The appendices also note the high percentage (75-80%) of water that is unaccounted for in the water distribution system on Tinian and recommend targeting this water for recovery, rather than increasing pumping in the municipal well, yet this alternative option was not evaluated in the DEIS. Increasing the efficiency of the CUC distribution system could be beneficial to both the CUC and the military since it would increase the likelihood of meeting project water demand. The option of correcting the deficiencies in the CUC system to capture the high percentage of water that is unaccounted for in the water distribution system on Tinian should be evaluated, as it represents a reasonable alternative that could reduce potentially significant impacts.

Uncertainty regarding impacts of saltwater intrusion on drinking water

The information presented in the DEIS allows for uncertainty regarding the potential for saltwater intrusion into the aquifer, which represents the sole source of drinking water for Tinian, a low-income environmental justice community. A groundwater model that specifically addresses changes in water quality would enable greater accuracy in predicting salinity impacts and determining whether chloride levels could be unacceptably high such that Tinians would be obligated to purchase drinking water from alternative sources (e.g., bottled water). In the absence of this additional analysis, we recommend commitments to monitor the public drinking water supply, especially during the 8-10 year construction phase, with high chloride levels triggering mitigation by the DON, including provision of an alternative drinking water supply, as appropriate.

Mitigation not identified for impacts to corals and terrestrial resources

The DEIS defers the development of mitigation for significant impacts to coral reefs, as well as terrestrial resources, to future agency consultations. While NEPA does not require a fully developed mitigation plan, EPA and interested parties cannot fully evaluate the severity of the adverse effects without a reasonably complete discussion of possible mitigation measures in the DEIS. Such disclosure is particularly important where environmental justice is a consideration, as noted in *Executive Order 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. We recommend a more substantial discussion of mitigation measures in the EIS.

Significant impacts to environmental justice population on Tinian

EPA has environmental justice concerns regarding the overall predicted impacts to the Tinian community as a result of the proposed project. In addition to potential drinking water system impacts, Tinians would experience significant noise increases during training, and lack of access to prime sites for diving and subsistence fishing for a large portion of the year. Such effects contribute to the potential for adverse environmental justice impacts, which should be fully evaluated in the DEIS.

We appreciate the opportunity to review this DEIS and look forward to working with the DON as a cooperating agency in the preparation of the Supplemental DEIS to address the issues outlined above and in the enclosed Detailed Comments. If you have any questions, please refer staff to Karen Vitulano, lead reviewer of the DEIS, at (415) 947-4178, or to Kathleen Goforth, Manager of the Environmental Review Section, at 415-972-3521. Please send a copy of the Supplemental DEIS to this office (mail code ENF-4-2) when it is electronically filed with our Washington, D.C. office.

Sincerely,



Kathleen H. Johnson, Director
Enforcement Division

Enclosures: EPA's Detailed Comments

cc: Wesley M. Bogdan, CNMI Office of the Lt. Governor
Frank M. Rabauliman, CNMI Bureau of Environmental and Coastal Quality (BECQ)
Fran Castro, BECQ Division of Coastal Resources Management
John Riegel, Commonwealth Utilities Corporation (CUC)

WATER RESOURCES

Impacts to the Drinking Water System

Expectations for meeting construction phase water demands appear unrealistic

While not formally designated as a Sole Source Aquifer under the Safe Drinking Water Act, groundwater is the sole source of drinking water on Tinian and meets the definition of a sole or principal source aquifer¹. The Commonwealth Utilities Corporation (CUC) supplies drinking water to the island via a single public water well - Maui Well #2. According to the DEIS, the construction work force would increase the demand on the existing CUC potable water system by an average of 33,525 gallons per day (gpd) (p. 4-414)². The DEIS concludes that impacts to the utility during the 8 – 10-year construction phase would be less than significant. This conclusion is based on a calculation of how much the CUC system could pump. According to the DEIS, the potential water production from Maui Well #2 has been estimated as at least 1 million gallons per day (gpd) in the dry season and 1.5 million gpd in the wet season. The DEIS selected 1.26 million gpd as the production rate that could be sustainably pumped (p. 4-414) and estimates the amount available from the CUC system to be 50,862 gpd after loss of water in the system. The DEIS concludes that the existing potable water system would be expected to meet increased water needs during construction, and that impacts to the existing potable water utility would be less than significant (p. 4-414).

The demand utilized in this calculation is for the construction workforce alone and does not include the other construction water demand in the early phases of construction (before the military's well field is available for the construction use) nor the concrete batch plant, airport, or port facility construction-phase demand, all of which are outside the Military Lease Area. It also does not address potential overlap of some operations personnel, nor whether the operation-phase demand at the Port (estimated at 12,675 gpd), would occur early to accommodate construction and overlap with the larger construction phase demand. It is clear that the actual construction-phase water demand would be higher than indicated in the analysis. Appendix P (p. 21) indicates that Maui Well No. 2 is currently operating three of its four pumps almost constantly and, because one pump is kept on standby for maintenance purposes, the well is operating near full capacity. EPA believes that the CUC well may not realistically be able to support the projected increase in water use when it is already operating at near capacity.

Conclusion regarding CUC's ability to meet operations phase water demands is unsupported

The DEIS concludes that the existing potable water system would be expected to meet increased water needs during operations (p. 4-420); however, Appendix P states that "*the proposed action could cause a shortfall in potable water service to the civilian sector*" (App. P, p. 1-5). Appendix P also indicates that

¹ EPA defines a sole or principal source aquifer as an aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. These areas may have no alternative drinking water source(s) that could physically, legally and economically supply all those who depend on the aquifer for drinking water.

² According to the Utility Study, Vol. III – Potable Water in Appendix P, the construction workforce would generate a total average daily demand of 58,699 gallons per day (gpd) and a total maximum daily demand of 132,005 gpd on the existing public potable water system (App. P, p. 1-5). Appendix Q states additional water demand from construction workers would be about 60,000 gallons per day (p. 5-18). It is not clear why the water demand values used in the DEIS and in Appendix P are different. According to the DON (personal conversation) the higher demand is the system demand and the lower demand is the user demand. Further explanation is needed on how demand was calculated.

improvements to the CUC water system may be needed in order to meet the future water demands associated with the proposed action that would affect the CUC water system (App P, p. 6-8). Specifically, Appendix P states that “*the estimated increased permanent potable water demand on the CUC water system from the additional island population, operations personnel, and port facilities would be approximately 197,089 gpd, or about a 17% increase above current production. The current system should be able to meet this amount during wet season; however, during the dry season, the CUC system may not have the capacity to meet this increased demand and might require some system improvements, specifically in reducing unaccounted for water. This could have a major impact on the CUC system that might need to be addressed in the future by the CUC*” (App P, p. ES-11). CUC is under a Stipulated Order to bring its drinking water system, primarily on Saipan, into compliance with the Safe Drinking Water Act and to provide comprehensive planning for current and future infrastructure needs with regard to groundwater protection and drinking water supplies on Tinian. According to a recent CUC quarterly progress report³, the utility continues to struggle financially and is in “severe distress”. EPA believes that the proposed military action would place an additional financial burden on CUC and this would be an unacceptable impact.

Reasonable alternative not evaluated

The project description includes “*some improvements to the existing potable water service in the port area of the village of San Jose*” (p. 2-50), but does not specify the nature or extent of those improvements, except to show limited new water line in the Port area in Figure 2.4-7 (p. 2-51). Both Appendix P and the draft Aquifer Study provided to EPA include a recommendation that the improvements needed to meet the future water demands of the proposed action target reducing the high unaccounted for water (UFW),⁴ rather than increasing the pumping capacity of Maui Well No. 2 (App. P, p. 6-8, draft aquifer study p. 3-11). Based on conversations with DON, we understand there are no plans to target this UFW to reduce the project demand on the CUC system.

The high UFW from the CUC system is a potential drinking water source for the entire project, and recovering this water is a reasonably available alternative that could reduce potential significant impacts. If the DON intends to maintain an ongoing presence on Tinian, the freshwater lens will be an invaluable shared resource that will need to be managed cooperatively, even if DON constructs its own well field; therefore, it is in the best interests of both Tinian and DON to reduce the high UFW of the CUC system.

Recommendations: In the Supplemental DEIS, provide a robust analysis of the projected impacts on the utility and the public’s access to drinking water. Explain how water demand was calculated. Quantify the estimated water demand for each source of the construction phase water demand that would use CUC-provided water, and include these estimates in the total water demand values used in the impact assessment. Describe any additional improvements, such as additional pumping capacity, that would be needed to the CUC system to ensure that sufficient drinking water would be available to the public. Explain how DON would support CUC in making these improvements.

³ STIPULATED ORDER NO. 1; Item 69, Quarterly Progress Report No. 25, January 29, 2015 -April 28,2015. Submitted to EPA by Alan W. Fletcher, Executive Director, Commonwealth Utilities Corporation, on April 27, 2015.

⁴ Unaccounted for water is the result of leaks, unmetered uses, and unplanned overflows within the system. The typical unaccounted for water from efficient systems should be less than 25% of the water produced. The Commonwealth Utilities Corporation has indicated that unaccounted for water (water pumped from the supply well but not billed to customers) is estimated to be approximately 75% to 80% of the water produced (p. 3-237)

Also in the Supplemental DEIS, evaluate the recovery of UFW from the CUC system as a drinking water source for the project. In determining the feasibility of such an alternative, consider potential financial assistance from DoD's Office of Economic Adjustment, such as that obtained for Guam's utility infrastructure for the Guam and CNMI Military Relocation. If legislative action would be needed to authorize such assistance, describe that process in the Supplemental DEIS.

Impacts on water quality

Further investigation of potential salinity impacts on drinking water quality is recommended

The DEIS concludes that the additional construction-phase and operations-phase demands would require increased pumping from CUC's Maui Well #2 and could result in temporary increased chloride levels as a result of saltwater intrusion (p. 4-44), which could occur by reducing the thickness and lateral limits of the fresh water lens (p. 4-49). The DEIS dismisses these impacts as less than significant for the construction phase because the increase would be limited to the duration of construction and because the increase in pumping is modest (p. 4-44). It concludes that the operations phase would have less than significant impacts because the pumping would be limited to periods when training exercises occur and because of the size and recharge characteristics of the freshwater basal lens (p. 4-49). The DEIS does not specifically discuss the combined impacts to the aquifer, during operations, from both the additional pumping from the well field and the pumping from the CUC system for the increased permanent demand outside the Military Lease Area – i.e. from the operations personnel and the Port of Tinian uses, estimated at 42,925 gpm (p. 4-420). Appendix P states that, although the chloride levels at Maui Well #2 do not currently exceed EPA's secondary maximum contaminant level (MCL) of 250 parts per million, water quality from the well is marginal, with chloride levels approaching that MCL (App. P, p. ES-10). Appendix P also states that chloride levels could be a concern in the future if groundwater-pumping rates increase (App P, p. 2-10). EPA is concerned with the possibility that the water supply could become degraded to the point at which it is deemed too saline for drinking by the residents of Tinian. Because this is a low-income⁵ community (p. 3-266), the need to purchase drinking water from an alternative source, even if just for 8-10 years during the construction phase, could be an economic hardship for this population.

We understand, after conversations with the DON, that the conclusions regarding potential salinity increases were based largely on the USGS 2002 groundwater model *Geohydrology and Numerical Simulation of Alternative Pumping Distributions and the Effects of Drought on the Ground-Water Flow System of Tinian, Commonwealth of the Northern Mariana Islands*. This steady-state ground-water flow model is based on pumping data from the late 1990's⁶ and, while it was the best available tool for predicting the possible hydrologic effects of additional ground-water withdrawals at that time, more sophisticated models currently exist. The model report also acknowledges several limitations; in particular, because the model is a sharp interface model, it cannot predict the salinity distribution within the aquifer, nor is it capable of predicting the quality of water pumped from a given well, and, while the model simulates the location of the freshwater/saltwater interface, it cannot be used to simulate local upconing near pumped wells (p. 40). We note that updated models can be created to predict salinity

⁵ According to the DEIS, Tinian is low income from the perspective of Executive Order 12898 and the majority of its residents are low income (p. 3-266)

⁶ Communication from Stephen Gingerich, USGS, on July 30, 2015, during the DON/EPA conference call to discuss groundwater/drinking water.

changes, such as the groundwater availability study⁷ that the Marine Corps funded for the Guam and CNMI Military Relocation EIS.

The DEIS states that an aquifer study is underway and will be available for the Final EIS. Upon our request, DON provided EPA with a draft copy of the aquifer study and we learned that it does not further address potential impacts to public drinking water quality.

Recommendation: Further investigate the potential for salt-water intrusion; consider employing an updated groundwater flow and transport model that incorporates recent data. Evaluate the combined operations-phase impacts from both the military well field pumping and the CUC system pumping from the additional permanent demand on the CUC system. Discuss, in the EIS, climate change effects -- such as increased temperatures, sea-level rise, precipitation changes, and extreme events -- on the freshwater lens. Due to the importance of the sole or principal source aquifer as a resource, and the burden that a loss of drinking water quality could have on a low-income population, we believe that the uncertainty behind the DEIS' conclusion that the impacts of saltwater intrusion would be less than significant should be acknowledged. If an updated model is not developed, pursue a precautionary approach that includes a monitoring and mitigation strategy, with chloride thresholds that, if met, would trigger mitigation measures, including the provision of drinking water to the Tinian population, if necessary.

DEIS does not discuss vulnerability of the aquifer to contamination

The proposed action has the potential to introduce various pollutants into the environment as a result of munitions releases, fire suppression, and other activities. The DEIS concludes that the potential for groundwater contamination is less than significant (p. 4-50); however there is little support for this conclusion.

The analysis does not appear to fully consider the highly permeable Mariana limestone, which underlies most of the project area and creates high susceptibility to contamination. The DEIS notes that the limestone is porous, allowing water to readily flow through it (p. 3-7 - 8), and that rainfall percolates rapidly downward into such rock (p. 3-31); however, no discussion of the solubility of munitions constituents is included, nor are any extra protections identified to prevent pollutants from infiltrating the soil and entering the aquifer. The DEIS identifies only standard stormwater Best Management Practices (BMPs) and range clearance protocols developed for non-karst environments. The DEIS also does not indicate whether perfluorinated chemicals, including Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA) surfactants⁸, would be used for fire suppression associated with fire-training pits or other fire suppression activities associated with training. PFOS and PFOA are extremely persistent in the environment, resistant to typical environmental degradation processes, and their toxicity, mobility and bioaccumulation potential pose potential adverse effects for the environment and human health⁹. The DEIS identifies existing sources of contamination in the Hazardous Materials section but does not discuss how pumping could affect these pollutants in terms of expanding areas of contamination or allowing them to more easily enter the public drinking water system. The DEIS states that an aquifer study is underway that would evaluate man-made contaminant migration into notional

⁷ Gingerich, Stephen B. 2013. *The Effects of Withdrawals and Drought on Groundwater Availability in the Northern Guam Lens Aquifer, Guam*. Available: <http://pubs.usgs.gov/sir/2013/5216/>

⁸ See EPA Fact Sheet at: http://www2.epa.gov/sites/production/files/2014-04/documents/factsheet_contaminant_pfos_pfoa_march2014.pdf

⁹ PFOS from the use of firefighting foams at the fire-training area on the former Pease Air Force Base in New Hampshire is thought to be the cause of the local PFOS municipal well contamination.

well fields on Tinian (p. 3-26), but impacts to the existing public water well are not addressed. Finally, indirect impacts from the support workforce living outside the Military Lease Area could result in increases in discharges of sewage through septic systems in the sub-watershed containing the public drinking water well. We are aware that CUC has concerns regarding increases in nitrate concentrations from increased sewage discharges and other sources; these water quality impacts were not discussed.

Recommendation: Discuss the solubility of the various munitions constituents and other potential pollutants that the proposed action would introduce to surface soils, and the estimated time it would take for these pollutants to reach groundwater in the soils located at the project sites. Perchlorate from propellant in rocket fuels should be discussed as it is very soluble and exhibits little to no soil adsorption. Indicate whether perfluorinated chemicals would be used and discuss potential impacts. Evaluate and disclose the potential impacts to water quality, especially nitrate increases, that could result from increases in sewer discharges.

Establish and implement a program of sampling and testing groundwater to ensure that the effects of project pumping on any existing contamination can be identified and the potential for contamination to enter the drinking water system can be assessed. Make baseline information available to the public for review and comment during the NEPA process.

Munitions Contamination not reduced by Operational Range Assessments

The DEIS relies partly on Range Environmental Vulnerability Assessments (REVA) as a basis for its less-than-significant impact determinations for surface water and groundwater (p. 4-49, 4-50) and identifies it as an avoidance and minimization measure for terrestrial biological resources (p. 4-191), cultural resources (p. 4-329), and hazardous materials and waste (p. 4-483). EPA is familiar with how REVA has been implemented at other ranges in the western United States and Pacific Islands and, based on this knowledge, we have not found that it offers any protection of environmental resources. REVA establishes a model based on munitions inputs, and includes thresholds, which, when reached, are flags to potentially sample off-range areas to determine whether contamination from active ranges is migrating off-range. At other active ranges where REVAs have been conducted, we have noticed that sampling usually does not occur. For example, at 29 Palms Marine Corps Air Ground Combat Center DEIS (2011), the REVA concluded that there is potential for munitions constituents to be transported offsite, yet no sampling occurred because DON determined that there were no receptors for the pollutants. The DON considered only threatened and endangered receptors in that analysis, even though other receptors, including migratory birds, were present. In 2012, for the Marine Corps Chocolate Mountain Aerial Gunnery Range DEIS, the REVA report indicated potentially significant loading rates, but the DON again declined to conduct sampling and stated that there were no receptors, despite a number of wildlife species in the area that utilize the washes. In 2008, the Navy's Operational Range Assessment (Range Condition Assessment) for Farallon de Medinilla in the CNMI concluded that munitions-related activities conducted at the range did not warrant further analyses due to its uninhabited remote location posing no risk of exposure to human receptors¹⁰. Given this reasoning, it seems likely that future REVAs performed for Pagan would come to a similar conclusion and not result in monitoring if thresholds were exceeded. It is not clear what receptors on Tinian the DON would consider for its REVA implementation, but this can be determined now and should be disclosed. If DON determines there are no receptors on Tinian, the running of models that calculate loadings of munitions constituents, alone, would not reduce potential impacts to water quality or other resources.

¹⁰ Navy Facilities Engineering Command Hawaii, May 2008. *Final Range Condition Assessment Marianas Land-Based Operational Range Complex, Decision Point 1 Recommendations Report*. Available: <http://www.denix.osd.mil/sri/upload/Final-Marianas-DPI-ES-Official.pdf>

Recommendation: Conduct baseline sampling and testing of groundwater below all ranges, for all munitions constituents that would be used. Specify the receptors on Tinian and Pagan that would be considered during implementation of the REVA and whether wildlife receptors (including species not listed as threatened or endangered) would be considered. Clarify that, in the absence of follow-up sampling and testing to inform future action, implementation of REVA would not reduce potential impacts to water quality nor act as an avoidance and minimization measure for the resources so identified in the DEIS.

Impacts to Corals and Coral Reef Ecosystems

High magnitude, severe impacts to coral reefs and marine habitats

It is EPA’s view that the projected impacts to coral reef ecosystems from the proposed action are of sufficient magnitude that a more rigorous evaluation of the impacts and of any options that may avoid or reduce impacts is warranted. We agree with the DEIS conclusion that the removal of 10.3 acres of coral reef, plus indirect impacts to an additional 10.3 acres, from the construction of the amphibious assault vehicle ramp at Unai Chulu is significant. While this conclusion can be made without drawing comparisons to prior impacts to coral, some historical context may be useful. As the table below illustrates, previous dredge and fill projects permitted by the Army Corps of Engineers in the Marianas over the last 10 years have impacted a maximum of 7.1 acres of marine habitat containing coral. The 10.3 acres of direct impact at Unai Chulu plus 10.3 acres of indirect impacts are substantial and unprecedented in recent years.

Project Name	Date of Public Notice	Acres of direct impact to marine habitat including coral
Alpha Bravo Dredging - Guam	2006	7.1
Kilo Wharf extension -Guam	2008	4.75
Puerto Rico Dump closure - Saipan	2009	2.4

While the DEIS identifies construction-phase impacts at Unai Chulu as significant, it does not consider the operational-phase impacts from amphibious landings on coral and marine habitat on Tinian and Pagan (23 acres and 121 acres respectively, totaling 144 acres¹¹) to be significant (p. 4-292, 4-293). The DEIS bases this determination on a comparison of the percentage of coral reef impacted to the percentage of total available marine habitat around Tinian (pp. 4-292, 4-293) and Pagan (p. 4-317). This impact assessment methodology does not fully recognize the value of coral reef ecosystems¹², nor is it consistent with the methodology the DEIS uses to evaluate significance for the construction-phase impacts on Tinian, which compared the impacted acreage against the total amount of Tinian’s reef flat habitat (p. 4-276). We would expect most of the operational impacts from amphibious vehicle activity at beaches on Tinian and Pagan to also affect shallow reef flats, which are orders of magnitude less abundant than the total habitat acreage used in the analysis of operational-phase impacts. Additionally, we would not expect the impacts to be temporary, based on the high number of annual landings estimated for the proposed action (p. 2-71). The DEIS acknowledges that only areas without recurring disturbance would recover to some degree (p. 4-304).

The analysis also does not consider the importance of these reefs for the future survival of coral reefs in the Northern Mariana Islands under climate change, i.e., their resilience to climate change effects, such

¹¹ According to Table 4.10-4 (p. 4-291) and Table 4.10-9 (p. 4-304)

¹² Globally, coral reefs support 25% of the ocean’s species and provide important goods and services, including tourism, fisheries, coastal protection and medicinal uses.

as mass bleaching events. A recent study “*Assessing relative resilience potential of coral reefs to inform management in the Commonwealth of the Northern Mariana Islands*”¹³, which assesses 78 reefs on Saipan, Tinian, Rota, and Aguijan, rates Unai Chulu, Unai Babui, and Unai Lam Lam as having medium high relative resilience potential. Unai Masilok was the only coral reef on Tinian rated as having high resilience potential. Factors that can improve a coral reef’s resilience to climate change effects include good species and functional diversity, good connectivity to larval sources, appropriate substrates for larval settlement, and protection from other anthropomorphic impacts. High resilience sites have the attributes to better adapt to climate change effects, so are considered priority targets for conservation and stewardship. Adding stressors to these sites reduces their resilience, affects the larger coral reef ecosystem, and has implications for the future existence of coral reefs in the Mariana Islands.

We understand it is DOD policy to avoid, where possible, adversely impacting coral reefs during training exercises and routine operations¹⁴ and that the DON has reduced the number of beaches on Tinian that it would use for amphibious assault vehicle landings to one beach (p. 2-27). It is not clear from the DEIS whether the use of beaches that contain fewer coral resources, such as Red or Blue Beach on Pagan, was fully considered for amphibious assault vehicle landings for Unit level training. The DEIS states only that “*areas outside of Military Lease Area were discounted for tactical amphibious training because they do not provide immediate access (i.e., contiguous) to live-fire training, which is a training criterion*” (p. 2-27); however, Red and Blue Beach on Pagan appear to meet this criterion. It also appears that there is potential for further reductions in coral impacts on Tinian while still meeting the purpose and need for the project. For example, avoiding LCAC use at Unai Masalok would avoid impacts to areas of high coral cover on the only coral reef on Tinian rated as having high climate change resilience potential, while still allowing LCAC training on Unai Babui.

Recommendation: Identify the operation phase impacts to marine resources and marine invertebrates, including corals, at the amphibious landing sites on Tinian and Pagan as significant. Discuss resilience to climate change effects in the impact assessment. Disclose DON’s commitment to coral reef conservation. Explore the possibility of using Red or Blue Beach on Pagan for unit level training, instead of Unai Chulu, and explore the possibility of eliminating LCAC landings on Unai Masalok to avoid degrading valuable climate change resilient corals.

Identify additional BMPs and mitigation measures for significant operational impacts. For example, we recommend limiting amphibious operations to high tide periods only, and removing rubble to the extent practicable to prevent subsequent damage to marine resources. We also recommend that the impact assessment take into consideration information regarding the effects that coral reefs are experiencing at existing amphibious landing areas in other locations.

Compliance with Clean Water Act Section 404(b)(1) Guidelines

EPA has determined that the DEIS does not contain sufficient information to demonstrate compliance with the Clean Water Act (CWA) section 404(b)(1) Guidelines (Guidelines) and that more analysis will be required in order to obtain Army Corps permits for the concrete landing ramp at Unai Chulu. The Corps has informed us that it has made the same determination, i.e. the level of detail and complexity of the alternatives analysis in the DEIS is insufficient to demonstrate compliance with the Guidelines. The assessment of alternatives under NEPA is not, in itself, sufficient for analyzing alternatives for purposes of demonstrating 404(b)(1) compliance under the CWA. Pursuant to the Guidelines, the applicant bears the burden of clearly

¹³ NOAA (2015) Assessing relative resilience potential of coral reefs to inform management in the Commonwealth of the Northern Mariana Islands. Technical report to the CRCP

¹⁴ Per DOD’s Coral Reef Protection Implementation Plan. Available: <http://www.denix.osd.mil/nr/upload/dodbk5.pdf>

demonstrating that the preferred alternative is the least environmentally damaging practicable alternative (LEDPA) that achieves the overall project purpose, minimizes impacts to the aquatic environment to the maximum extent practicable, and does not cause or contribute to significant degradation of waters of the U.S.

LEDPA Determination - CWA Section 230.10(a): To comply with the Guidelines, a project must include a comprehensive evaluation of a range of alternatives to ensure the permitted alternative is the LEDPA. Identification of the LEDPA is achieved by performing an alternatives analysis that estimates the direct, indirect, and cumulative impacts to jurisdictional waters resulting from a set of on-and off-site project alternatives. Project alternatives that are not practicable and do not meet the project purpose are eliminated. The LEDPA is the remaining alternative with the fewest impacts to aquatic resources, as long as it does not have other significant adverse environmental consequences. Only when this analysis has been performed can the applicant or the permitting authority be assured that no discharge other than the practicable alternative with the least impact on the aquatic ecosystem will be authorized. As the DEIS does not provide a full alternatives analysis, we cannot determine compliance with the Guidelines.

Recommendations: Consult with the Corps and EPA to ensure sufficient information is provided in the Supplemental DEIS to comply with the Guidelines and correctly identify the LEDPA. Providing the appropriate level of information in the FEIS could help prevent regulatory delays and advance the CWA Section 404 permitting process.

Evaluate alternatives in which landing practice for amphibious assault vehicles would be conducted at alternative sites, such as on Pagan beaches exclusively, since landings on those beaches apparently do not require construction of concrete ramps.

Compensatory Mitigation under Clean Water Act Section 404 (40 CFR 230.10(d))

Failure to adequately offset significant project impacts is grounds for denial of the CWA Section 404 permit application. The DEIS does not identify appropriate mitigation to offset the 20.6 acres of direct and indirect impacts to marine habitat/invertebrates (coral reef) that are projected to occur at Unai Chulu. Instead, it defers to the future CWA Section 404 permit, without any discussion of the permit requirements nor indications as to whether the Navy could mitigate the impacts as required by the 2008 Clean Water Act rule. None of the potential mitigations that the DEIS indicates that the Navy “would consider” are appropriate for the level of impact estimated for the 404 permit. EPA is concerned that sufficient compensatory mitigation for the impacts at Unai Chulu may not exist on Tinian where reefs are in relatively good condition.

Recommendation: Include in the Supplemental DEIS a discussion of the CWA Section 404 permit and its requirements for selection of the Least Environmentally Damaging Practicable Alternative (LEDPA), and for avoidance, minimization and compensatory mitigation. Include a conceptual mitigation proposal that explains how the project would meet the 2008 Rule “Mitigation for Losses of Aquatic Resources” requirements. When developing a mitigation proposal, consider the sites identified as targets for conservation and/or various management actions in Figures 9 and 15 of the draft report “*Assessing relative resilience potential of coral reefs to inform management in the Commonwealth of the Northern Mariana Islands*”.

Coral Impacts on Pagan’s South Beach

The Proposed Action would impact 121 acres of marine habitat at six beaches on Pagan as a result of amphibious landings. The DEIS states that current habitat types and ecosystem functions could be lost or degraded in the currently undisturbed marine habitat (p. 4-305). Additionally, recovery would be prevented (p. 4-305), since amphibious training on Pagan would be more focused and involve greater

use over shorter periods of time (16 vehicles landing and departing 2-4 times in a 24-hour period, on a specified beach (p. 2-123) totaling 2,842 annual landings for amphibious assault vehicles, and 904 for Landing Craft Air Cushion (LCAC)) (p. 2-124).

While marine habitat would be affected at all 6 beaches, we are especially concerned about effects at South Beach, which the DEIS describes as “the best-developed coral reef of those surveyed on Pagan” (Appendix M-2, p. ES-1). Proposed operation activities on this “rich and complex reef” would impact a larger number of coral colonies and species (p. 4-306). Additionally, marine habitat at this location is such that mobile rubble could be generated during operation/training activities and, when mobilized by water motion, could strike or smother corals and degrade coral habitat (p. 4-304). Because of the quality of reef at South Beach, the importance of coral integrity to the survival of other invertebrates (p. 4-266), and increased likelihood of impacts due to rubble, EPA considers these operational impacts significant.

The DEIS acknowledges the significance of impacts to special-status corals on Pagan beaches, primarily South Beach, which contains 10,609 colonies of the threatened *Acropora globiceps* coral in the amphibious vehicle approach zone (p. 4-321). The DEIS identifies only 1 other colony of special-status coral, located at Green Beach; no data were available for Gold and North Beaches. Avoiding the use of South Beach would prevent direct and indirect impacts to almost 60% of the acres of marine habitat predicted to be impacted on Pagan (72 of out of the 121 acres) and would prevent direct impacts to virtually 100% of the quantified special-status corals on Pagan that would be impacted by the project. The DEIS does not explain why the use of South Beach is critical to perform combined-level training when the proposed action includes three other beaches, Green, Red, and Blue, that would be used for Amphibious Assault Vehicles and Landing Craft Air Cushion training (p. 2-121).

Recommendation: Avoid the use of South Beach, in order to protect its valuable coral reef ecosystem and special-status corals, or explain why the use of South Beach is critical to meeting the purpose and need for combined level training on Pagan.

Additional Coral Comments

- **Causeway dredge material disposal:** The construction of the amphibious training ramp at Unai Chulu would involve the construction of causeways using dredged material, which would later be removed after landing ramp construction is complete. The DEIS states that “after the removal of the causeways, excess fill material (i.e., dredge material) would be reused or disposed of at an approved in-water or upland disposal sites” (p. 2-62). The location of these disposal sites is not identified. The DEIS states that ground disturbance associated with the construction of the amphibious landing area would include a dredging volume of approximately 798,111 cubic feet of earthen material (p. 4-9). The likely or potential sites for disposal of excess dredged material should be identified so that impacts to resources at these sites can be included in the impact assessment. We recommend reuse of dredged material on Tinian for other construction projects in uplands, and note that the closest approved in-water dredged material ocean disposal site is located off Guam at a considerable distance from Tinian.
- **Avoid Antifouling Compounds:** Many marine concretes contain anti-fouling compounds to prevent marine life from settling on the concrete. These anti-fouling agents are potentially toxic to marine life and may leach into surrounding waters. We recommend that the concrete employed at Unai Chulu not contain anti-fouling agents, and that DON specify this in construction contracts.

Wetlands

Makpo Wetland

The DEIS does not identify the impacts that could occur to the Makpo Wetland from project-related groundwater withdrawal. Tinian's sole public water supply from CUC's Maui Well No. 2 comes from the freshwater Makpo potential wetland complex's basal groundwater lens, covering approximately 28–36 acres in the service area (Appendix P, p. 2-1). The project would utilize Maui Well No. 2 during the 8-10 year construction phase, pumping between 33,000 and 58,000 gallons of water per day (gpd). During the operations phase, the project would pump an average of 240,013 gpd and a maximum of 459,758 gpd. The location of the military's proposed wellfield is in the Masalok sub-watershed, with a smaller portion in the Makpo Valley sub-watershed where the public drinking water well is located (p. 3-30, p. 4-45). While sub-watersheds are delineated for surface water features, the limestone aquifer is continuous and, therefore, connected from basin to basin. Thus, wells and wetlands in one sub-watershed could be influenced by groundwater withdrawal from wells in the neighboring sub-watershed.

The DEIS states that, over time, groundwater drawdown, which is influenced by increased demand from population growth, has affected the wetland, reducing the open water area (p. 5-21). It also states that "Makpo Swamp" is sensitive to rainfall or water withdrawal from the sub-watershed (p. 5-20); therefore, it seems likely that it would respond to the relatively large increases in pumping from the proposed action, yet the DEIS does not mention this impact.

Recommendation: Evaluate the impacts that could occur to the Makpo wetland from project-related groundwater pumping. Discuss the impacts of pumping from Maui Well No. 2 during the construction phase, as well as the possibility that pumping from the military's well field during the operations phase could affect the wetland.

Mahalang Complex wetlands

The DEIS states that the loss of less than 0.5 acre of wetland habitat in the Mahalang complex of wetlands from the construction of the hand grenade and grenade launcher ranges within Range A - the High Hazard Impact Area - would not be significant (p. 4-197). However, wetland habitat on Tinian is rare. As noted in the DEIS, there are only 3 inland water features in the Military Lease Area since Tinian is formed almost entirely of permeable limestone karst and rainfall percolates downward into porous rock (p. 3-26). These surface waters are located at the edge of Range A. It is not clear whether all options to shift the locations of the ranges to avoid these features, such as moving the ranges south along the western edge of the Range A boundary, have been explored.

The DEIS acknowledges indirect effects from runoff of munitions into the complex of wetlands (p. 4-49). It states that Low Impact Development features would be utilized to control stormwater runoff from the Tinian ranges, and water quality controls would be located throughout the livefire ranges to address munitions concerns (p. 4-49). The DEIS identifies the drainage facilities as conveyance swales, culverts, and linear detention ponds to control flow rates (p. 4-42), but the "water quality controls" to address munitions throughout the live-fire ranges are not identified. The DEIS also states that implementation of the REVA would contribute to reduced impacts to surface water features. Please see EPA's comments regarding REVA implementation under "Operational Range Assessments", above.

Recommendation: Adjust the locations of the hand grenade and grenade launcher ranges in Range A to avoid all of the direct impacts to the Mahalang Complex wetlands, which are rare features on

the Tinian landscape. Identify the water quality controls that would be located throughout the live-fire ranges and describe how they would “address munitions” in Tinian’s karst geology.

Bateha wetlands

Under the Preferred Alternative 2, the Bateha isolated wetlands would be designated a “No Training Area”. Under Alternative 1, Range C is configured such that the Bateha wetlands would be avoided entirely. This avoidance is more protective of these relatively rare water features, as it would protect them from indirect impacts. The DEIS does not demonstrate that indirect effects from munitions would be reduced to less than significant.

Recommendation: Configure Range C under the Preferred Alternative so that the Bateha wetlands are not included in the range, to reduce the potential for indirect effects. Identify measures to avoid or minimize the impacts of munitions on water quality and evaluate their effectiveness in karst environments.

Additional Water Comments

- Stormwater management at Port of Tinian: The DEIS indicates that the port improvements would generate a significant volume of stormwater runoff for the relatively small facility size since nearly all improvements are impervious, and that stormwater would be detained, treated, and directed southwesterly towards natural points of discharge into the Philippine Sea (p. 4-41). Corals and other marine organisms are very sensitive to reduced salinity resulting from stormwater discharges. We recommend that the post-construction stormwater management emphasize retention and infiltration of stormwater, rather than controlled transport of stormwater to the coast for discharge to the ocean.
- Bulk Fuel Storage Facility: The DEIS states that a new bulk fuel storage facility will be constructed at the Port of Tinian (p. 2-78), but it does not indicate whether the facility will obtain National Pollutant Discharge Elimination (NPDES) permit coverage for the discharge of industrial stormwater under Sector P of EPA’s Industrial Stormwater Permit. We recommend that the NEPA document affirm that the bulk fuel storage facility will be compliant with EPA’s Industrial Stormwater Permit.
- Vehicle wash-down area: The proposed facilities at the Port of Tinian would require treatment of industrial wastewater generated from the wash-down of vehicles, which is estimated to be up to 12,000 gallons per day when the facility is in use. This wastewater would be treated by a sedimentation basin, followed by an intermittent sand filtration system, prior to discharge to an adjacent stormwater retention pond (p. 4-422). If the wastewater would contain detergents, or engines would be washed, or the interiors of trucks or storage containers would be washed, the wastewater may contain pollutants with the potential to contaminate groundwater. We recommend that the vehicle wash-down areas utilize a closed-loop vehicle washwater system, which would be a best management practice for this type of high-volume activity.
- Military septic tank: The DEIS states that the existing U.S. military septic tank and leaching field system on Tinian is not currently being used due to poor condition of the leaching field, and that Joint Region Marianas has plans to rehabilitate this system to support current military training exercises not associated with the proposed action (p. 4-414). This system is also identified as the disposal location for wastewater generated by construction workers for the proposed action (p.4-415), yet the project description does not include its rehabilitation. Please clarify the plans for rehabilitating this system and ensure that the rehabilitation occurs prior to

construction so that deficiencies in the leaching field system do not result in impacts to the aquifer and drinking water source. Additionally, we recommend tertiary treatment for the proposed wastewater treatment plant. Note that EPA administers the National Pollutant Discharge Elimination System permitting requirements related to wastewater treatment and disposal, not the CNMI Bureau of Environmental and Coastal Quality, as stated on page 3-230.

NOISE IMPACTS

Significant noise impacts from aircraft operations on Tinian

The DEIS acknowledges significant noise impacts from aircraft operations. The analysis reveals that a small portion of a residential area of Marpo Heights, including 10 homes and approximately 40 people, would experience noise levels considered incompatible with residential land use (65 decibels (dB) Day-Night Average Sound Levels (DNL) or greater). Noise levels below 65 dB are also acknowledged as significant for Alternative 1 (p. 4-105), but not for Preferred Alternative 2 (p. 4-111), even though aircraft operations are the same for both Alternatives. For Alternative 1, the DEIS states “because the increases over baseline conditions exceed Federal Aviation Administration reportable changes in exposure limits, noise increases would be considered significant” (p. 4-105), an apparent reference to the FAA’s significance threshold of an increase in noise of 1.5 dB or more at or above DNL 65 dB noise exposure, which is referenced on p. 4-79. While many receptors would not experience levels above 65 dB, the very large increases in noise will be very apparent. The Federal Interagency Committee on Noise (FICON) Technical Subgroup characterized a 3 dB increase in noise as “a large change” in the level of noise exposure when the existing condition is below 65 dB, and noted that this increase can be perceived by people as a degradation of their noise environment¹⁵. The proposed action would increase noise levels outside the Military Lease Area by between 16.8 dB (residential area of San Jose) and 20.8 dB (Northern Marianas College) (p. 4-106). These are substantial noise increases; decibels are on a logarithmic scale and an increase of 10 dBs represents a subjective doubling of loudness¹⁶. An increase of 20 dB would increase noise levels four-fold “throughout much of Tinian” (p. 4-449). The DON would direct departures and arrivals to the north of the runway in the Military Lease Area as an avoidance and minimization measure, but no other measures to mitigate these aircraft noise impacts are identified. Because Tinian is a low-income community (p. 3-266), noise-sensitive residents may not be able to afford to relocate to a quieter home, making this impact more of a burden on this community.

Recommendation: Identify measures to mitigate the large increase in noise from the proposed action. Discuss whether FAA Part 150 funds would be available for Tinian International Airport to pursue for soundproofing the 10 homes where noise would be above 65 dB DNL, as well as those homes between 60 and 65 dB that would experience a greater than 3dB increase in noise . Disclose the number and location of homes that are in the latter category.

Discuss other sources of funding that could be used for soundproofing in any area affected by the large increases in noise, as well as for other purposes that would alleviate the burden of this noise impact, such as relocation assistance for noise-sensitive residents. Explore changes to the proposed action that could shift impacts to less noise-sensitive times, such as reducing the percentage of the annual aircraft operations that would occur at night (after 10pm) from 25% of the 11,664 operations to a smaller percentage so sleep would be less affected.

¹⁵ Federal Interagency Committee on Noise (FICON), August 1992. *Federal Agency Review of Selected Airport Noise Analysis Issues*. p. 3-5. Available: <http://www.fican.org/pdf/nai-8-92.pdf>

¹⁶ *ibid*

Noise Impacts on Saipan

Under all Tinian alternatives, 1,143 people on Saipan and 80 on Tinian would be exposed to low frequency peak noise between 115 to 130 dB (C-weighted) from large-caliber weapons during unfavorable weather conditions, which cause greater noise propagation by wind blowing from the noise source toward receptors. The DEIS estimates that this condition would occur a maximum of 10-15% of the total training time, equaling about 2-3 weeks per year and that it is probable that these noise levels would generate moderate complaint risks at two residential areas, two schools, one resort, and at Agingan Point (p. 4-101). While the noise analysis in the DEIS states that these impacts from large-caliber weapons would be less than significant and effects would be compatible with sensitive land uses (p. 4-102 and Noise Study, p. 8-1), the DEIS also notes that that peak noise levels over 104 dB are considered incompatible with noise-sensitive land uses such as residences, schools, hospital, parks, etc. (p. 3-50). Additionally, the analysis in the Socioeconomics section regarding the protection of children states that these same noise impacts would be significant on Saipan (p. 4-449). An avoidance and minimization measure is identified to shift some large caliber operations to more northern firing points on Tinian (p. 4-80), but it is not clear whether or how this would exacerbate the noise impacts on Saipan.

Recommendation: Because it appears that the predicted noise impacts from large caliber weapons would be at levels that the DEIS identifies as Zone III (greater than 104 dB peak) for at least some of the year, we recommend that the EIS consistently identify these noise impacts as significant. Identify mitigation measures to reduce these impacts. For example, avoid these weapons during the 10-15% of the training time when unfavorable weather conditions occur, and while school is in session, since impacts to children are acknowledged with the estimate of moderate complaint risk for 2 schools on Saipan.

Cumulative Noise Impacts

The DEIS acknowledges that two other training activities will be occurring in the same geographic area, potentially exposing Tinian residents to noise levels from all three actions at the same time. The Divert Activities Draft EIS identified very high noise impacts on Saipan under its preferred alternative. EPA expressed environmental objections to that project, since noise levels were predicted to be above 80 dB during the high flight scenario and these levels can cause hearing loss¹⁷. We understand that the Air Force is now considering Tinian for the Divert Airfield and operations, which could transfer some of these high noise impacts to Tinian. In addition, the cumulative impact assessment states that training and aircraft operations evaluated under the Mariana Island Testing and Training (MITT) EIS may be concurrent with the proposed action aviation training (p. 5-29). The DEIS states that, if activities for the proposed action, MITT and/or Divert occur at the same time, these impacts would be additive to the impacts identified for the proposed action, as the same sensitive receptors would be affected by the actions. In addition, the proposed action would create noise audible to the same receptors during live-fire training. Noise contours for the cumulative noise for these related actions are not included in the cumulative impact assessment. We note that the FEIS has not yet been released for Divert Activities, and the FEIS for MITT was out for public review at the same time as is this DEIS.

Recommendation: Include, in the cumulative impact assessment, noise contours that represent the cumulative noise increases from these three military training actions that have the potential to

¹⁷ See EPA comment letter for Divert Activities dated July 26, 2012. Available by search at: <https://cdxnodengn.epa.gov/cdx-enepa-public/action/eis/search>

occur at the same time and to the same receptors. Contours and population should be identified for 60 dB where noise increases are greater than 1.5 dB over existing conditions. These cumulative noise contours are necessary to represent the new noise environment that would be experienced by the residents of Tinian.

ENVIRONMENTAL JUSTICE

No comparative analysis performed

The DEIS states that the majority of the residents on Tinian are both minority and low-income (p. 3-266). For the analysis of environmental justice impacts, the DEIS states that “if disproportionately high and adverse impacts to low-income and/or minority populations were identified, then they would be considered significant; however, analysis of proportionality (the possibility that impacts would have greater effects on certain locations than other locations) did not apply because the only locations that could be affected by the proposed action are in the CNMI” (p. 4-439). The DEIS goes on to conclude that the significant impacts identified for noise, land use, recreation, visual resources, and access restrictions “would affect all residents similarly and so would not be a disproportionate impact” (p. 4-450). The DEIS concludes “no impact” for environmental justice (p. 4-453).

The CEQ Guidance *Environmental Justice under the National Environmental Policy Act*¹⁸ (CEQ EJ Guidance) states that implementation of Executive Order 12898 involves a comparison of the impacts experienced by a minority or low-income community to those on the general population or other appropriate comparison group to determine whether the impacts on the local community appreciably exceeds or are likely to appreciably exceed that on the general population (CEQ Guidance, p. 26). The analysis in the DEIS does not provide an appropriate comparison group. The DEIS also states that “in this case, environmental justice analysis is complicated by the CNMI’s unique capability to meet the purpose and need of the proposed action” (p. 3-245). We suggest that, while the DON’s decision may face such complications, this should not influence the analysis of impacts to EJ populations, which should be objective and based on the data reflected in the impact assessment.

Recommendation: EPA recommends that the EJ analysis be amended to incorporate a comparison of the impacts on the local CNMI community with those on an appropriate comparison group. In this case, we believe the appropriate comparison group is the general U.S. population.

The EJ analysis could also assess the vulnerability of the surrounding community as compared to the rest of the nation. This vulnerability assessment could create an average value for the combination of the percent minority and percent living in poverty for census geographic units around the action area and the combined vulnerability value could be compared to the national average¹⁹. The national average or 50th percentile for the combination of percent minority and percent living in poverty is approximately 35 percent. Areas with a combined vulnerability value of 56 percent or greater rank at the 80th percentile or greater as compared to the entire nation. EPA has suggested the 80th percentile as a useful filter in assessing the potential vulnerability of a

¹⁸ Available: http://www.epa.gov/environmentaljustice/resources/policy/ej_guidance_nepa_ceq1297.pdf

¹⁹ Information on the use and creation of indexes to assess the vulnerability of a community can be found in EPA’s EJSCREEN tool, available at: <http://www2.epa.gov/ejscreen>. While this tool does not provide specific screening information for CNMI, it does provide nationally consistent demographic values and an approach that can be used as a frame of reference when assessing the vulnerability of a community and the potential for EJ concerns in communities such as CNMI.

community in order to highlight places that may warrant further consideration for additional analysis and outreach.

Additional Considerations for EJ Analysis

The EJ analysis approach utilized in the DEIS downplays the specific vulnerabilities that low-income communities possess that can make impacts more burdensome and does not incorporate all of the relevant analyses from other sections of the DEIS. While the CEQ EJ Guidance recognizes that there is no standard formula for how environmental justice issues should be identified or addressed, it states that agencies should recognize that the impacts within minority or low-income populations may be different from impacts on the general population due to a community's distinct cultural practices. It suggests that data on different patterns of living, such as subsistence consumption and the use of well water in rural communities may be relevant to the analysis (CEQ EJ Guidance, p. 14). These and other impact areas, while identified in the DEIS, were not included in the EJ analysis. In addition, health impacts -- such as potential increases in infectious disease as a result of an influx of contract workers, and the fact that Tinian has been designated as a Health Professional Shortage Area (HPSA)²⁰, indicating it has a shortage of primary medical care, dental, and mental health providers -- should be considered in the EJ analysis.

Recommendations: We recommend that the EJ analysis be amended to include the following impacts identified in the DEIS: impacts to drinking water quality, changes in patterns of subsistence consumption, potential health impacts; large increases in noise; impacts to community character and social cohesion, and impacts associated with denying public access in the Military Lease Area.

Impacts on patterns of subsistence consumption

Where an agency action affects patterns of subsistence consumption, disproportionately high and adverse human health or environmental effects on low-income populations or minority populations may result (CEQ EJ guidance p. 3). Although the DEIS identifies subsistence consumption patterns of agriculture, ranching, hunting, and fishing, the effects of the Proposed Action on these practices are not incorporated into the EJ analysis.

The DEIS identifies subsistence farming on Tinian, and all ranching on that island is subsistence (p. 3-263). As of 2014, 29 lots (2,375 acres) in the Military Lease Area were permitted for noncommercial, subsistence agriculture and grazing (p. 3-253). Of the 37 ranching operations on Tinian, 32 are located in the Military Lease Area (p. 3-254). The DEIS identifies replacement grazing land in the Military Lease Area and elsewhere (p. 4-561) as a potential mitigation for the loss of grazing lands due to the Proposed Action; however, the proposed action would require that some cattle be relocated (p. 4-447) which could cause economic hardship.

No commercial hunting takes place in the CNMI; rather, hunting is limited to subsistence purposes only (p. 3-257). While the entire island of Tinian could be considered a hunting ground, the majority of hunting resources are located in the unpopulated northern two-thirds of the island, in the Military Lease Area. (p. 3-264). The significant loss of public access identified in the land use section of the DEIS (p. 4-159) would presumably affect this subsistence activity but no further discussion is provided.

²⁰ Available: <http://www.hrsa.gov/shortage/>

The DEIS states that fishing is subsistence on Tinian and notes that the National Marine Fisheries Service officially identified the CNMI as a fishing community, i.e. “a community which is substantially dependent on, or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs” (p. 3-264). The proposed action would result in significant impacts to ocean-based recreational resources, including four of the five most popular snorkeling/dive sites and popular fishing sites due to limited access (p. 5-41). The significant loss of public access to these sites is a loss of access for a subsistence activity.

The DEIS indicates that just 103 people self-identified as participating in subsistence activities in Census data (p. 3-263). Based on information from the CNMI Government²¹, many of the residents are concerned regarding access to spear fishing sites.

Recommendation: Incorporate, into the EJ analysis, potential impacts of the project on subsistence agriculture, ranching, hunting and fishing activities and discuss how these impacts may translate into disproportionately high and adverse human health or environmental effects on minority and/or low-income communities. Identify additional potential mitigation for these impacts. Consult local sources and engage in direct discussions with the community to confirm the level of participation in subsistence activities.

SOLID WASTE

Solid waste disposal site

The DEIS states that a solid waste transfer station and recycling facility would be constructed at the base camp and acknowledges that the existing unlined Tinian dump does not comply with CNMI Administrative Code or with the Resource Conservation Recovery Act (RCRA)(p. 3-239), but the document presents no definitive proposal for the final disposition of solid waste. The project description states only that solid waste would be processed and size-reduced for shipment to a permitted RCRA subtitle D landfill, potentially located off-island, which could include a new landfill or an incineration facility (p. 2-52). Without a defined proposed action, including the disposal location, the impacts of disposal cannot be fully identified. The Solid Waste Study in Appendix P explores two options for solid waste management, but the DEIS does not adopt any approach. There are no RCRA compliant solid waste landfills in the CNMI, and the compliance status of the Navy Base landfill on Guam, which is not currently permitted, is uncertain. We are aware that the DON has had discussions with EPA and the CNMI government about utilizing the Marpi landfill on Saipan; but, as Appendix P discloses, the Marpi landfill would require construction of a new cell and the CNMI government does not have the funding for such construction.

Recommendation: Clearly identify the proposed actions regarding the management of solid waste and disclose the impacts of that proposal in the EIS. If the DON is still evaluating options, consider including a programmatic analysis in the EIS, with a commitment to conduct future project-level NEPA analysis, tiered to this EIS, so that impacts of solid waste disposal can be assessed.

²¹ Personal conversation, Megan Jungwiwattanaporn, CNMI Bureau of Environmental and Coastal Quality, May 18, 2015

Green waste management

Appendix D - Best Management Practices (BMPs) states that Executive Order 13514 *Federal Leadership in Environmental, Energy, and Economic Performance* (2009) would be implemented to address construction debris management and, during construction and operations, all green waste would be processed for reuse on island, e.g., as mulch and compost (p. D-18). We appreciate this commitment to 100% reuse of green waste. Appendix P - Solid Waste Study states that one way to divert the green waste would be to require the utilities and site improvements (U&SI) contractor(s) to set up, permit, and operate a composting operation in the designated laydown area and states that the contract specifications provided to the contractor(s) would include green waste diversion rates (App. P, p. 4-1). Based on the BMPs, we would expect the project specified green waste diversion rate would be 100%, but this is not explicitly identified in the project description. We are concerned that this goal may not be met, as Appendix P estimates that the contractor would need to process green waste at a rate of 17 tons per hour, working 8 hours per day, 5 days per week, for an estimated 18 month base camp construction period. For the waste generated from training range construction, the contractor would need to process green waste at a rate of 99 tons per hour, working 8 hours per day, 5 days per week for 18 months (App P, p. A-21).

Recommendation: Include the 100% green waste diversion rate in the project description. Discuss the practicability of processing such large volumes of green waste, whether it could occur in the time frame indicated, and whether the schedule could be modified, if necessary, to ensure all green waste is reused.

Hazardous Waste

The DEIS states that existing public transportation routes, including shipping by commercial carrier, would be utilized for the conveyance of hazardous waste to the disposal facility site. We are not aware of hazardous waste haulers on Tinian, and the DEIS acknowledges that there are no existing commercial carrier transportation routes to Pagan. Guam does not have any permitted commercial or military hazardous waste disposal facilities. For temporary storage, it is our understanding that the DON would need to obtain written approval from the Guam EPA Administrator prior to transport to Guam. The DEIS provides no information regarding the final disposition of hazardous waste generated from the project nor does it discuss how compliance with U.S. Department of Transportation (DOT) and EPA regulations would be achieved. We note that, while the DEIS states that the operation of the Bulk Fuel Storage facility and off-load terminal would require an Oil Pollution Act of 1990 permit, there is no such permit. The Bulk Fuel Storage facility would require a Spill Prevention, Control and Countermeasures (SPCC) Plan, and the vessel off-loading terminal would require a marine transfer facility plan and approval from the U.S. Coast Guard.

Recommendation: Clarify how hazardous wastes would be managed, stored and disposed in accordance with the Resource Conservation and Recovery Act (RCRA) and how transportation of hazardous materials would meet the requirements of RCRA and the U.S. DOT, as appropriate.

TERRESTRIAL BIOLOGY

Mitigation for habitat loss

The preferred Alternative 2 would remove 1,885 acres of forest and scrub habitats, including the Tinian Military Retention Land for Wildlife Conservation. This 936-acre conservation area was established in 1999 in an agreement between the CNMI Commonwealth Ports Authority, Federal Aviation Administration, and Department of the Navy for the protection of endangered or threatened wildlife as the result of an Endangered Species Act consultation for the expansion of the Tinian airport (p. E-6, p. 3-120). The terms of the mitigation agreement allow the military to use the area for low-impact, non-habitat destructive training; however, the proposed action would destroy habitat in this area. The habitat impacted largely supports the same species that would be affected by the forest removal that would occur under the Guam and CNMI Military Relocation. That action would result in the loss of over 900 acres of forest habitat and remove another existing mitigation and conservation area set up in accordance with U.S. Fish and Wildlife Service Biological Opinion – in that case, to mitigate previous Air Force actions on Anderson Air Force Base. Because it appears that established mitigation agreements are not being maintained in perpetuity, we are concerned that future mitigation areas set up for the proposed project would be subject to disturbance for future actions unless appropriate protections and commitments are included.

The DEIS identifies mitigation measures that DON “may” implement, including forest enhancement and monitoring (p. 4-197). DON is also evaluating potential conservation areas for replacement of the Tinian Military Retention Land. Nevertheless, the DEIS acknowledges that, even with forest enhancements and other mitigations to be determined, the impacts to native wildlife would be significant due to vegetation removal for range construction (p. 4-201).

Recommendation: Include a more substantial mitigation proposal in the EIS, in consultation with FWS. Establish conservation areas on lands that would not be subject to future DOD development and include a mechanism to ensure conservation will occur in perpetuity, such as the transfer of conservation easements to a third party, etc.

Impacts to Conservation Land Use

According to the 1989 CNMI Public Land Use Plan, the Northern Islands, including Pagan, are designated as conservation areas (p. 3-93). The DEIS states that impacts would be less than significant to existing submerged land conservation uses, maintaining that, while proposed training would not be consistent with the existing conservation submerged land use, it would still be partially compatible given the limited time that training activities would occur (p. 4-169). EPA disagrees that this impact is less than significant, since the benefits of conservation status generally depend on consistent conservation. Additionally, the Navy must consider the extent to which the action threatens a violation of local requirements imposed for the protection of the environment when determining significance (40 CFR 1508.27 (b)(10)).

Recommendation: Identify the impacts to submerged land conservation uses and the marine resources within the submerged conservation areas as significant.

CONNECTED ACTIONS

“Actions are connected if they cannot or will not proceed unless other actions are taken previously or simultaneously” (40 CFR 1508.25(a)1(ii)). Relocation of the International Broadcasting Bureau (IBB) is an integral component of the preferred Alternative 2. As such, it is a connected action and should be evaluated in full, along with the other project components, yet it is only evaluated programmatically in the DEIS. The programmatic evaluation reveals potentially significant environmental impacts at some of the proposed relocation sites. These should be considered in the full context of project impacts.

The rehabilitation of Tinian Pier appears to be another connected action. The proposed action would require use of the pier, since it is the principal point of entry for goods to the island, but the DEIS states that the main wharf and breakwater are severely deteriorated and, therefore, the harbor operates at diminished capacity (p. 5-68). In addition, the harbor has no fixed shore-side cranes or lighting, and two finger piers West of the main wharf are in complete disrepair and unusable (p. 3-301). The rehabilitation of the Tinian pier appears to be vital to the implementation of the project. Unless the action can proceed using Tinian Pier in its current deteriorated state, rehabilitation of the pier is a connected action.

Recommendations: As appropriate, either include a project-level analysis of the IBB relocation in the EIS or designate an alternative that does not require its relocation as the preferred alternative. Discuss, as applicable, whether the project could proceed without the rehabilitation of the Tinian Pier and, if it could not, evaluate rehabilitation of the pier as a connected action.

PREFERRED ALTERNATIVE

According to the DEIS, some resources would experience fewer impacts under Tinian Alternative 1 than under the DON’s preferred Tinian Alternative 2. Compared to Tinian Alternative 1, Tinian Alternative 2 would disturb an additional 123 acres (50 hectares) or approximately 7% more vegetation and forest; would generate 26,722 additional tons of land-clearing green waste; and would increase impervious surface by 18%. Alternative 2 would also disturb approximately 115 more acres of limestone formations and disturb 7 additional contaminated sites. Tinian Alternative 1 would completely avoid the Bateha wetlands, eliminating the risk of indirect impacts, and avoid the use of the Tinian Military Retention Land for Wildlife Conservation. Of the alternatives evaluated in the DEIS, EPA believes that Tinian Alternative 1 is the environmentally preferable alternative.

Recommendation: Consider the extent to which the lesser impacts of Tinian Alternative 1 could be realized through modifications to the preferred alternative.