

Subpart X Permit Application
Response to USEPA Region II Comments

Prepared for:

Atlantic Fleet Weapons Training Facility
Vieques Island, Puerto

Prepared by:

Environmental and Safety Designs, Inc
5724 Summer Trees Drive
Memphis, Tennessee 38134
(901) 372-7962

April 22, 1993

**RCRA SUBPART X PERMIT APPLICATION
RESPONSE TO USEPA REGION II COMMENTS**

**ATLANTIC FLEET WEAPONS TRAINING FACILITY
VIEQUES ISLAND, PUERTO RICO
EPA I.D. No. PRD980536189**

Prepared by:

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April 27, 1993

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GENERAL COMMENTS:

I.A Part A. Application 270.10(d)

I.A.1 General Information: Form 1

The name of the facility contact person must be updated with the name of the current facility contact person.

The permit application is being revised to reflect current conditions.

I.A.2 Form 3 RCRA

Page A-2 of Section A of the document described the estimated annual amount at 5,000 P for open burning and 10,000 P for open detonation. The process design capacity of T04 listed on page 1, Form 3 was 2,000 Lb/Detonation; on page 3, the estimated annual quantity of waste was 8,000 Lb. Revise the permit application to provide a consistent indication of the estimated annual amount for open burning and open detonation.

It is estimated that the maximum annual amount of waste treated by open burning would be 5,000 pounds. It is estimated that 5,000 pounds of waste are treated by open detonation during each treatment event. Since two OD events are conducted each year, a total of 10,000 pounds is treated annually.

I.B Facility Description

I.B.1 General Description of the Facility: 270.14(b)(1)

Page B-5 of Section B, the name, title, and work telephone number of the facility contact person must be updated with the name of the current facility contact person.

The permit application is being revised to reflect current conditions.

I.B.1.a Provide a more timely, updated wind rose if data is available.

The wind rose in the permit application will be updated if a more current version is available.

I.B.2 Topographic Map: 270.14(b)(1)

Submit a topographic map which shows the facility and a distance of 1,000 feet around the facility at a scale of 1 inch equal to not more than 200 feet. Figure B-2 shows a distance of 1,000 feet around the facility, but not at a scale of 1" = 200'. Figure B-6 shows a scale of at least 1" = 200', but indicates a radius only of 1,000 feet around the treatment area.

The topographic maps are being revised to the correct scale.

I.B.2.a Delineate the 100-year floodplain boundaries on one of the maps provided.

The topographic map is being revised to incorporate the 100-year floodplain boundaries.

I.B.2.b Clearly label the internal drainage streams on the topographic map as noted in Section B-3 on Page B-6.

The topographic map is being revised to show the internal drainage streams.

I.B.2.c Illustrate the land use west of the facility on Figure B-3. Provide elevation contours and a description of OP-1.

This information will be incorporated into the permit application.

I.B.2.d Show the North arrow on the area topographic map.

The North arrow is being added to the topographic map.

I.B.2.e Identify the legal boundaries of the facility on the map which indicates the OB/OD units.

The legal boundaries are shown on the facility map. While the entire Active Impact Area is classified as the facility, OD operations occur only in a 150' by 150' area within the AIA. The open burning area is also located within the boundaries of the AIA. Both units will be identified in the facility map.

I.B.2.f **Illustrate the location of the treatment units on Figure B-6, which is an enlargement of the treatment area. Depict decontamination areas on one of the maps.**

The location of the OD unit shifts within the facility area due to site conditions during each treatment evolution (training rounds occasionally impact the OD area). The OB unit is also shown on the map, although this may also shift for the same reasons. No decontamination areas are located at the facility.

I.B.4 **Traffic Patterns: 270.14(b)(10)**

Estimate and provide the average and maximum quantity of waste moved to the open burning/open detonation (OB/OD) site per movement per vehicle.

Established DoD policies concerning ordnance transportation quantities are utilized to ensure the safety of personnel and nearby populations. This information is being compiled and incorporated into the permit application.

I.C **Waste Analysis Plan: 270.14(b)(3) and 264.13(b) and (c)**

The text must address the facility's approach for obtaining certification that the waste can be safely treated.

It is uncertain what "certification" is being referred to here. All DoD and Naval Explosives Ordnance Disposal procedures have been prepared such that personnel safety is the primary factor of concern. The location of the units within the impact range also facilitates safety to both Naval personnel and surrounding populations.

I.D **Process Information**

Revise page D-18, D-19, and D-20, of the Section D to include the results of the Waste Analysis Plan.

The results of the soil sampling study previously performed will be included in the revised permit application. As open burning has not been conducted since the original waste analysis plan was prepared, no analytical results from ash samples are as yet available. This information will be provided when open burning treatment is performed.

I.F Procedures to Prevent Hazards

I.F.1 Inspection Schedule: 270.14(b)(5), 164.15

I.F.1.a State in the application that a copy of the inspection schedule for the facility will be kept at the facility.

Since there are no structures at the facility due to the ordnance training activities, it is impossible to maintain records or documents at this location. However, copies of the inspection schedule are maintained at OP-1, the range observation tower. This is the nearest structure where such records can be maintained.

In addition, the facility is inspected only when the facility is in use. In order to perform more frequent inspection, inspectors would be required to enter the impact range. A major range clearance operation would be required to allow access to the facility without jeopardizing inspection personnel. Since no equipment or structures are located at the site when not in use, there is in actuality nothing to inspect. Therefore, more frequent inspections do not appear to be warranted.

I.F.1.b Include a checklist of inspection monitoring equipment, safety and emergency equipment.

The list of equipment maintained by EOD Group Two is being incorporated into the permit application. The list includes first aid equipment, fire fighting equipment, and pertinent tools and vehicles. A separate list of OB equipment will be prepared as well.

I.F.1.c State how and where records of inspection will be kept.

No records of inspections have been maintained in the past. However, such records will be prepared and maintained by EOD Group Two in the future. Such records will be stored at the EOD Group Two Detachment headquarters at U.S. Naval Station Roosevelt Roads (in close proximity to the facility). In addition, copies of inspection records will be maintained at AFWTF Range Control headquarters at OP-1.

I.F.1.d **Develop a schedule of remedial action in the event that a release has been found during an inspection. In addition, provide a discussion of the type of containment which will be used to store all unburned ordnance until the next treatment.**

No untreated ordnance is stored or accumulated at either the OD or OB units. Due to the nature of the materials treated by open burning as well as performance criteria from other facilities, no unburned materials are expected to remain in the unit following treatment other than ash residues. Since no liquids are treated at the facility, in the event of a release, any spilled or dropped ordnance or residue is collected and retreated as soon as it is safe to re-enter the facility.

In regards to open detonation, any spilled or dropped ordnance is either detonated in place or moved within the unit for immediate treatment. The decision as to whether to detonate in place or move the ordnance is made by onsite EOD personnel based upon safety concerns. Should any ordnance remain untreated following a detonation, the materials are collected and retreated as soon as it is safe to re-enter the OD Area.

I.F.2 **Equipment Requirements: 270.14(b), 264.32**

I.F.2.a **Provide a description of the type of fire extinguisher (i.e., foam, inert gas, dry chemicals) used, spill equipment and decontamination equipment in the application.**

A list of emergency and safety equipment maintained by EOD Group Two is being incorporated into the permit. Dry chemical fire extinguishers are utilized at the facility.

I.F.2.b **Provide the pressure and volume of the pumper(s) which will be used during an emergency.**

Due to the nature of the impact range, it is not feasible for fire-fighting vehicles to enter the range. Due to the inherent dangers involved as well as the natural fire breaks the area offers, any fires which result from range activities are simply allowed to burn out. During normal training activities, range fires occur regularly.

I.G **Contingency Plan**

I.G.1 **Copy of the Contingency Plan: 270.14(b)(7)**

I.G.1.a **Clearly describe the procedures of the "military channels" (noted in Paragraph 1 of Page G-6) to document efficiency in handling an emergency situation. Include any additional personnel that would be contacted.**

A more complete description of emergency chain-of-command and notification procedures is being incorporated into the document.

I.G.1.b **The permit application states that no emergency equipment is kept onsite. It is all taken in on vehicles when the OB/OD facility is in operation. If emergency equipment is left onsite, indicate if it is destroyed during the live-fire operations.**

No emergency equipment is left onsite during ordnance training activities.

I.G.1.c **Provide a more detailed description of measures taken to ensure evacuation of the facility. Include descriptions of the specific alarm signals audible and evacuation routes for all personnel.**

During normal ordnance training operations, no personnel are allowed on the range. During OB/OD operations, only trained EOD personnel are permitted access to the range. All communications are by voice and hand signals. Communications are maintained with the AFWTF Range Control Officer at OP-1 by radio. Should an unplanned event occur during EOD preparatory activities on the range, all personnel immediately evacuate the area of the event by vehicle and rendezvous at OP-1. The EOD officer/technician in charge of the operation is the incident commander for any unplanned casualties or events.

I.G.1.d **Demonstrate that whether copies of the contingency plan have or will be submitted to the appropriate police authorities and emergency response teams as required by 40 CFR 264.53. Amend the permit application to specify this information.**

Local civilian police authorities are not allowed access to the AIA for both safety and security reasons. EOD personnel serve as emergency response personnel and have been provided with copies of the contingency plan. Should evacuation of personnel from the AIA in emergency situations be required, helicopter medivac units would be utilized.

I.G.1.e The permit application does not include any mention of any alarm system. Demonstrate that the existing communications system is adequate or provide an alternative system.

During normal ordnance training operations, no personnel are allowed on the range. During OB/OD operations, all communications are by voice and hand signals. Communications are maintained with the AFWTF Range Control Officer at OP-1 by radio.

I.G.1.f Indicate the amount of time needed to make an assessment after a release occurs. Provide the storage location onsite for evacuated soil, and provide a description of the treatment method.

Following treatment, the area is policed upon re-entry of the area for unexploded ordnance and reactive materials. This occurs as soon as it is safe to re-enter the OB/OD area, based upon established DoD criteria.

I.G.1.g In addition to determining the vertical extent of contamination, include methodologies designed to ascertain the lateral extent of contamination.

Surficial soil samples have been taken indicating no appreciable increase in the levels of soil contamination from energetic compounds between the OB/OD areas and the surrounding training areas. This sampling program was conducted per the guidance of the Commonwealth of Puerto Rico Environmental Quality Board following the EQB submission of administrative NODs in 1990. Therefore, surficial sampling outside of the OB/OD areas is considered unnecessary during the normal operating life of the facility. A copy of the report concerning these activities will be included in the revised permit.

I.G.1.h Include notification of appropriate police authorities and emergency response teams in the Contingency Plan as part of the Standard Operating Procedure. Additionally, provide a definition of the acronym "COMNAVFORCARIB" noted in Table 1, for the purpose of clarity.

COMNAVFORCARIB stands for Commanding Officer Caribbean Naval Forces. However, this is no longer the appropriate designation for the local command. It is now designated as COMFAIRCARIB (Commanding Officer Caribbean Air Forces). Base Police are normally notified of any movement of ordnance under the various commands. EOD personnel serve as the emergency response personnel for incidents occurring on the impact range. Due to the nature of the impact range, Base Police and Fire Department personnel cannot enter the impact

range. EOD personnel would handle such contingencies per the contingency plan and established EOD procedures.

I.G.1.i Include documentation of any arrangements made with local authorities, as required by 40 CFR 264.52(c).

Due to the location and restricted access to this facility, no arrangements with local authorities exist.

I.H Personnel Training

I.H.1 Outline of Both the Introductory and Continuing Training Programs: 270.14(b)(12), 264.16(a)(1)

Outline the type of continuing program to be implemented on a monthly basis (at a minimum), after completing the 52-week training program.

All training programs, requirements, and certifications for EOD personnel will be included in the permit application.

I.H.2 Training for Emergency Response: 264.16(a)(3)

Demonstrate that facility personnel are able to respond effectively to emergencies and are familiar with emergency procedures, emergency equipment and emergency systems. The training program should include the following, if applicable:

- **procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment.**
- **communications or alarm systems.**
- **response to fires.**
- **response to groundwater contamination incidents.**
- **shutdown of operations.**

EOD training and certification requirements fulfill these requirements, with the exception of groundwater contamination incidents. The information concerning EOD training and certification will be included in the permit application. Groundwater issues are addressed further in this document.

I.I Closure and Post-Closure Plans: 270.14(b)(13), 270.23(a)(2), 264.111, 264.112(b)

I.I.1.a Propose criteria for determining when "complete decontamination" of the soils has occurred. Include information required by 40 CFR 270.23(a)(2).

Due to the nature of the impact range, residual compounds from ordnance training activities are present throughout the site. It is therefore proposed that, during closure, soil samples from outside the OB/OD area, but still within the impact range, be collected and analyzed to determine actual background levels of pertinent contaminants. During closure, soils within the OB/OD units, which comprise a very small portion of the training range area, will be remediated to this established background level.

Also, due to the extensive bombing of the AIA during normal training activities, the land can never be used for human habitation even if the OB/OD units achieve clean closure.

A more complete description of the closure procedure will be included in the closure plan within the revised permit application.

I.I.1.b Additionally, when discussing soil excavation on Page I-5, the text indicates that "excavation ... will be repeated until clean soil is reached or until the owner determines that clean closure cannot be achieved." Provide the criteria which will be used to determine that clean closure cannot be achieved. The conclusion that groundwater monitoring is not needed must be substantiated with a description of the run-on and run-off control measures for the site that will be employed during closure.

"Clean closure" will be that point at which concentrations of hazardous constituents are at or below either health-based standards published by the Puerto Rican Environmental Quality Board (EQB) or the USEPA or at or below background levels. If soil removal operations are determined to be necessary, conventional erosion and sediment control measures will be implemented to minimize runoff and runoff of storm water. In addition, all excavated soils will be covered with sheeting and bermed to prevent contact with storm water.

I.I.1.c Include the person who will be responsible for storing and updating the facility's copy of the plan.

This is being incorporated into the permit application.

I.I.1.d Include the procedure to be used for updating copies of the plan.

This procedure is being incorporated into the permit application.

I.I.1.e Provide the storage location for removed soil at the time of closure.

Excavated soils will be stored at the facility until removal to a treatment or disposal facility. Soils will be encased in plastic sheeting and bermed to prevent dispersal via wind or storm water.

**I.I.2 Disposal or Decontamination of Equipment, Structures, Soils:
264.112(b)(4), 264.114**

Associated with the closure of each hazardous waste management unit, provide a detailed description of the steps needed to remove or decontaminate all hazardous waste residues, contaminated containment system components, equipment, structures, and soils. Steps to be considered in decontamination include:

- **determination of cleanup levels.**
- **performance of decontamination.**
- **evaluation of decontamination effectiveness.**

All equipment is decontaminated and removed from the facility following each treatment event. This includes hand tools, protective clothing, vehicles, and, for open burning operations, burning pans and related equipment. Therefore, no decontamination of equipment during closure is required. Any contaminated soils which, based upon the previously described criteria, are determined to exceed background levels, will be excavated and removed from the facility. This will be described in much greater detail in the permit application.

I.I.3 Closure of Miscellaneous Units: 270.23(a)(2)

Show that at closure, all hazardous waste residues will be removed from the treatment process or equipment, discharge control equipment, and discharge confinement structures, and that the unit will be decontaminated. Describe the methods used to determine the nature and extent of contamination. Identify the clean-up target levels. Describe the sampling/test procedures or other means used to ensure that no contamination remains on, in or around the units and associated equipment and structures. If any wastes, waste residues, or contaminated materials or soils will remain after closure, provide

plans for closing the miscellaneous units as disposal units and provide post-closure plans.

All visible hazardous waste residues will be removed following each OB treatment event. No visible hazardous waste residues remain following OD treatment events. Also, no equipment or structures are maintained at the facility; such devices transported to the site prior to each treatment operation, and are removed prior to or following each treatment event. Therefore, decontamination of onsite equipment will not be required during the closure operation. Soil cleanup levels will be based upon background levels, which will be determined at the time of closure (See Item I.I.1.b). It is not anticipated that contaminated materials or soils will remain at the facility following closure.

I.I.4 Miscellaneous Units: 270.23(a)(3), 264.603

Provide a detailed description of the plans to ensure protection of human health and the environment. Include the prevention of any releases to groundwater or subsurface environment; surface water or wetlands or on the soil surface; or the air.

A risk assessment will be performed which uses existing data, DoD test data and fate and transport computer models. The risk assessment will be used to determine whether treatment activities at the facility are impacting human health or the environment, including air, soils, and surface waters. The procedures and rationale for this assessment will be included in the permit application.

Previous monitoring activities at the site have provided information about soils and surface water contamination. This information was collected pursuant to the EQB administrative NODs and the facility NPDES permit; a compilation of this data will also be included in the Part B permit application.

I.J Corrective Action for Solid Waste Management Units

I.J.1 Solid Waste Management Units: 264.101

Identify all solid waste management units at the facility, including inactive units, if known.

No SWMUs are presently known to exist at the facility.

I.J.1.a For each solid waste management unit, submit the following information:

- type of each unit.
- location of each existing or closed unit on the topographic map.
- engineering drawings for each unit, if available.
- dimensions and materials of construction of each unit.
- dates when the unit was in operation.
- description of the wastes placed in each unit.
- quantity or volume of waste, if known.

No SWMUs are presently known to exist at the facility.

I.J.1.b Describe the methodology used to determine that no existing or former solid waste management units exist at the facility (e.g., review of old solid waste permits, blueprints.)

This will be described in the permit application.

I.J.1.c Provide all information available, including releases reported under CERCLA 103, on whether or not any releases have occurred from any of the solid waste management units at the facility. Reasonable efforts to identify releases must be made, even if releases have not been verified. (A release may include: spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment. It does not include releases otherwise permitted or authorized under law or discharge into the injection zone of a UIC permitted class I injection well.)

No releases are known to have occurred from the facility. No SWMUs are presently known to exist at the facility.

I.J.1.d Information on releases must include the following types of available information concerning prior or current releases:

- date of the release.
- type of waste or constituent released.
- quantity or volume released

No releases are presently known to have occurred from this facility.

SPECIFIC COMMENTS

II.A Process Information

II.A.1 Open Burning on the Ground Surface

The Part B application does not contain a detailed description of the open burning (OB) unit as required by 40 CFR 270.23(a). Provide the dimensions and physical characteristics of the open burning (OB) unit as required by 40 CFR 270.23(a)(1). Furthermore, Sections D-1 and D-2 indicate that burning takes place in earthen pits whereas the Waste Analysis Plan (Sampling Methods) and Section D-5 indicate that burning takes place in "trays." Explain this disparity. Indicate if open burning will always take place at the same location and if it will take place at the same locations as open detonation.

No open burning activities have been conducted since the original Part B application was submitted in 1988. However, should any OB activities be conducted in the future, all burning will be performed in approved burning trays equipped with secondary containment to prevent soil and groundwater contamination. A detailed description of the trays will be provided in the revised permit application.

II.A.1.a Section D-1 indicates that the ammunitions will be covered with two to eight feet. Explain what type of material used to cover the ammunitions.

Cover materials are not used during open detonation activities. Rather, a pit is excavated in which the waste ordnance is placed for detonation. The pit is circular with approximately a 50-foot radius; the pit is from 6 to 8 feet deep. Cover materials are not used since they would complicate the response in the event of a misfire.

II.A.1.b Include a copy of the Environmental Assessment prepared by your facility.

A copy of all Environmental Assessments are included. This includes all surface water studies performed pursuant to the facility NPDES permit and soil sampling activities conducted following the previously addressed administrative NODs.

II.A.1.c AFWTF must review the propellants, explosives, and pyrotechnics (PEPs) weight limits for open detonation described on page D-1.

Weight limits for various PEPs are based upon the net equivalent weight (N.E.W.) as compared to TNT. This serves to equate the respective blast effects from various PEP types and compositions. Open detonation weight limits are presently limited to 5,000 pounds N.E.W.

II.A.1.d Include a copy of the Standard Operating Procedures (SOP) for specifying procedures for OB units in the Part B application.

An SOP detailing OB activities will be included in the revised permit application.

II.A.2 Open Detonation on the Ground Surface

II.A.2.a Provide the dimensions and physical characteristics of the open detonation (OD) unit as required by 40 CFR 270.23(a)(1). Expand the brief description provided in the permit application to include information such as dimensions of the Explosive Ordnance Detachment (EOD) area, location and type of sound/shock barriers, location and type of personnel bunker, location within the EOD area that open detonation will take place (indicate if open detonation will always take place at the same location and if it will take place at the same location as open burning), maximum and average amount of material to be detonated per operation, and the maximum and average amount of material to be detonated per month.

Open detonation is performed entirely within a 100 by 100-foot area within the impact range. This area is shown on the AFWTF map. Within the area, a pit approximately 30 to 50 feet in diameter is constructed for each event. All ordnance is placed in this pit for treatment.

No sound/shock areas or bunkers exist within the unit because such devices would be damaged or destroyed during normal training operations. During OD treatment operations, personnel evacuate to OP-1, located approximately 1.8 miles away. The maximum amount treated per event is 5,000 pounds. This occurs on a semiannual basis.

II.A.2.b Provide an engineering drawing of the OB/OD unit as required by 40 CFR 270.23(a)(2).

This drawing will be included in the permit application.

II.A.2.c **Specifically address the management of ash or residue generated after detonation at the OB unit.**

All ash and residue resulting from open burning activities will be collected in closed 55-gallon drums and sampled per the Waste Analysis Plan. If the material is determined to be a hazardous waste, the material will be submitted to a licensed TSD facility capable of properly treating and/or disposing of these materials.

II.A.2.d **The permit application does not detail any precipitation run-on/run-off devices at the facility. However, it is important to note that Section B-2 indicates that there are no run-off control structures at the hazardous waste management area. This is a contradiction to Section I-1 which states that groundwater monitoring is not necessary because existing run-on and run-off control is sufficient. This discrepancy must be reconciled.**

No runon/runoff controls are presently in place at the facility. However, all surface water runoff from the facility is covered under the facility NPDES permit. While permit conditions presently only require monitoring of offshore locations where ordnance has been accidentally dropped during training operations, the permit previously required routine monitoring of surface runoff from the AIA. A compilation of the runoff monitoring data obtained pursuant to the NPDES permit will be included in the revised Part B permit application.

II.A.2.e **Include a copy of the SOP specifying procedures for the OD unit in the Part B permit application.**

The SOP has been incorporated into the permit.

II.B **Hydrological Assessments**

II.B.1 **Quality, Physical and Chemical Characteristics of the Waste**

Address the impact of the waste constituents on the groundwater and subsurface soil in the Waste Analysis Plan based on the Statistical Evaluation of Soils Concentrations results submitted by AFWTF.

A risk assessment based on existing data, DoD tests results, and fate and transport computer modelling will be performed to determine the impact of any waste constituents on the various media.

II.B.2 Hydrogeological Characteristics of the Site

Address in more detail, the hydrogeological characteristics of the site.

Any additional information known concerning the hydrogeological characteristics of the site will be included in the revised permit application.

- II.B.2.a Identify the uppermost aquifer in the closest proximity to the facility and provide a description of it. Provide information describing the uppermost aquifer, as well as any lower aquifers that are hydraulically interconnected with the uppermost aquifer within the facility's property boundary. Include in the description, the type(s) of geologic material comprising the aquifer(s) (e.g., sand , gravel and limestone) and hydraulic properties (e.g., hydraulic conductivity, hydraulic gradient and effective porosity).**

Additional information concerning the soil types and aquifer characteristics will be included in the permit application. However, limited information is available concerning aquifer hydraulic properties and interconnections, and due to the safety considerations related to drilling operations within the AIA, it is uncertain whether such information can be obtained.

- II.B.2.b Provide the identification of soil types and the depth range of each from the ground surface to the aquifer beneath the facility (detailing the treatment units). Include site-specific geology and soils located under the treatment units in the geology and soils portions of the Note Process Section and the treatment units on the geology and soils maps (Figures D-1 and D-2).**

All available information concerning soil types and geologic features will be included in the permit application.

- II.B.2.c The topography section does not contain sufficient site specific information. Provide a brief description of the topography of the unit area, including the direction and degree of slope(s) and the maximum and minimum elevations of the unit area. Relate the topography of the unit area to the immediately surrounding area, including the identification of surface waters which may receive run-off from the unit.**

More site-specific topographic data will be included in the permit application.

II.B.3 Land Use Patterns in the Area

Discuss land use patterns in this section, particularly addressing the use of groundwater on the island.

Vieques Island is located approximately seven miles southeast of the U.S. Naval Station Roosevelt Roads, Puerto Rico. With a total surface area of roughly 33,000 acres, approximately 22,600 acres of Vieques Island are owned by the U.S. Navy. This is comprised of three areas: (1) the Naval Ammunition Facility (NAF), comprised of 8,000 acres and located on the westernmost tip of the island; (2) the Eastern Maneuver Area (EMA), comprised of 11,000 acres and located within the east-central portion of the island; and (3) the Atlantic Fleet Weapons Training Facility (AFWTF), comprised of 3,600 acres and located on the eastern portion of the island. EMA and AFWTF are collectively known as the Inner Range. Within the Inner Range, Atlantic Fleet surface ships, aircraft, and marine forces carry out training in all aspects of Naval gunfire support; air-to-ground ordnance delivery; air-to-surface mine delivery; amphibious landings; small arms, artillery, and tank fire; and combat engineering. The Active Impact Area (AIA) is located within the AFWTF; this impact range is primarily utilized for the above-described gunfire and ordnance delivery training activities. In addition, the AIA is used on a semiannual basis for the treatment of retrograde (unserviceable ordnance).

The west-central portion of the island is privately owned. Several small towns and villages are located within this area. Cattle grazing is the primary means of land use in this area. In addition, sections of the EMA, excluding the AIA, are leased to local ranchers for cattle grazing purposes.

Groundwater was discontinued as the drinking water supply for the civilian population of Vieques Island in 1979. Since then, water has been piped in from Puerto Rico to supply these inhabitants. However, Camp Garcia, which is located approximately 10 miles from the OB/OD units, presently utilizes groundwater wells as a source of drinking water.

II.B.4 Ground Water Flow Rate

The permit application indicates that AFWTF would not be able to collect meaningful groundwater monitoring data due to short duration of the OB/OD activities at the site, and that the installation of monitoring equipment at the active impact ranges may be damaged by ongoing target practice activities.

However, AFWTF must provide sufficient information, supporting data and analyses to establish a detection monitoring program which meets the requirements of 40 CFR 264.98. According to 40 CFR 264.98 and information provided in the application, groundwater should be analyzed for all constituents in 40 CFR Appendix IX as well as for military explosives not listed in the appendix.

40 CFR 264.98 is a subsection of "Subpart F — Releases From Solid Waste Management Unit" which is only applicable for SWMUs from which there are releases. However, there is no evidence yet of a release from these SWMUs. Therefore, 40 CFR 264.98 is not yet in effect.

- II.B.4.a Provide the necessary information to install an effective monitoring well network and to determine groundwater flow direction(s), including horizontal and vertical flow components in the water level monitoring program. Determine seasonal changes in flow direction(s).**

The groundwater issue is addressed in Item II.B.4.

II.B.5 Proximity to and Withdrawal Rates of Current and Potential Groundwater Users

Provide information on any groundwater withdrawal points within a 1,000-foot radius of the treatment unit. Show any such withdrawal points on the topographic map of the unit area. For each withdrawal point, provide information on pumping rate, depth of the screened interval of the well and water use (e.g., drinking, agricultural, industrial). This information will be useful in determining the need for and level of clean up in case of groundwater contamination.

No groundwater withdrawal points are located within a 1,000-foot radius of the treatment unit.

II.B.6 Groundwater Quality and all Possible Sources of Contamination

Provide any available information on the existing groundwater quality in the area of the unit. Include information on other potential sources of contamination (e.g., other solid waste management units) upgradient of the OB/OD area.

The entire impact area is a potential source of groundwater contamination. Due to the dangers inherent in groundwater monitoring in an impact range, no groundwater data is currently available.

II.B.7 Provide information on historic precipitation patterns in the area of the unit. Include, as a minimum, a tabular summary of average monthly precipitation amounts (using a minimum of five years of data), indicating the different forms of precipitation (e.g., rain).

This information is being compiled from National Weather Service data and will be included in the revised permit application.

II.B.8 Hydrological Characterization

The hydrological characteristics of the treatment units have not been addressed sufficiently to comply with 40 CFR 264.601(b)(3). Describe the surface drainage patterns in the area of the unit; and identify any streams, natural drainage basins, other surface water bodies and any storm water collection systems in the area that may be affected by the operation of the unit.

Surface water characteristics will be included in the revised permit application along with a compilation of appropriate NPDES information.

II.B.9 Proximity of the Unit to Surface Waters

Provide the proximity (measured distance) to all surface waters that will be potentially affected by the treatment units. Include the potential area of concern of all surface waters which may receive airborne contaminants from the unit.

Surface water information will be included in the revised permit application.

II.B.10 Water Quality Standards, Water Quality Data and Uses

Provide water quality standards for the coastal waters of Vieques. Provide a copy of the NPDES permit and recent analyses conducted by the Navy. For all surface water bodies identified in Comment II.B.9, include a summary of designated use classifications and associated Water Quality Criteria, if applicable. Describe used of the surface water (drinking, recreational, etc.). Also, provide available information on current water quality. Include (if available) storm water analyses, biological studies and sediment data. In addition, identify any other potential contaminant sources in the vicinity of the unit which may adversely impact surface water.

Water quality standards, NPDES information, and related surface water information will be incorporated into the revised permit application.

II.B.11 Potential for Migration Through Soil, Liners and Containing Structures

Discuss any potential waste constituent migration from the OB/OD units based on the Statistical Evaluation of Soils Concentrations results submitted by AFWTF. Describe the potential of migration through the soil based on the characteristics of the waste constituent of reaction product and the soil characteristics. Identify the contaminants of concern and provide an estimate of their migration rates.

This will be addressed as part of a risk assessment based existing data, DoD tests and fate and transport computer modelling.

II.B.12 Effectiveness and Reliability of Containing, Confining and Collecting Systems and Structures in Preventing Migration and Reducing Emissions

Present discussion about how the waste constituents in the OB and OD units are not expected to migrate to the soil, groundwater and air pathways. Specifically address design and operating criteria to prevent or minimize contamination.

The effectiveness of treatment is the primary factor in determining whether OB/OD waste products will migrate via the various pathways. Extensive studies have been conducted by DoD concerning effectiveness of both OB and OD technology and methods; these studies, which have been conducted under both laboratory and field conditions, indicate that surface OB and OD will produce and release acceptable levels of emittants to the environment. Further item-specific

testing is planned by DoD to further establish the validity of these treatment methods.

II.B.13 Potential for Deposition or Migration of Waste Constituents into Subsurface Physical Structures and into Root Zone of Food-chain Crops and Other Vegetation

Provide information describing the potential for deposition or migration of waste constituents or reaction products into subsurface physical structures and into the root zone of food-chain crops or other vegetation. Include a discussion of contaminant pathways and the location of physical structures, crops and vegetation with respect to the EOD Area. Additionally, note if any subsurface structures are known to exist at the site.

No food-chain crops are located within several miles of the facility. No man-made or natural subsurface physical structures are known to be located within several miles of the facility. The only vegetation within the AIA are rough grasses and shrubs; these materials are periodically cleared for target operations and range clearance.

II.C Air Quality Assessments

II.C.1 The permit application indicates that AFWTF would not be able to collect meaningful air monitoring data due to the short duration of the OB/OD activities at the site, and that the installation of monitoring equipment at the active impact ranges could pose complications because the device may be damaged by ongoing target practice activities.

An evaluation of the potential impacts of air emissions is important for OB/OD activities because it is the primary expected pollution pathway. The information presented in the text does not determine air quality in accordance with 40 CFR 264.601(c). In cases, such as OB/OD activities, where air emissions are difficult to monitor, emission and dispersion models may be a more accurate way of estimating the environmental impacts caused by the air emissions from the OB/OD unit. Revise the permit application to provide procedures to ensure that air quality will be protected from releases from the OB/OD areas.

DoD has conducted extensive study into airborne emissions from OB/OD activities. This information, as well as applicable dispersion models, will be utilized to provide estimated data concerning potential air quality impacts from the activities at this site.

II.C.2 Potential Impacts to Human Health

II.C.2.a As previously indicated, characterize all wastes and their volumes in the Waste Analysis Plan.

This information will be included in the revised permit application.

II.C.2.b Include the number of fabricated devices used in a burn event or number of detonation pits used in a detonation event.

A single pit is utilized for each open detonation event. The number of burning trays required will be determined when open burning activities are re-commenced. No burning activities have been conducted at the facility since the submission of the original Part B application.

II.C.2.c The number of OB/OD events that take place per day should be noted in this section of the permit application.

Open detonation activities occur on a semiannual basis; due to the time restraints in transporting materials to the OD facility, only one treatment event per day can be performed. In a similar manner, OB treatment events are limited to one per day.

II.C.2.d Air contaminants per propellants, explosives and pyrotechnics (PEPs) are provided. However, include tables of the types and quantities of indicating air contaminants per event and per year. Specify the name of the computer model used to calculate the contaminants emitted.

Since the time of the original permit application, the DoD has performed lab and field tests to determine the by-products of OB/OD treatment which supplement the computer modelling calculations performed.

II.C.2.e Provide a description of the release(s) which occur during the OB/OD treatment operation. Describe the release(s) in detail, including: the duration of the release, a description of the plume, the temperature of the reaction and the downwind concentration of any carcinogenic compounds.

Information from pertinent DoD studies as well as appropriate air modelling will be utilized to obtain or estimate this information.

II.C.2.f Compare the compounds emitted during a release with existing air pollution standards. Include these standards and a result of the comparison in the text. Reference the source of the standards.

Information from pertinent DoD studies as well as appropriate air modelling will be utilized to obtain or estimate this information. The data will be compared with pertinent federal and EQB standards.

II.C.3 Existing Air Quality (Toxic Pollutants) and Other Sources of Contamination

Provide information on other major sources of air emissions within five miles of the AFWTF air quality region, including the quantity, nature and frequency; and a modeling analysis or monitoring data showing the cumulative impacts on the ambient air quality.

The only other potentially major source of air emissions within five miles of the AFWTF AIA area are the ordnance training activities conducted at the site. No information is available concerning air emissions from these activities, in which ordnance is fired or dropped from offshore ships or aircraft. Since these training detonations are instantaneous events, the targets range over the entire AIA area, and target misses frequently occur, it would be difficult if not impossible to obtain pertinent data to compile cumulative air quality information.

II.C.4 Risk Analysis

II.C.4.a The information presented in the Part B application concerning the discharge of air contaminants has not been addressed sufficiently to determine if a risk assessment is warranted. Provide information concerning the estimated number of exposed individuals and the lifetime cancer risk from exposure to the reaction products from a burn or detonation. Compare the results to applicable standards and/or EPA health-based criteria. Provide all supporting data and calculations.

A risk assessment based on existing data, DoD tests, and fate and transport modelling will be performed to determine the effects of any potential air contamination. In addition, personnel are evacuated to a distance of approximately 1.8 miles prior to treatment; since the treatment processes are instantaneous events, it is not expected that any significant exposure would occur from these treatment activities due to airborne dispersion.

II.C.4.b No assessment relating to the impact to human health was included in the application. Provide estimates of exposed populations and individual excess lifetime cancer risks, along with routes of exposures (other than inhalation).

No personnel are located within 1.8 miles of the facility during the treatment operations; no civilian properties are located within approximately four miles of the treatment facility. Therefore, exposures to personnel or civilian populations is highly unlikely. However, the risk assessment will evaluate the likelihood of such exposures.

II.E Potential Pathways of Exposure and Potential Exposure Magnitude

II.E.1 Potential for the Public to be Exposed to Hazardous Wastes

Address the potential for the public to be exposed to hazardous waste (prior to treatment).

The AIA is located within a secured military facility. No civilian personnel are allowed within the unit, and the OB/OD facility is located such that there is a approximately eight miles to the nearest civilian activity. Ordnance is not classified as waste until the time when the decision is made to discard the waste. From this point, the waste is accumulated within secured Naval magazines on either Roosevelt Roads Naval Station or the Naval Ammunition Facility (NAF) on Vieques Island. Ground transportation occurs entirely within these installations. The waste is transported by sea from Roosevelt Roads to the NAF, and then from the NAF to the AIA. Therefore, it is unlikely that exposures to the public will occur prior to treatment. However, a risk assessment will be performed using existing data, DoD testing, and fate and transport modelling.

II.E.2 How Long the Waste will Remain in the Unit Before it is Detonated or Burned

Indicate the length of time the waste will remain in the treatment units prior to burning/detonation.

Waste is transported to the unit the day prior to treatment, where it remains for a maximum of 12 hours. On the day of treatment, it takes approximately four hours to place and prepare the ordnance and to evacuate personnel to a secure compound within the AIA for safety reasons.

II.E.3 How Waste Will be Ignited or Initiated

Provide a more detailed description of the burning/detonation processes. Reference the SOP.

The waste ordnance designated for detonation is initiated by a non-electric explosive firing train. Upon placement in the pit, high explosives (HE) are placed in direct contact with the waste ordnance in order to maintain explosive continuity. The HE is tied in with primacord to a single initiation point. Two lengths of time fuse, cut to provide a 15-minute safe separation time, are capped with non-electric caps. The capped time fuse is connected to the primacord. Two M-60 fuse igniters are used to initiate the time fuse. The M-60s are pulled, initiating the 15-minute delay. As the time fuse burns down to the non-electric cap, the cap initiates and detonates the primacord. The primacord detonates the HE, which then detonates the waste ordnance.

This OD description will be included in the revised permit application, as will the SOP. A description of the open burning procedure will also be included in the revised permit application.

II.E.4 Expected Time to Complete Burning

Provide expected burning completion time in the permit application.

Based upon data from other facilities and DoD testing, burns range in duration from a few seconds to five minutes, depending upon the type of propellant/materials burned and whether a supplemental fuel is utilized to facilitate the burn. At this time, the use of supplemental fuels is not anticipated for any future open burning activities.

II.E.5 Protection or Shelter for Personnel During Burning or Detonation

Include a description of the protective shelter.

No protective shelters are located at the OB/OD units. All personnel evacuate to OP-1, located approximately 1.8 miles away from the OD area, prior to initiation of treatment.

II.E.6 Meteorological Conditions Under Which Burning or Detonation will be Permitted or Restricted

Although the text indicates that treatment will not take place under adverse conditions, it does not specifically indicate conditions under which it will be restricted. Describe meteorological conditions under which burning or detonation will be permitted or restricted.

OB/OD operations are suspended if there is an electrical storm within 10 miles. The local weather service is contacted for any radar activity. OP-1 also provides visual confirmation of a storm approaching outside the 10-mile radius. A torrential rain storm may also suspend OD operations if the EOD supervisor determines that visibility or ordnance handling is affected. OB activities will be suspended in the event weather advisories indicate impending rain.

II.E.7 Length of Time After Operation of the Unit Before Re-entry of Personnel to the Burning Ground or Detonation Site is Allowed

Indicate the length of time before personnel are permitted to enter the treatment areas after a burn or detonation has occurred.

EOD personnel re-enter the area no earlier than 30 minutes following a detonation. The 30-minute waiting period is also utilized prior to re-entering the area following a misfire. After the waiting period has elapsed, two EOD personnel enter to detonation area to apply a second detonation charge. Personnel do not enter the area following a burn for 24 hours following completion of the burning event.

II.E.8 Management of Residues

Indicate how long after the burning process the residues and/or ash will be collected and analyzed. Describe what is done with the residue after the detonation process.

The only residues remaining following a detonation are scattered metal fragments of ordnance casings. Due to the nature of the ordnance and the reactive materials therein, no appreciable reactive residues remain. As the impact range itself is strewn with ordnance casings and related metal fragments, it is not feasible to attempt to remove such items immediately following treatment.

Following an OB event, it is anticipated that personnel will re-enter the unit and collect ash and residue as soon as entry can be safely allowed. DoD policy forbids entry until at least 24 hours following a burn.

II.F Noise Considerations

II.F.1 Distance of the Open Burning Unit or Area From Off-Plant Inhabited Building

Provide a topographic or land use map showing the location of buildings within two miles of the OB/OD area and identify the use of each building.

A land use map is being incorporated into the permit application.

II.F.2 Wind Direction

Provide wind speed and direction information for the OB/OD area, gathered on-site or from representative sites near the facility. Clearly identify the location of the sites from which data are obtained by including a map showing the relationship of the sites to the facility.

Wind speed and direction information are collected in conjunction with normal training operations. This information is being compiled and will be included in the permit application. The prevailing winds are from the southeast at approximately 3 to 8 miles per hour.

II.F.3 Ground Vibration

Provide information on the method for determining the ground vibration from each detonation and the maximum ground vibration predicted for each detonation.

While detonation activities create minor ground vibrations in the immediate area of the OD area, no means of measuring this phenomenon is in use. Since no habitations or structures are located in the vicinity of the facility, ground vibration measurements do not appear warranted. Therefore, AFWTF requests further clarification as to the need for such information.

II.F.4 Manner of Placing the Waste in the Unit

Provide information concerning the handling of explosive materials before a detonation occurs, including the handling of the materials and their placement in the unit where the detonation will be carried out.

All handling of ordnance, including ordnance designated as unserviceable, is conducted in accordance with OP-5, the ordnance-specific 60 series publications, and specific technical and field manuals. All waste ordnance is placed in the earth pit by hand, and is stacked to maintain explosive continuity. All transportation of ordnance is in accordance with the *Explosives Drivers Handbook*. EOD personnel and qualified Weapons Department personnel conduct all handling of waste explosives while on the impact range, including preparation of excavations or burning trays, placement of ordnance, and ignition/detonation. Appropriate information from the above sources will be included in the revised permit application.

II.F.5 Use of Supplemental Fuels, Type, Amount and Manner of Placing Them in the Waste

Provide information concerning any supplemental fuels to be included with the detonation materials to provide for the detonation, including the fuel type, amount and handling procedures.

For open detonation activities, certified high explosives (C-4, HBX) are utilized to counter-charge the waste ordnance. Since all waste ordnance has high explosive properties, the important rule in placing the HE next to the waste ordnance is to maintain contact. The HE used is very insensitive to heat, shock, or friction, and is therefore extremely safe in handling. The amount used varies, but the combined total weight of waste ordnance and HE does not exceed 5,000 pounds.

Although the HE is utilized as a supplemental material in open detonation operations, it is not technically a "fuel," but rather an initiating mechanism. As a consequence, no supplemental fuels are utilized for detonation operations.

It is not anticipated that supplemental fuels will be used for any future OB operations.

II.F.6 Minimum Protective Distances

Propose a minimum protective distance to provide for protection of human health and the environment from each detonation.

DoD policy and the facility SOP specify a 5,000-foot minimum protective distance to prevent hazards to personnel. All personnel withdraw to OP-1, located approximately 1.8 miles from the OB/OD area.

II.G Effectiveness of the Treatment

Provide a report on a demonstration of the effectiveness of the treatment (OB/OD) based on laboratory or field data for the EOD Area (CFR 270.23(d)). Address the issue in the permit application.

The Department of Defense has performed extensive studies into the effectiveness of open detonation in terms of effectiveness and impact upon human health and the environment. The most recent has been performed by the U.S. Army Armament, Munitions and Chemical Command under both laboratory and field conditions. The final reports, including all conclusions and recommendations, of this testing program will be included in the revised permit application, and will therefore not be repeated in this section. However, the report suggests that the bulk explosives and propellants examined during the field testing will produce and release acceptable levels of emittants to the environment by surface OB/OD methods. However, further item- and site-specific testing is needed to provide data to support risk assessments. Only after these risk assessments are completed can a definitive statement be made concerning the effect (if any) OB/OD operation may have on human health and the environment. However, based upon the testing performed so far, OB/OD thermal treatment operations appear to be an environmentally safe, as well as cost effective, means of treatment. Although further testing is required, OB/OD should continue to be used as an integral part of a balanced DoD total demilitarization/treatment program.

In addition, soil samples taken at this facility in 1990 indicate little or no traces of ordnance-related materials remaining at the site.