Final

ENVIRONMENTAL ASSESSMENT

Biodiesel Expansion Project
Naval Base Ventura County
Port Hueneme, California

January 2015

Acronyms and Abbreviations

°F	degrees Fahrenheit
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
ATC	Authority to Construct
B20	20% biodiesel, 80% petroleum diesel
B100	100% biodiesel
BACT	Best Available Control Technology
Biodico	Biodico, Inc.
BMP	Best Management Practice
Btu	British thermal units
CAA	Clean Air Act
CAAQS	California Ambient air Quality Standards
CARB	California Air Resources Board
CEC	California Energy Commission
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	methane
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRADA	Cooperative Research and Development Agreement
CWA	Clean Water Act
dB	decibels
DoD	Department of Defense
DOE	United States Department of Energy
EA	Environmental Assessment
EO	Executive Order
EPAct	Energy Policy Act
ESC (now EXWC)	Engineering Service Center
EXWC	Engineering and Expeditionary Warfare Center
FONSI	Finding of No Significant Impact
ft	foot/feet
GHGs	greenhouse gases
GWP	global warming potential
H_2	hydrogen gas
HAPs	hazardous air pollutants
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
kW	kilowatt
LID	Low Impact Development
LOS	Level of Service
methylate	sodium methylate
mg/m^3	milligrams per cubic meter
NAAQS	National Ambient Air Quality Standards
Navy	United States Department of the Navy
NAVFAC	Naval Facilities Engineering Command
NBVC	Naval Base Ventura County
NEPA	National Environmental Policy Act
NETTS	National Environmental Technology Test Site
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
N_2O	nitrous oxide
NO_X	nitrogen oxide
NOA	Notice of Availability
NRSW	Navy Region Southwest
O_3	ozone
Pb	lead
PCB	polychlorinated biphenyl
$PM_{2.5}$	particulate matter smaller than 2.5 microns in diameter
PM_{10}	particulate matter between 2.5 and 10 microns in diameter
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTO	Permit to Operate
R&D	research and development
RCRA	Resource Conservation and Recovery Act
RONA	Record of Non-Applicability
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur dioxide
SOP	standard operating procedure
SSW	Sustainable Solid Waste
SWEF	Surface Warfare Engineering Facility
SWMU	Solid Waste Management Unit
TRI	Toxics Release Inventory
U.S.	United States
USC	United States Code
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VCAPCD	Ventura County Air Pollution Control District
VOCs	volatile organic compounds
VRS	vapor recovery system
VRU	vapor recovery unit
VTC	virtual test capability
µg/m	micrograms per cubic meter

FINAL

ENVIRONMENTAL ASSESSMENT

Lead Agency for the EA:	U.S. Department of the Navy
Action Proponent:	Naval Facilities Engineering and Expeditionary Warfare Center
Title of Proposed Action:	Biodiesel Expansion Project at Naval Base Ventura County Port Hueneme, California
Designation:	Environmental Assessment

Abstract

The United States Department of the Navy (Navy) has prepared this Environmental Assessment (EA) in accordance with the 1969 National Environmental Policy Act (NEPA) (42 United States Code § 4321, as amended), the Council on Environmental Quality Regulations for Implementing NEPA (40 Code of Federal Regulations Parts 1500-1508), the Chief of Naval Operations *Environmental Readiness Program Manual* (OPNAV M-5090.1, 10 January 2014), and *Navy Guidance for Compliance with the Clean Air Act General Conformity Rule* (30 July 2013).

The EA addresses the Biodiesel Expansion Project at the National Environmental Technology Test Site (NETTS) on Naval Base Ventura County (NBVC) Port Hueneme. The proposed action would expand the previously analyzed and permitted pilot biodiesel demonstration and validation facility to produce up to 30,000 gallons of biodiesel per day with an annual limit of 10 million gallons for research and development purposes. This EA evaluates the environmental effects of alternatives including the preferred alternative (Alternative 2), the no-action alternative, and a reasonable action alternative (Alternative 1).

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EXECUTIVE SUMMARY

This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code [USC] § 4321, as amended); regulations implemented by the Council on Environmental Quality (CEQ; Title 40 Code of Federal Regulations [CFR] Parts 1500-1508); Navy Procedures for Implementing NEPA (32 CFR Part 775); the Chief of Naval Operations *Environmental Readiness Program Manual* (OPNAV M-5090.1, 10 January 2014); and *Navy Guidance for Compliance with the Clean Air Act General Conformity Rule* (30 July 2013).

The United States (U.S.) Department of the Navy (Navy) proposes to expand the previously analyzed and permitted pilot biodiesel demonstration and validation facility at Naval Base Ventura County (NBVC) Port Hueneme to allow for the production of up to 30,000 gallons of biodiesel (B100) per day, with an annual limit of 10 million gallons, while simultaneously reducing waste from the production process for research and development (R&D) purposes. The proposed project is located at the National Environmental Technology Test Site (NETTS) on NBVC Port Hueneme. Implementation would begin in Fiscal Year 2015.

This EA evaluates the environmental effects of alternatives including the preferred alternative (Alternative 2), the no-action alternative, and a reasonable action alternative (Alternative 1).

PURPOSE AND NEED FOR THE PROPOSED ACTION

Under the authority of the Federal Technology Transfer Act of 1986, as amended, Naval Facilities Engineering Command (NAVFAC) Engineering and Expeditionary Warfare Center (EXWC), formerly NAVFAC Engineering Service Center (ESC), and Biodico, Inc. (Biodico) entered into a Cooperative Research and Development Agreement (CRADA). The objective of the agreement is to optimize the operation of sustainable bio-refineries at Department of Defense (DoD) facilities that produce renewable petroleum-diesel-equivalent liquid fuel(s) (e.g., biodiesel), bio-based products, and energy. The purpose of the proposed action is to fulfill the goals and commitments in the current (October 2012) CRADA by demonstrating the maximum capacity of the pilot project equipment (10 million gallons per year) for R&D purposes while minimizing waste, encouraging the reuse of waste, and minimizing the impact to the environment.

The proposed action is needed to support the Navy's long-term goals for energy production and usage and greenhouse gas management. These goals have been set by Executive Orders (EOs), legislative acts, the U.S. Environmental Protection Agency (USEPA), the DoD, and the Navy. These energy goals seek to increase the efficiency of energy production, delivery and usage, and in particular, to reduce greenhouse gas emissions from 2008 levels by 50% and obtain 50% of all energy consumed from alternative sources, by 2020. The proposed action would test and validate technologies with applications to Navy installations and field operations in meeting these goals.

PROPOSED ACTION

The proposed action is to expand the pilot project to allow for the production of up to 30,000 gallons of B100 per day with an annual limit of 10 million gallons for R&D purposes. The facility would be made of modular, portable infrastructure to produce and distribute reliable and clean energy (i.e., biodiesel, electricity, and heat). Once produced, B100 would be transported off-base by truck and sold to one or more licensed petroleum distributors, primarily within Ventura County, for blending with petroleum diesel to create biodiesel/petroleum diesel blends typically containing 20% biodiesel (B20). Excess electricity would be provided to the Navy and/or fed back into the grid via an existing electrical connection. Renewable heat generated onsite would be used during the biodiesel production process, and

the need for a boiler unit would be eliminated (under Alternative 2 [the preferred alternative]) or reduced (under Alternative 1).

Major new components of the proposed action include expanded use of solar technology as well as the installation of algae tanks that would be used to research the production of brine shrimp for use as feedstock. The preferred alternative (Alternative 2) also includes the use of anaerobic digesters and a gasifier. If implemented, the current facility's total footprint of 0.46 acre would be expanded to a total of approximately 1.02 acres. The expanded facility would increase capacity for R&D purposes, reduce waste streams, create some feedstocks onsite, provide excess electricity to the Navy and/or the grid, and virtually eliminate waste from the production process.

Project construction would require approximately 12 months, beginning as soon as all required review and authorizations are completed. It is expected that operations would commence during fiscal year 2016 and would continue indefinitely thereafter, subject to the terms of an updated CRADA.

ALTERNATIVES

The consideration of viable action alternatives focused on means to achieve the purpose and need. Two action alternatives were identified: Alternative 2, the preferred alternative, which would virtually eliminate waste while producing heat and electricity onsite by using anaerobic digesters and a gasifier; and Alternative 1, which would not include the anaerobic digesters and the gasifier and would instead employ more traditional biodiesel production methods (e.g., use of off-base generated electricity). Both action alternatives include expanding use of solar technology, algae tanks to grow brine shrimp as feedstock onsite, expanding the existing project by 0.56 acre to a total of 1.02 acres, and increasing capacity to produce up to 10 million gallons of biodiesel per year for R&D purposes.

NO-ACTION ALTERNATIVE

Under the no-action alternative, the proposed expansion of the pilot project at NBVC Port Hueneme would not occur and biodiesel production would be limited to the previously approved 370,000 gallons or less of B100 per year. The proposed solar technology, algae tanks, anaerobic digesters, and gasifier would not be constructed. The consequences of the no-action alternative would be to prevent the expansion of the pilot project at NBVC Port Hueneme and would not fulfill the goals and commitments in the current CRADA. This would slow the development of alternative energy sources and hinder the attainment of various energy production and usage goals set by legislative acts, EOs, and agencies like the USEPA, the DoD, and the Navy. Although this would not meet the purpose and need for the proposed action, the no-action alternative is carried forward for analysis in this EA as required by NEPA and CEQ regulations as a baseline against which the impacts of the proposed action are compared.

PUBLIC INVOLVEMENT AND AGENCY CORRESPONDENCE

Public involvement included a 15-day public comment period for the Draft EA that ended on 29 October 2014. Letters were mailed to interested parties in the community, local government agencies, and other stakeholders announcing the availability of the Draft EA for review and comment. A Notice of Availability (NOA) was published in the Ventura County Star Newspaper for three consecutive days for the Draft EA (11, 12, 13 Oct. 2014) and for the Final EA and FONSI (ADD DATES), and both were made available electronically via the Navy Region Southwest (NRSW) website. The Draft EA was also made available in hard copy at Oxnard Public Library, Santa Barbara Public Library, E.P. Foster Library, and Ray D. Preuter Library. Five comments were received from the City of Oxnard during the public review of the Draft EA, primarily concerned with the perceived use of brown grease. Negligible

quantities of brown grease may be added to the anaerobic digesters for testing purposes. The comments and responses are provided in Appendix B and incorporated into the Final EA.

ENVIRONMENTAL CONSEQUENCES

Impacts to the following resources were determined negligible on the basis of initial review and are not carried forward for detailed analysis in the EA: geological resources, cultural resources, socioeconomics and environmental justice, agricultural resources, mineral resources, public services, and recreation (see Section 1.3). Correspondence between the Navy and State Historic Preservation Officer concerning cultural resources is provided in Appendix B. Resources analyzed in this EA include: air quality, land use, water resources, biological resources, visual resources, health and safety, transportation and circulation, noise, and utilities. Table ES-1 summarizes determinations of environmental impacts and mitigation measures. Chapter 3 provides a detailed discussion of the environmental consequences. As described in Table ES-1, implementation of the proposed action would not result in significant impacts to any resource area.

Table ES-1. Summary of Environmental Consequences of Alternatives and Mitigation Measures

Resource Area	*Alternative 1*	*Alternative 2 (Preferred Alternative)*	*No-Action Alternative*
Air Quality	Construction activities would be short-term in nature and would not exceed the Ventura County Air Pollution Control District (VCAPCD) threshold of 25 pounds/day for volatile organic compounds (VOCs) or nitrogen oxide (NO_X), would not exceed the Prevention of Significant Deterioration (PSD)/*de minimis* thresholds, and would not result in an adverse air quality impact. Operations would marginally increase stationary and direct mobile source emissions, but would substantially reduce indirect mobile source emissions due to the expected use of B20 instead of petroleum diesel. The net result is a decrease in emissions for all criteria pollutants except NO_X and sulfur dioxide (SO_2), which would be increased by a negligible amount and would be well below the de minimis threshold. The Navy has prepared a Record of Non-Applicability (RONA) for Clean Air Act conformity (Appendix A of this EA). No nuisance odors or health effects from the emissions of hazardous air pollutants would be anticipated because project activities occur in relatively isolated areas where there are no sensitive receptors (i.e., residents, schools, hospitals, etc.). Therefore, implementation of Alternative 1 would not result in significant impacts to air quality.	The anaerobic digesters and the gasifier are expected to eliminate the need for the distillation unit, the boiler, or electricity generated off-base. Emissions associated with combusting renewable biogas and syngas generated by the anaerobic digesters and gasifier, respectively, would be on same order of magnitude as for the boiler under Alternative 1. Emissions associated with mobile sources (both direct and indirect), as well as the VOC emissions associated with the biodiesel production process, would be the same those for Alternative 1. As such, impacts associated with construction and operational activities under Alternative 2 would be similar to or less than those for Alternative 1.Therefore, no significant air quality impacts are anticipated under Alternative 2.	Construction and operational emissions, as well as beneficial impacts, would be less than those for either action alternative and would not result in significant impacts to air quality.
	Mitigation Measures: • Applicable materials and chemical processes would be fully contained, and gaseous hydrocarbons would be captured, not vented to the air.		
Land Use	Alternative 1 would expand the pilot project's footprint by 0.56 acre. This area has been previously paved and is adjacent to a cement-covered area that has been developed for the pilot project. Industrial production activities associated with the biodiesel production process would be consistent with other activities conducted at these locations. Alternative 1 would be consistent with applicable land use policies and would be compatible with adjacent land uses. Furthermore, the site is suitable for biodiesel production and Naval Base Ventura County (NBVC) Port Hueneme is interested in such development. Therefore, implementation of Alternative 1 would not result in significant impacts to land use.	Impacts to land use from Alternative 2 would be the same as those from Alternative 1 and would not be significant.	No changes in land use are associated with the no-action alternative.

Water Resources	Stormwater runoff from the project area and surrounding site collects in an adjacent retention pond which discharges to drainage channels, the Port of Hueneme, and the Pacific Ocean. Neither groundwater nor existing drainage patterns would be affected by the implementation of Alternative 1. Stormwater would be managed onsite and the project is not located within a 100-year floodplain. Some of the gray water byproduct from biodiesel production would be re-used onsite in the algae tanks; the remainder would be disposed through the sewer system or sold as co-product. Therefore, the implementation of Alternative 1 would not result in significant impacts to water resources.	Impacts to water resources from Alternative 2 would be the same as those from Alternative 1, except that more of the glycerin and gray water byproducts from biodiesel production would be re-used onsite in the anaerobic digesters, thereby reducing the amount disposed through the sewer system. As such, impacts to water resources from Alternative 2 would not be significant.	Impacts to water resources from the no-action alternative would be essentially the same as Alternative 1 but with less gray water disposal to the sewer system.
	Mitigation Measures: • Any spills that occur would be contained by the existing asphalt pavement, concrete containment pad, 8” berm, and predetermined safety protocols (see Section 3.6); • Low Impact Development (LID) requirements to reduce impacts to water resources would be followed as applicable; and • Stormwater best management practices (e.g., straw wattles, sand bags) would be implemented during any ground-disturbing construction activities.		
Biological Resources	The proposed project would be located on existing asphalt and concrete containment pads. No vegetation or wildlife, including special status species, are found within or immediately adjacent to the proposed project area. Since the algae proposed for use are locally occurring and were collected in water from the nearby harbor, and since the brine shrimp are native in hypersaline environments, neither poses a risk of introduction/invasion and spread locally. Therefore, implementation of Alternative 1 would not result in significant impacts to biological resources.	Impacts to biological resources from Alternative 2 would be the same as those from Alternative 1 and would not be significant.	Impacts to biological resources associated with the no-action alternative would be the same as for either action alternative and would not be significant.
	Mitigation Measures: Mitigation measures for biological resources would be the same as those for air quality and water resources and would also include: • Review by NBVC of any plant or animal species proposed for use to ensure compliance with Executive Order (EO) 13122 (Invasive Species).		
Visual Resources	Alternative 1 would be located at the pilot project within an industrial area, would be visually consistent with existing facilities in the project area, and would not create a new source of light or glare. No scenic vistas, natural areas, or other resources would be impacted. Furthermore, Alternative 1 would not be visible to viewers off-base. Therefore, no impacts to visual resources would occur as a result of implementation of Alternative 1.	Impacts to visual resources from Alternative 2 would be the same as those from Alternative 1, i.e. no impact.	Impacts to visual resources associated with the no-action alternative would be the same as for either action alternative, i.e. no impact.

Health and Safety	Hazardous materials associated with the production of biodiesel would be used and stored at the project location. All hazardous materials would be stored inside a protective berm or in drums on self-contained pallets and in double-walled tanks to prevent the spread of materials in the event of a spill. Transportation, handling, storage, and disposal of any hazardous material would be in compliance with all applicable laws and regulations. No increase in human health risk or environmental exposure to hazardous materials or hazardous wastes would occur. Therefore, implementation of Alternative 1 would not have a significant impact to health and safety.	Impacts to health and safety from Alternative 2 would be the same as those from Alternative 1, although non-hazardous waste would be reduced because all by-products under Alternative 1 would be used, sold, or provided as co-products. Therefore, the implementation of Alternative 2 would not result in significant impacts to health and safety.	Compared to Alternative 1 or Alternative 2, the no-action alternative would have a much smaller volume of feedstock, hazardous materials, and biodiesel received, stored, processed, and transported from the project site, and would not have a significant impact to health and safety.
	Mitigation Measures: Mitigation measures for health and safety would be the same as those for air quality and water resources and would also include: • Implemented safety procedures consistent with the *Hazardous Waste Management Plan* (NBVC 2010), NBVC Instruction 5090.7B *Hazardous Material Management Plan* (NBVC 2013), and the *Oil and Hazardous Substance Integrated Contingency Plan* (also known as "The Red Plan") (NBVC 2012a); and • Use of personal protective equipment by construction workers during excavation in the northern portion of the proposed project area to minimize potential exposure to subsurface soil or groundwater that may contain elevated concentrations of metals (e.g., hexavalent chromium).		
Transportation and Circulation	The attainment of maximum production capacity under Alternative 1 would require up to 20 truck trips per day (up to 7,000 per year) to transport raw materials to and products from the project site. These trips would occur throughout the day, averaging 2 trucks per hour, and would not be concentrated during morning peak hours. This would cause a negligible increase in traffic around NBVC Port Hueneme and in the region but would appreciably increase (by approximately 20%) the number of trucks entering via the Victoria Avenue gate on weekdays. EXWC and Biodico would coordinate with NBVC Force Protection to ensure that project-related traffic does not contribute to back-ups at the Victoria Gate. A marginal reduction in regional traffic would also occur as the increased production of biodiesel in Ventura would reduce the need to import petroleum diesel from Long Beach and because the use of onsite yellow grease (used cooking oil) would reduce the need to transport the oil from Ventura to Los Angeles for processing. Therefore, no significant impacts to transportation and circulation would occur as a result of implementation of Alternative 1.	Impacts to transportation and circulation from Alternative 2 would be the same as those from Alternative 1 and would not be significant.	The no-action Alternative would require up to six truck trips per day (up to 2,100 per year) and would otherwise be similar to, but less than, the truck trips associated with the proposed action. Current activities involve two feedstock collection truck (1,000-3,000 gallons) trips per day with additional truck (6,500 gallons) trips less than once per month. As such, implementation of the no-action alternative would not result in significant impacts to transportation and circulation.
	Mitigation Measures: • EXWC and Biodico will coordinate with NBVC Force Protection to ensure that project-related traffic does not contribute to back-ups at the Victoria Gate.		

Noise	Noise from the machinery would be minimal, would not cause groundborne vibrations, would be consistent with the surrounding noise environment, and would not substantially change temporary or permanent ambient noise levels or exceed 65 decibels (dB) Community Noise Level Equivalent (CNEL). Therefore, implementation of Alternative 1 would not result in significant impacts to noise.	Impacts to noise from Alternative 2 would be the same as those from Alternative 1 and would not be significant.	The no-action alternative would generate lesser construction and operational noise than either action alternative; noise impacts would not be significant.
Utilities	If a fixed fire suppression system is used, one new electrical connection will be added at the northeastern end of the existing concrete containment pad and one new water connection will be added at the southeastern end of the existing concrete containment pad. A relatively small amount of excess electricity could intermittently be provided to the Navy and/or fed back into the grid via an existing junction box at the site, thereby offsetting the Navy's electricity bill. No new natural gas, sanitary sewer, stormwater, wastewater, or communications connections would be required, use of the existing connections would not be substantially altered, and no new water supply would be needed. Maximum potable water consumption under Alternative 1 would be a negligible portion of NBVC Port Hueneme's total annual water use, and would not result in a significant impact. Some of the glycerin and gray water created during the biodiesel production process would be re-used onsite in algae tanks; the remainder would be disposed through the sewer system or sold as co-product. The proposed project would not affect NBVC recycling programs and would generate only a small amount of non-hazardous solid waste. EXWC and Biodico will coordinate with NBVC, the Navy Region Southwest (NRSW) Sustainable Solid Waste (SSW) Program, and the Ventura County Environmental Health Division as needed. Therefore, with implementation of the procedures discussed above, no significant impacts to existing utilities infrastructure would occur.	Impacts to utilities from Alternative 2 would be the similar to but less than those for Alternative 1 as all solid waste would be reprocessed onsite in the gasifier or anaerobic digesters and a relatively small amount of excess electricity would be provided to the Navy and/or fed back into the grid via an existing junction box at the site, thereby offsetting the Navy's electricity bill. The digesters and gasifier would generate a very small quantity of non-hazardous waste, most of which would be recycled through biological processes in the algae tanks; the remainder would be sold as a co-product or disposed of in a landfill in accordance with standard base operations and in compliance with all applicable regulations and permits. Compared to Alternative 1, more glycerin and gray water co-product would be used on site in the anaerobic digesters, thereby reducing the amount disposed through the sewer system. Therefore, with implementation of the procedures discussed above, no significant impacts to existing utilities infrastructure would occur.	Although excess electricity would not be produced, impacts to utilities associated with the no-action alternative would generally be similar to those associated with the proposed action and would therefore not be significant.

Cultural Resources	There would be no historic properties affected and no significant impact to cultural resources.	As for Alternative 1, there would be no historic properties affected and no significant impact to cultural resources.	As for either action alternative, there would be no historic properties affected and no significant impact to cultural resources.
	Mitigation Measures: • All trenching and grading activities will be monitored by a qualified archaeologist. In the event previously unknown archaeological deposits are encountered, work will stop in that area until the deposits can be evaluated.		

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ENVIRONMENTAL ASSESSMENT

BIODIESEL EXPANSION PROJECT AT NAVAL BASE VENTURA COUNTY PORT HUENEME, CALIFORNIA

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CHAPTER 1
INTRODUCTION

The United States (U.S.) Department of the Navy (Navy) prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) of 1969 and other applicable laws. It presents the analysis of potential environmental impacts pertaining to implementing the proposed Biodiesel Expansion Project at Naval Base Ventura County (NBVC), Port Hueneme, California.

1.1 BACKGROUND

1.1.1 Project Location

The proposed location of the project is at the National Environmental Technology Test Site (NETTS) onboard NBVC Port Hueneme, which is located within the City of Port Hueneme in coastal Ventura County, California (Figure 1-1). The City of Port Hueneme is bordered by the City of Oxnard to the east and north and by Channel Islands Harbor to the west. Silver Strand Beach and the Pacific Ocean border the southern portion of NBVC Port Hueneme.

1.1.2 Biodiesel

Biodiesel is a form of diesel made from renewable resources (typically animal and plant matter, especially plant-based oils) instead of non-renewable petroleum. Biodiesel and similar bio-fuels are growing in importance as energy sources as they are renewable and have a smaller impact on global climate change compared to petroleum-based fuels. Biodiesel can be mixed, or "blended," with petroleum diesel and has been shown to have fewer air emissions compared to that of 100% petroleum diesel, even when biodiesel accounts for 20% or less of the blend.

1.1.3 Cooperative Research and Development Agreement (CRADA) Between NAVFAC EXWC and Biodico, Inc.

The U.S. Federal Technology Transfer Act of 1986 (Public Law 99-502, 20 October 1986, as amended), provides for making the expertise, capabilities, and technologies of U.S. Federal laboratories accessible to other Federal agencies; units of State or local government; industrial organizations (including corporations, partnerships and limited partnerships, and industrial development organizations); public and private foundations; nonprofit organizations (including universities); or other persons in order to improve the economic, environmental, and social well-being of the U.S. by stimulating utilization of U.S. federally funded technology developments and/or capabilities. This can be done through a Cooperative Research and Development Agreement (CRADA).

Naval Facilities Engineering Command (NAVFAC) Engineering and Expeditionary Warfare Center (EXWC), formerly NAVFAC Engineering Service Center (ESC), has extensive expertise, capabilities, and information in bio-based products. NAVFAC EXWC has laboratory facilities capable of performing a large range of research tests and can confirm if a biofuel meets industrial specifications (i.e. American Society for Testing and Materials [ASTM] International standards). NAVFAC EXWC also has extensive experience with evaluating air pollution emissions on Department of Defense (DoD) vehicles and generators operating on biofuels. In accordance with the U.S. Federal Technology Transfer Act of 1986, as amended, NAVFAC EXWC desires to make this expertise in bio-based products and technology available for use in the public and private sectors.

Figure 1-1
Proposed Project Location
at NBVC Port Hueneme

Biodico, Inc. (Biodico) has the interest, resources, capabilities, and technical expertise to transition the results of Naval research and development (R&D) for public use. Biodico has extensive experience with designing, building and operating biofuel and bioenergy facilities, conducting feasibility studies, environmental and sustainability assessments, and with the legal and regulatory requirements in this field.

Therefore, under the authority of the Federal Technology Transfer Act of 1986, as amended, NAVFAC EXWC and Biodico entered into a CRADA. The CRADA has been revised and renewed multiple times, most recently in October 2012. The objective of the agreement is to optimize the operation of sustainable bio-refineries at DoD facilities that produce renewable petroleum-diesel-equivalent liquid fuel(s) (e.g., biodiesel), bio-based products, and energy to allow production at the lowest possible cost. NAVFAC EXWC and Biodico have partnered in the development of a pilot project on the NETTS (Section 1.1.4); the proposed action has been jointly conceived to incorporate new technology that will benefit the Navy by reducing waste streams, reducing dependence on petroleum-based fuel, and improving energy supply security. NAVFAC EXWC is the action proponent and is the manager of the project site. The proposed action is funded by grants obtained by Biodico with NAVFAC EXWC as a partner.

1.1.4 Prior National Environmental Policy Act (NEPA) Analysis

Environmental impacts from the construction and operation of a biodiesel production, demonstration and validation facility, hereinafter referred to as the pilot project, at NBVC Port Hueneme were previously analyzed in an EA in 2003 (Navy 2003a). The purpose of the proposed action was to establish a center of excellence for research, development, testing, and evaluation (RDT&E) for all facets of the biodiesel production process, establish a pilot project and supporting infrastructure to produce and distribute biodiesel, verify the sustainability of the process, and demonstrate petroleum diesel emissions reduction when blended with biodiesel. Under an earlier CRADA between Biodico and the Navy, Biodico was to construct and operate the pilot project to demonstrate that locally collected feedstocks (primarily yellow grease [used restaurant cooking oil]) could be used to produce biodiesel. Although the pilot project design was capable of producing up to 10 million gallons of biodiesel per year, operations analyzed in the EA were limited to the production of 38,000 gallons of 100% biodiesel fuel (B100) in the first year, 370,000 gallons in the second year, and 250,000 gallons in the third, fourth, and fifth years, and no operations were analyzed after the fifth year. Once produced, B100 would be transported off-base by truck and sold to one or more licensed petroleum distributors, primarily within Ventura County, for blending with petroleum diesel to create biodiesel/petroleum diesel blends typically containing 20% biodiesel (B20). The Final EA identified no significant impacts and a Finding of No Significant Impact (FONSI) was signed in July 2003 (Navy 2003b).

1.1.5 Status of the Pilot Project

In 2011, the Ventura County Air Pollution Control District (VCAPCD) granted Biodico the Authority to Construct (ATC) for the project as proposed in 2003 (Appendix C). The pilot project was constructed and limited amounts of biodiesel were produced and tested from a variety of feedstocks; however, the facility did not proceed to the maximum operational production of biodiesel as described above and in the EA, and it now functions as a laboratory for testing alternative feedstocks. Current activities involve two feedstock collection truck (1,000-3,000 gallons) trips per day with additional truck (6,500 gallons) trips less than once per month; no biodiesel is currently produced at NBVC. As described in the ATC (Appendix C), Biodico must obtain a Permit to Operate (PTO) from the VCAPCD before production of biodiesel for sale can begin. Equipment and infrastructure onsite includes a concrete containment pad, an operator's room, a reactant mixing tank, two reactor tanks, a solar thermal heating system, two biodiesel storage tanks, secondary biodiesel containment, two laboratories (i.e., trailers), and a greenhouse that

contains tanks used to grow algae and brine shrimp (Figure 1-2). Brine shrimp would feed on the algae and would be used as a source of feedstock.

1.2 PURPOSE AND NEED

1.2.1 Purpose

The purpose of the proposed action is to fulfill the goals and commitments in the current CRADA by continuing the development of the pilot project while minimizing waste, encouraging the reuse of waste, and minimizing the impact to the environment. This involves:

- Producing enough biodiesel to meet the demand of the military installation and off-base customers in an economically efficient manner;
- Developing modular, portable infrastructure to produce and distribute reliable and clean energy (i.e., biodiesel, electricity, and heat);
- Verifying the sustainability of the processes for such applications;
- Reducing environmental impacts by utilizing an installation's waste stream as feedstock while simultaneously eliminating waste by-products from the production process;
- Automating the system and including real-time sensing to allow for operation by a centralized control center with modestly trained personnel onsite;
- Demonstrating the maximum capacity of the pilot project equipment (10 million gallons per year) for R&D purposes; and
- Demonstrating continued criteria pollutant (see Section 3.1) and greenhouse gas emission reductions using these processes compared to standard petroleum diesel.

The first five project features listed above are unique to the proposed action and are not associated with any other operational biodiesel production facility in the United States.

1.2.2 Need

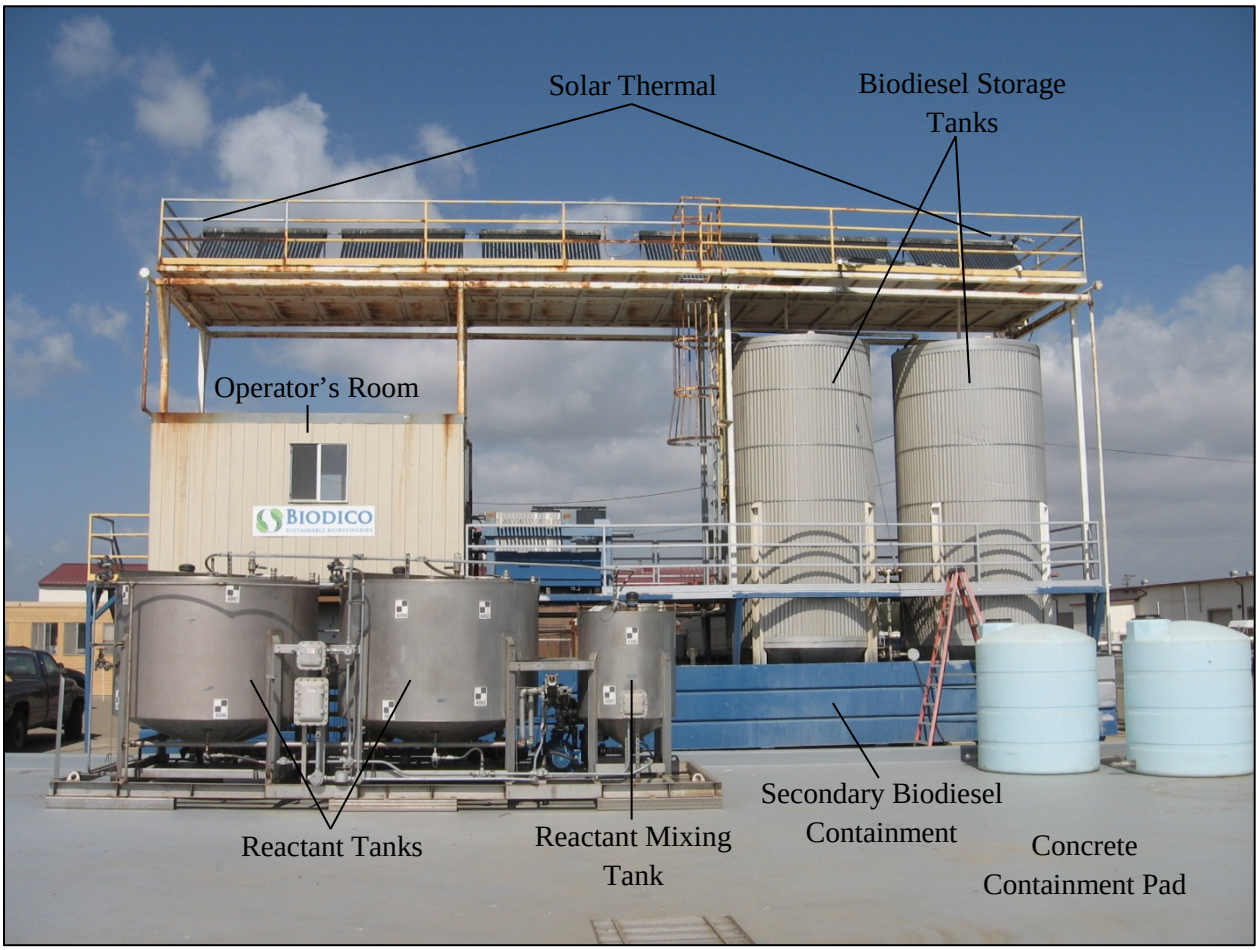
The proposed action is needed to support the Navy's long-term goals of reducing overall energy consumption, decreasing reliance on petroleum, and significantly increasing the use of alternative energy (Navy 2010). Energy production and usage goals have been set by Executive Orders (EOs), legislative acts, and agencies like the U.S. Environmental Protection Agency (USEPA), the DoD, and the Navy. These energy goals seek to increase the efficiency of energy production, delivery and usage; reduce greenhouse gas emissions; and expand the use of renewable energy. The following relevant energy policies have shaped the need for the proposed action:

- *Energy Independence and Security Act of 2007*. The stated purpose of this act is to move the U.S. toward greater energy independence and security, to increase the production of clean renewable fuels, to protect consumers, to increase the efficiency of products, buildings, and vehicles, to promote research on and deploy greenhouse gas capture and storage options, and to improve the energy performance of the federal government.
- *Energy Policy Act (EPAct) of 2005*. Section 203 of the EPAct establishes renewable energy goals for the federal government. It states that no less than 5% of the total energy consumption should come from renewable sources in fiscal years 2010 through 2012 and no less than 7.5% in fiscal year 2013 and each fiscal year thereafter.

Laboratory

Greenhouse

Algae and Brine Shrimp Tanks within the Greenhouse



Biodiesel Production Facility

1-2 Existing Pilot Project Equipment

- *EO 13423. Strengthening Federal Environmental, Energy, and Transportation Management.* EO 13423 establishes environmental, energy, and transportation management goals for federal agencies. Section 2(b) requires agencies to ensure that (i) at least half of the statutorily required renewable energy consumed by the agency in a fiscal year comes from new renewable sources, and (ii) to the extent feasible, renewable energy projects are implemented on agency property for agency use.
- *EO 13514. Federal Leadership in Environmental, Energy, and Economic Performance*. EO 13514 requires federal agencies to conduct planning for sustainability performance, increased sustainability of facilities, and greenhouse gas management. Specifically, each federal agency must propose a target for the reduction of greenhouse gas emissions by 2020.
- *Navy Response to EO 13514*. In response to the greenhouse gas planning requirement, the Secretary of the Navy announced a planned 50% reduction in greenhouse gas emissions from 2008 levels by 2020. The Navy is also planning to obtain 50% of all energy consumed from alternative sources by 2020.

The proposed action analyzed in this EA would greatly expand the pilot project to help the Navy meet its renewable energy targets while simultaneously demonstrating and validating the production model for use at other DoD facilities.

By 2020, demand for biodiesel in California is expected to grow to between 264 and 325 million gallons per year due to requirements set by the California state Low Carbon Fuel Standard and the federal Renewable Fuel Standard (CARB 2009; ICF International 2013). As of 2011, however, state-wide annual biodiesel production capacity was only 70 million gallons (CARB 2011a). While the proposed action by itself would make a relatively small contribution to meeting the anticipated need for biodiesel, the successful demonstration of a relatively portable, modular technology and production capacity by the project would have applications to other locations, and could thus help meet the growing demand for biodiesel.

1.3 SCOPE OF THE EA

This EA includes an analysis of potential environmental impacts associated with the proposed expansion of the pilot project at NBVC as required by NEPA. This EA is also intended to inform the California Environmental Quality Act (CEQA) review conducted by the VCAPCD as part of its permitting process. Resources analyzed in this EA include:

- Air Quality
- Land Use
- Water Resources
- Biological Resources
- Visual Resources
- Health and Safety
- Transportation and Circulation
- Noise
- Utilities

Council on Environmental Quality (CEQ) regulations and Navy policy for implementing NEPA specify that an EA should only address those resource and issue areas that are subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact. Consequently, the resource areas listed below have been reviewed for potential environmental impacts but have not been carried forward for detailed analysis in this EA since potential impacts were considered negligible. In addition, hazardous wastes and materials are addressed in the health and safety section.

- *Geological Resources*. The proposed project site is paved with three to four inches of asphalt and no unique geological or paleontological features are located at the site. Ground-disturbing construction activities include installing 3-foot (ft) helical screws into the ground to secure the solar cogeneration equipment, if concrete blocks are not used as ballasts, and minor (less than 3 ft) trenching near the eastern, southern, and western edge of the existing concrete containment pad to install electrical and water lines (see Figure 2-1) if a fixed, rather than mobile, fire suppression system is used. If additional modular offices in the proposed project area are necessary, they would also be secured to the ground with 3-ft helical screws. Minor ground disturbance (e.g., asphalt removal) may also occur within the potential concrete pad expansion area (see Figure 2-1); this disturbance would be limited to approximately 2,500 square ft. Stormwater best management practices (BMPs) (e.g., straw wattles, sand bags) would be implemented during any ground-disturbing construction activities. Therefore, the proposed project would not affect soil stability or erosion. As discussed in Section 3.6, *Health and Safety*, in the event of a spill, the portion of the project area containing hazardous materials would be protected by a berm to prevent contamination prior to cleanup and, with the exception of the fresh water tank, all tanks and associated equipment would be located on a concrete containment pad. The concrete containment pad has a coating specifically designed for the chemicals used and stored at the biodiesel production facility to protect and seal the area. Therefore, soils would not be contaminated. As is the case throughout the Oxnard Plain, subsurface soils are susceptible to liquefaction in the event of a strong earthquake. With respect to earthquakes, the proposed project site does not lie on or near an Alquist-Priolo Earthquake Fault Zone or in an area designated as a "zone of required investigation for earthquake-induced landslides" (California Geological Survey 2002). The concrete containment pad was designed to withstand the ground motion and shaking caused by most earthquakes, and the modular project design would help prevent damage during rolling earthquakes as the solar cogeneration equipment and the fixed fire suppression system are the only equipment that might be attached to the ground. For these reasons, the likelihood of significant damage to project equipment (meaning that the equipment would be rendered unusable and would have to be repaired or replaced) from an earthquake or liquefaction is extremely low. Furthermore, any materials that might escape from storage vessels would be contained by the concrete containment pad. The only flammable material used in the project is methanol, and the project would incorporate all appropriate safety features (e.g., shut off valves and a fire suppression system) to reduce earthquake-related fire hazards and ensure there would be no significant loss of flammable material if an earthquake were to occur. Moreover, the project's safety plan has been approved by a fire protection engineer. Therefore, implementation of the proposed action would have negligible impacts to geological resources.
- *Cultural Resources*. Ground disturbance under the proposed action would be minimal and within a previously developed area with no archaeological features. Furthermore, no buildings within the area of potential effect (within or immediately adjacent to the project area) are considered a Historical Property, nor are they eligible for nomination as such. Implementation of the proposed

action would not disturb human remains. However, consultation with the California State Historic Preservation Officer (SHPO) is required under Section 106 of the National Historic Preservation Act (NHPA) because there has been no prior consultation on activities the at the NETTS. Appendix B contains the Navy's consultation letter to the SHPO, providing the analysis and finding of *No Historic Properties Affected* for the project along with a request for concurrence. The California SHPO reviewed the proposed undertaking and issued concurrence on 27 January 2015 that the proposed undertaking would have no adverse effect on identified historic properties (SHPO 2015 [see Appendix B, *Correspondence and Comments*]). All trenching and grading activities will be monitored by a qualified archaeologist. In the event previously unknown archaeological deposits are encountered, work will stop in that area until the deposits can be evaluated.

- *Socioeconomics and Environmental Justice.* Biodiesel production would occur within the boundaries of the NETTS at NBVC; feedstocks (primarily yellow grease [used restaurant cooking oil]) would be transported from, and biodiesel would be transported to one or more facilities located primarily within Ventura County that are permitted by local governments for these purposes. Negligible quantities of brown grease may be added to the anaerobic digesters for testing purposes because the results would be valuable to Navy Bases that operate their own wastewater treatment plants and to municipalities such as the City of Oxnard. If this were to occur, the amount used would be insignificant compared to current Oxnard Water Treatment Plant deliveries. No change in personnel levels would occur at NBVC. Biodico could hire up to 10 new employees, likely from within the local region; this would provide a small economic benefit that requires no further analysis. The potential population growth associated with hiring up to 10 employees would be negligible. The nearest housing and children's day care centers are respectively located 0.5 mile and 0.8 mile from the proposed project. No impacts to schools, children (e.g., base day care center), or minority populations would occur, and no people or housing would be displaced.

  Diesel consumption in California is approximately 2.7 billion gallons per year (California State Board of Equalization 2014). By 2020, demand for biodiesel in California is expected to grow to between 264 and 325 million gallons per year due to requirements set by the California state Low Carbon Fuel Standard and the federal Renewable Fuel Standard (CARB 2009; ICF International 2013). As of 2011, however, state-wide annual biodiesel production capacity was only 70 million gallons (CARB 2011a). As the regional demand for biodiesel will continue to exceed supply in the foreseeable future, competition with other biodiesel producers is not anticipated. Since there are no other registered biodiesel operations in Ventura County, the proposed project would not displace local businesses. Moreover, all biodiesel not provided to the Navy for testing would be sold to one or more off-base civilian distributors, primarily within Ventura County, and would not affect the Navy's diesel purchases. The local production and use of biodiesel could result in a correspondingly smaller quantity of diesel being transported from refineries in the Los Angeles/Long Beach area. Given that the maximum production of biodiesel by the project would still be very small in relation to the quantities of diesel being produced, transported, and consumed regionally, it is expected that businesses engaged in refining, transporting, and selling diesel to consumers would adjust to a new local source of biodiesel without disruption or significant economic impacts.

  No permanent population centers, low-income communities, or minority communities exist at the proposed project location. Therefore, no communities would be disproportionately susceptible to

adverse socioeconomic or environmental impacts, and population centers dominated by children would not be newly or disproportionately exposed to increased health or safety risks. Therefore, implementation of the proposed action would not negatively affect socioeconomic resources and would be in compliance with EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-income Populations*, and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*.

- *Agricultural Resources*. No farmland occurs at or near the proposed project area, and implementation of the proposed action would not result in the conversion of any farmland to non-agricultural use. Therefore, there would be negligible impacts to agricultural resources.
- *Mineral Resources*. The proposed project site is a small (approximately 1 acre), previously developed site owned by the Navy. Implementation of the proposed action would not result in the loss or availability of a known or locally-important mineral resource. Therefore, implementation of the proposed project would have no impact to mineral resources.
- *Public Services*. The proposed project would negligibly increase traffic around NBVC Port Hueneme and would marginally reduce regional traffic (see Section 3.7, *Transportation and Circulation*). Neither the proposed project nor the associated negligible impacts to traffic and circulation would result in adverse physical impacts associated with the provision of new or physically altered governmental facilities or create a need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities. Therefore, implementation of the proposed project would have no impact to public services.
- *Recreation*. The proposed project would not construct additional recreational facilities, affect the use of existing neighborhood and regional parks or other recreational facilities, or affect space potentially available for future recreational use. Therefore, implementation of the proposed project would have no impact to recreation.

1.4 DOCUMENT ORGANIZATION

The organization of this EA is as follows:

- Chapter 1 defines the purpose of and need for the proposed action;
- Chapter 2 describes the proposed action, Alternative 1, Alternative 2, the no-action alternative, and alternatives considered but dropped from further consideration;
- Chapter 3 describes the affected environment and environmental consequences associated with the implementation of Alternative 1, Alternative 2, or the no-action alternative;
- Chapter 4 analyzes the potential cumulative impacts associated with the proposed action;
- Chapter 5 addresses other considerations required by NEPA;
- Chapter 6 contains all references cited in the EA;
- Chapter 7 provides the list of preparers and contributors;
- Appendix A provides the Record of Non-Applicability (RONA) and additional air quality data.
- Appendix B contains correspondence and comments resulting from the public review of the Draft EA;
- Appendix C provides the Authority to Construct (ATC); and
- Appendix D provides the Minimization, Mitigation, Monitoring, and Reporting Tracking Sheet.

1.5 REGULATORY COMPLIANCE AND AGENCY PARTICIPATION

A number of regulatory compliance requirements are integral to the completion of the NEPA process. These include, and are not limited to, requirements related to the Clean Air Act (CAA) (42 U.S. Code [USC] 7401 et seq.), Clean Water Act (CWA) (33 USC 1251 et seq.), Endangered Species Act (16 USC 1531 et seq., as amended), Migratory Bird Treaty Act (16 USC 703 et seq.), and the National Historic Preservation Act (16 USC 470 et seq.). Biodico will obtain the required ATC and PTO permits from the VCAPCD; completion of the NEPA process is required before these can be issued. As shown in Appendix B, a finding of *No Historic Properties Affected* letter was submitted by NBVC to the SHPO in accordance with the NHPA §106 consultation requirements. The California SHPO reviewed the proposed undertaking and issued concurrence on 27 January 2015 that the proposed undertaking would have no adverse effect on identified historic properties (SHPO 2015 [see Appendix B, *Correspondence and Comments*]). The project site borders on the coastal zone (NBVC 2012b), but the proposed action would have no effect on coastal resources; therefore, no action is required under the Coastal Zone Management Act. EXWC and Biodico will coordinate with NBVC, the Navy Region Southwest (NRSW) Sustainable Solid Waste (SSW) Program, and the Ventura County Environmental Health Division to ensure compliance with all federal, state, local, and Navy regulations and applicable permitting requirements for solid waste management. All correspondence is contained in Appendix B.

1.6 PUBLIC PARTICIPATION

All correspondence is contained in Appendix B. Public involvement included a 15-day public comment period for the Draft EA that ended on 29 October 2014. Letters were mailed to interested parties in the community, local government agencies, and other stakeholders announcing the availability of the Draft EA for review and comment. A Notice of Availability (NOA) was published in the Ventura County Star Newspaper for three consecutive days for the Draft EA (11, 12, 13 Oct. 2014) and for the Final EA and FONSI (ADD DATES), and both were made available electronically via the NRSW website. The Draft EA was also made available in hard copy at the following local public libraries:

- Oxnard Public Library at 251 South A Street, Oxnard, CA 93030;
- Santa Barbara Public Library at 40 East Anapamu Street, Santa Barbara, CA 93101;
- E.P. Foster Library at 651 East Main Street, Ventura, CA 93001; and
- Ray D. Preuter Library at 510 Park Avenue, Port Hueneme, CA 93041.

Five comments were received from the City of Oxnard during the public review of the Draft EA, primarily concerned with the perceived use of brown grease. Negligible quantities of brown grease may be added to the anaerobic digesters for testing purposes (see Section 1.3; *Socioeconomics and Environmental Justice*). The comments and responses are provided in Appendix B and incorporated into the Final EA.

CHAPTER 2
PROPOSED ACTION AND ALTERNATIVES

This chapter presents a detailed discussion of the proposed action, including the preferred alternative (Alternative 2), the no-action alternative, and a reasonable action alternative (Alternative 1). Section 2.1 presents the screening factors used to determine reasonable alternatives, Section 2.2 presents the proposed action, Section 2.3 presents Alternative 1, Section 2.4 presents Alternative 2 (the preferred alternative), Section 2.5 presents the no-action alternative, , and Section 2.6 presents the alternatives considered but eliminated from further analysis.

2.1 REASONABLE ALTERNATIVE SCREENING FACTORS

Under NEPA, reasonable alternatives include those that meet the project's purpose and need, are practical, and are feasible. For this project, reasonable alternatives must:

- Expand the pilot project's production capacity in an economically efficient manner to meet the biodiesel demand of both the military installation and off-base customers;
- Demonstrate the maximum capacity of the pilot project (10 million gallons per year) for R&D purposes;
- Be modular and produce reliable and clean energy (i.e., biodiesel, electricity, and heat), allowing the system to easily be deployed at military installations worldwide; and
- Minimize waste and environmental impacts while using a variety of feedstocks (primarily yellow grease [used restaurant cooking oil]) to produce the biodiesel.

2.2 PROPOSED ACTION

2.2.1 Overview of the Proposed Action and Action Alternatives

The proposed action is to expand the pilot project (described above in Chapter 1) to allow for the production of up to 30,000 gallons of biodiesel per day with an annual limit of 10 million gallons for R&D purposes. Major new components of the proposed action include expanded use of solar technology and the installation of algae tanks. The expanded solar technology, which combines solar thermal and solar photovoltaic technology in one unit, would create additional heat and power onsite. The onsite algae tanks would be used to research the production of brine shrimp for use as feedstock. Water for the algae tanks would come from system-produced gray wastewater.

Two action alternatives (Alternative 1 and Alternative 2 [the preferred alternative]) and the no-action alternative are analyzed in this EA. Alternative 1 would use conventional biodiesel production technologies. Specifically, an existing electrical connection and a new boiler connected to an existing gas line would be used to provide additional electricity and heat as needed. Alternative 2 is similar to Alternative 1 but includes anaerobic digesters and a gasifier. This system, in combination with the algae tanks, is expected to eliminate the need for off-base power and natural gas, virtually eliminate waste from the production process, and could provide excess electricity to the Navy and/or the grid. The anaerobic digesters would process materials with more than 30% moisture content (e.g., wastewater, glycerin, and plant matter from landscape maintenance) to produce "biogas" (primarily methane [CH_4] and carbon dioxide [CO_2]). The gasifier would use other materials with less than 30% moisture content (e.g., wood pallets, seed husks) to produce "syngas" (primarily hydrogen gas [H_2] and carbon monoxide [CO]). The gasifier would use the biogas and syngas produced onsite to generate electricity and heat onsite. Input

materials could come from various on- or off-base waste streams in compliance with all applicable regulations and permitting requirements for solid waste management.

2.2.2 Project Description

The proposed action would expand the previously analyzed and permitted pilot biodiesel demonstration and validation facility at NBVC Port Hueneme to allow for R&D of the production of up to 30,000 gallons of B100 per day, with an annual limit of 10 million gallons, while simultaneously reducing waste from the production process. Table 2-1 provides a summarized description of the proposed project under Alternative 1 and Alternative 2. For the purposes of comparison, Table 2-1 also provides a summarized description of the no-action alternative. Daily operations at the biodiesel production facility include:

- Delivery of feedstock (non-petroleum oils, primarily yellow grease [restaurant cooking oil] and plant oils) from on-base and off-base locations;
- The manufacture of B100 and associated co-products;
- Storage of the product, co-products, and chemicals used in the production process; and
- Distribution of the product to Navy and civilian locations for testing and consumption, respectively.

BY-PRODUCTS AND CO-PRODUCTS

Throughout this document, "by-products" refers to waste materials produced during the biodiesel production process that must be disposed. "Co-products" refers to materials produced during the biodiesel production process that can be re-used or sold for beneficial purposes.

The proposed project would be located at NBVC Port Hueneme and would be located on existing asphalt and concrete containment pads. Figure 2-1 shows the approximate location and dimensions of the various project components. The solar cogeneration equipment would either be secured to the ground with 3-ft helical screws or ballasted with non-surface penetrating concrete blocks. The fire suppression system would either be fixed in place or mobile; if fixed in place, minor (less than 3 ft) trenching within the project area for a new electrical line along the eastern fence line as well as minor (less than 3 ft) trenching for new water lines near the southern and western borders of the existing concrete containment pad (Figure 2-1) would occur. If additional modular offices are necessary in the proposed project area, they would also be secured to the ground with 3-ft helical screws. Minor ground disturbance (e.g., asphalt removal) may also occur within the potential concrete pad expansion area (see Figure 2-1); this disturbance would be limited to approximately 2,500 square ft. Stormwater BMPs (e.g., straw wattles, sand bags) would be implemented during any ground-disturbing construction activities. No other ground disturbance would be required. The proposed equipment (Section 2.2.2.1), production process (Section 2.2.2.2), production process optimization (Section 2.2.2.3), biodiesel and petroleum diesel mixing (Section 2.2.2.4), biodiesel testing (Section 2.2.2.5), and environmental and safety features (Section 2.2.2.6) are described below.

Table 2-1. Component Descriptions of the No-Action Alternative, Alternative 1, and Alternative 2 (Preferred Alternative)

Category	*No-Action Alternative*	*Alternative 1*	*Alternative 2 (Preferred Alternative)*
Project Footprint	• 0.46 acre in a previously disturbed, paved, and bermed area	• Increase by 0.56 acre to 1.02 acres. Proposed expansion area is located in a previously developed concrete containment pad on a previously developed asphalt containment pad adjacent to the existing project	• Same as Alternative 1
Project Construction	• 12 months (completed)	• 12 months to complete the proposed modification beginning in Fiscal Year 2015	• Same as Alternative 1
General Operation	• Deliver feedstock • Manufacture 370,000 gallons or less of biodiesel per year for no more than 5 years • 100% Biodiesel (B100) would be transported off-base by truck and sold to one or more licensed petroleum distributors that are expected to blend it with petroleum diesel to create 1.85 million gallons of 20% biodiesel 80% petroleum diesel blend (B20) • Current activities involve two collection feedstock truck (1,000-3,000 gallons) trips per day with additional truck (6,500 gallons) trips less than once per month	• Increase B100 production to allow up to 30,000 gallons per day with an annual maximum of 10 million gallons for R&D purposes • Would operate through the end of the current Cooperative Research and Development Agreement (CRADA) and could continue indefinitely subject to renewal thereafter, beginning in Fiscal Year 2016 • B100 would be transported off-base by truck and sold to one or more licensed petroleum distributors that are expected to blend it with petroleum diesel to produce 50 million gallons of B20. Feedstock/biodiesel collection trucks range from 1,000-3,000 gallons and materials transport trucks are about 6,500 gallons. Two 6,000 gallon tanks (T-26 and T-26B, located on the concrete containment pad as shown on Figure 2-2) would be used to store the biodiesel until offloading. No petroleum diesel would be stored onsite. Crash barriers (e.g., bollards) would be used to protect the concrete containment pad and production equipment	• Same as Alternative 1
General Equipment	• Feedstock processing unit • A concrete containment pad • Biodiesel production equipment • Three equipment pads • Laboratory (modular trailer, 12 ft by 60 ft) with a bathroom that ties into existing water and sewer lines • Laboratory (modular trailer 12 ft by 60 ft) without a bathroom or water connections • A greenhouse • Modular feedstock processing facility	• Generally no change; additional concrete containment pads and portable, temporary work space may be added as needed	• Generally no change; additional concrete containment pads and portable, temporary work space may be added as needed • Also includes the addition of anaerobic digesters and a gasifier

Waste Byproducts and Usable Co-Products	• Glycerin: up to 38,000 gallons in the second year to be sold as a co-product • Gray water: up to 170,000 gallons in the second year (waste by-product) • A very small amount of non-hazardous solid waste would result from processing liquid feedstock. This waste would have a negligible impact on recycling and diversion of waste off-base; Biodico would coordinate with Naval Base Ventura County (NBVC) and the Navy Region Southwest (NRSW) Sustainable Solid Waste (SSW) Program to ensure proper waste management	• Gray water: up to 2 million gallons per year, some of which would be reprocessed as usable co-product onsite (e.g., in the algae tanks), the remainder would be passed through the oil/water separator for discharge via the sewer • Glycerin: up to 2 million gallons per year, all of which would be sold as usable co-product • Biomass: wastes would be removed by truck as needed • A very small amount of non-hazardous solid waste would result from processing liquid feedstock. This waste would have a negligible impact on recycling and diversion of waste off-base; Biodico would coordinate with NBVC and the NRSW SSW Program to ensure proper waste management	• Gray water: up to 2 million gallons per year, most of which would be reprocessed as usable co-product onsite in the algae tanks and/or the anaerobic digesters, the remainder would be passed through the oil/water separator for discharge via the sewer. • Glycerin: up to 2 million gallons per year, all of which would be reprocessed as usable co-product onsite in the anaerobic digesters or sold as usable co-product • Biomass: wastes would be used as co-products after onsite processing using the gasifier or anaerobic digesters • The anaerobic digesters and the gasifier could also be used to divert and reduce other biomass wastes (e.g., wood pallets, yard waste, food waste, and other solid and liquid biomasses) generated on-base from NBVC's waste stream in compliance with all applicable regulations and permitting requirements for solid waste management • Anaerobic digesters may produce a very small quantity of non-hazardous solid waste by-product. Most of this would be recycled through biological activities in the algae tanks as a co-product; the remainder would be disposed in accordance with standard base operations • Gasifier residue, a usable non-hazardous co-product, would be produced by burning oil seed solids (and other waste streams mentioned above) in the gasifier. This would be sold, provided commercially (e.g., as a cement additive), disposed as dry waste in a landfill in accordance with other base operations, or recycled by biological activities in the algae tanks or the anaerobic digesters • A very small amount of non-hazardous solid waste would result from processing liquid feedstock. This waste would have a negligible impact on recycling and diversion of waste off-base; Biodico would coordinate with NBVC and the NRSW SSW Program to ensure proper waste management

Algae Tanks	• Sixteen (16) 300-gallon tanks with containment in greenhouses • As approved by NBVC, locally occurring algae were collected in water from the nearby harbor and cultured in aquaria in which the salinity was gradually increased. This process allowed for the selection of algae that would thrive under high salinity, to provide food for commercially obtained brine shrimp (*Artemia franciscana*). This species of brine shrimp occurs throughout the Americas in hypersaline pools, ponds, and lakes, and is used as fish food in aquaculture and by aquarists • Input materials include wash water and glycerin bottoms from the biodiesel production process; tap water could also be used to supplement the tanks if necessary • Output materials are generally limited to brine shrimp used in the biodiesel production process. If water must be discharged to the local wastewater treatment plant, it would be processed through the oil-water separator and tested at the onsite lab to ensure it meets all applicable water discharge requirements. Any oil collected by the oil-water separator would be reused in the biodiesel production process	• Algae tanks would be expanded by up to 18,000 square ft to allow for research, development, testing, and evaluation of onsite feedstock (e.g., brine shrimp) production and to reuse some of the gray water and glycerin bottoms co-products • Approximately 1.2 million gallons of water per year would be lost to evaporation and the harvest of brine shrimp	• Same as Alternative 1, except the anaerobic digesters would allow for the reuse of most of the gray water and glycerin bottoms co-products

Anaerobic Digesters	• Not included	• Not included	• Up to 15, 6,000-gallon, anaerobic digesters, allowing for reuse of gray water and glycerin co-products • Anaerobic digester by-products would be recycled through biological activities in the algae tanks as a co-product • The anaerobic digesters could also be used to divert and reduce other biomass wastes (e.g., yard waste, food waste, and other solid and liquid biomasses) generated on-base from NBVC's waste stream in compliance with all applicable regulations and permitting requirements for solid waste management • Anaerobic digesters may produce a very small quantity of non-hazardous solid waste by-product. Most of this would be recycled through biological activities in the algae tanks as a co-product; the remainder would be disposed in accordance with standard base operations
Gasifier	• Not included	• Not included	• One included; allows for complete use of solid byproducts. Gasifier residue would be sold, provided commercially (e.g., as a cement additive), disposed as dry waste in a landfill in accordance with other base operations, or recycled through biological activities in the algae tanks or the anaerobic digesters • The gasifier may enhance the Navy's ability to meet DoD, DoN, and CA solid waste diversion requirements. However, the proposed project is for R&D purposes and the resulting beneficial environmental impacts in the near future would be negligible. Gasification activities will comply with all applicable regulations and permitting requirements for solid waste management
Solar Technology	• Passive solar thermal and 1 kilowatt (kW) solar electric	• Expand facilities with solar cogeneration technology (combined thermal and electric) up to 18,000 square ft, 30-50 kW • Install a new electrical inverter	• Same as Alternative 1
Distillation Unit	• Included	• Included	• Included; expected to not be necessary after process optimization (see Section 2.2.2.3)

Utilities	• Connected to existing utilities • Transformer previously upgraded • New gas line previously installed • Potable Water: 74,000 gallons used annually	• Addition of solar cogeneration (and inverter) to produce additional electricity and heat onsite • Excess electricity would be provided to NBVC and/or fed back into the grid and excess heat would be released to the atmosphere • Potable Water: 2 million gallons used annually • If a fixed fire suppression system is used, one new gas line and one new water line would be installed	• Addition of solar cogeneration (and inverter) to produce additional electricity and heat onsite • The anaerobic digesters and a gasifier (in addition to solar cogeneration) are expected to produce enough electricity and heat onsite to sustain biodiesel production processes and eliminate waste as well as the need for the boiler • Excess electricity would be provided to NBVC and/or fed back into the grid and excess heat would be released to the atmosphere • Potable Water: 2 million gallons used annually • If a fixed fire suppression system is used, one new gas line and one new water line would be installed
Material Inputs and Storage	• Multiple feedstocks (non-petroleum oils, primarily yellow grease [restaurant cooking oil] and plant oils) from off-base: 12,000-gallon storage capacity, up to 370,000 gallons used annually • Methanol: 1,000-gallon storage capacity, 41,000 gallons used annually • Sodium methylate (methylate) : Would not be used • Sodium hydroxide: 500-pound storage capacity, up to 7,200 pounds used annually • Phosphoric Acid: 100-gallon storage capacity, 450 gallons used annually • Sulfuric Acid: 100-gallon storage capacity, 1,800 gallons used annually • Algae tanks: approximately 750 square ft	• Multiple feedstocks (non-petroleum oils, primarily yellow grease [restaurant cooking oil] and plant oils) from off-base: 13,000-gallon storage capacity, up to 10 million gallons used annually • Methanol: 12,000-gallon storage capacity, 1.5 million gallons used annually • Sodium methylate (methylate) : 12,000-gallon storage capacity, 500,000 gallons used annually • Sodium hydroxide: 500-pound storage capacity, up to 36,500 pounds used annually • Phosphoric Acid: 330-gallon storage capacity, 36,500 gallons used annually • Sulfuric Acid: 330-gallon storage capacity, 36,500 gallons used annually • Expand algae tanks by up to 18,000 square ft	• Same as Alternative 1

Traffic	• Approximately 2,130 truck trips per year (up to 6 truck trips spread throughout any single day) at NBVC (Navy 2003a) • Current activities involve two feedstock collection truck (1,000-3,000 gallons) trips per day with additional truck (6,500 gallons) trips less than once per month • Use of locally produced biodiesel reduces regional traffic associated fuel transportation and used cooking oil disposal	• Approximately 7,000 truck trips per year (up to approximately 20 truck trips spread intermittently throughout any single day) at NBVC • Feedstock/biodiesel collection trucks range from 1,000-3,000 gallons and materials transport trucks are about 6,500 gallons, all trucks are assumed to be maximum size (6,500 gallons) for traffic analysis • Use of locally produced biodiesel would further reduce regional traffic associated fuel transportation and used cooking oil disposal • Truck trips would commence with operations, in Fiscal Year 2016, would continue through the end of the current CRADA, and could continue indefinitely subject to renewal thereafter	• Same as Alternative 1.
Navy Fuel Purchase Option	• 3.3% for emissions research	• B100 would be made available to the Navy as desired (although none is currently anticipated) and the remainder would be transported off-base by truck and sold to licensed petroleum distributors that are expected to blend it with petroleum diesel to B20	• Same as Alternative 1.

Notes: By-products refers to waste that must be disposed. Co-products refers to material that can be re-used during the production process or sold for beneficial purposes.
B20 = 20% biodiesel, 80% petroleum diesel; B100 = 100% biodiesel

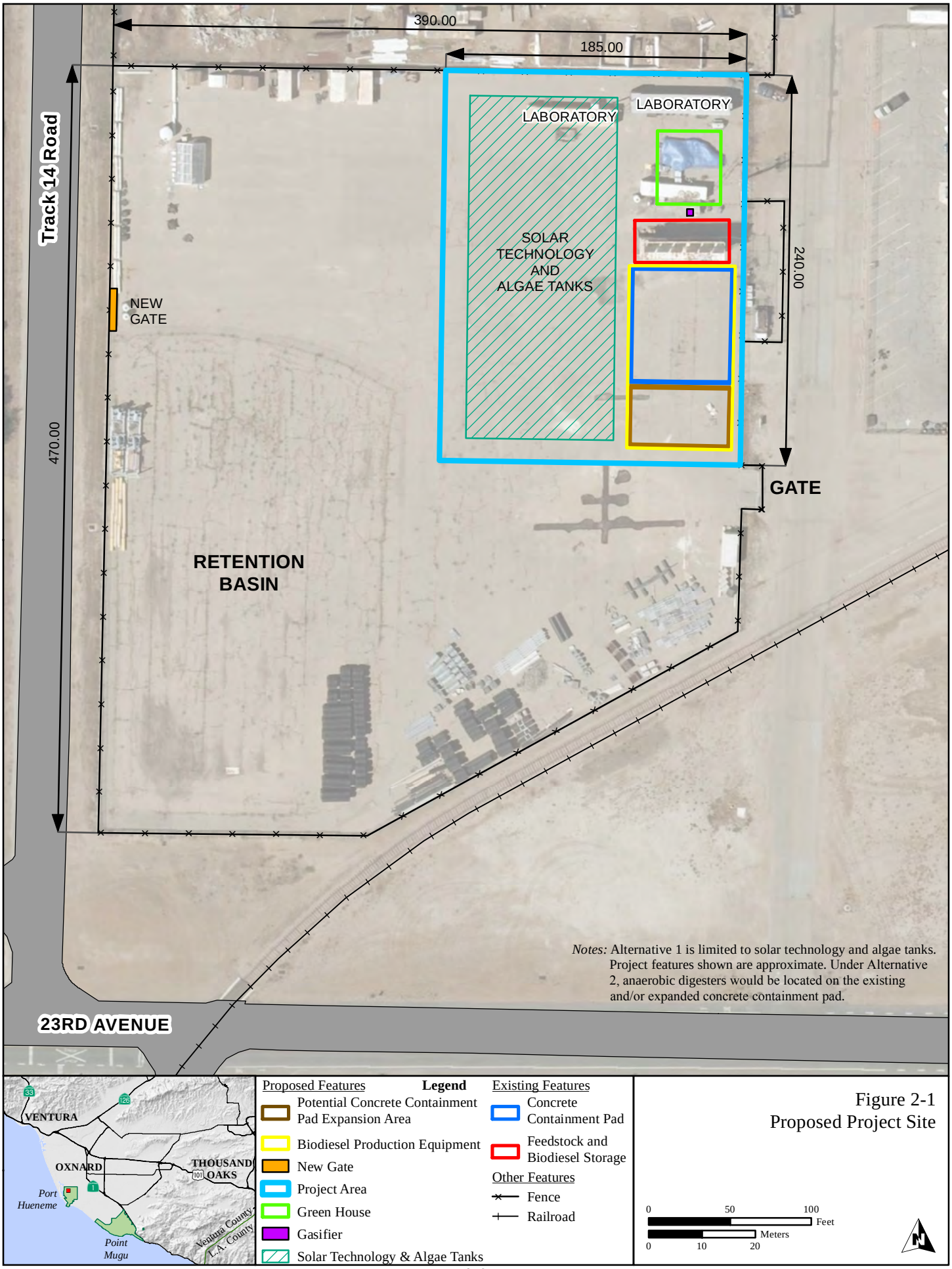


Figure 2-1
Proposed Project Site

2.2.2.1 Equipment

Table 2-2 provides a brief description of the general biodiesel production equipment as well as the associated equipment identification numbers; Figure 2-2 provides the proposed site layout. Additional components of the proposed action include a natural gas-fired boiler, vapor-recovery system (VRS), a distillation unit, solar technology (and inverter), and algae tanks. Each of these components is discussed below.

Natural Gas-fired Boiler

The facility would have a natural gas-fired boiler (B-1) to provide the 3.14 million British thermal units (Btus) of heat needed per hour for the production process. The boiler would have a low nitrogen oxide (NO_X) burner and would heat water that would be circulated throughout the facility.

Vapor Recovery System (VRS)

The facility's VRS, consisting of a vapor recovery and control unit, would collect vapors from storage tanks and vessels for all required tanks and system devices. As such, all tanks, except the feedstock storage tanks (T-20 and T-21), finished biodiesel tanks (T-26 and T-26B), and water tanks (T-28 and T-29) would vent to this system. The vapor recovery unit (VRU) would have 100% capture efficiency and would be designed for 99.5% control efficiency (Best Available Control Technology [BACT]).

Tanks T-23 and T-24 would also have a Stage I VRS for use during tank truck offload. This VRS is expected to return at least 95% of the vapors from the tank back to the tank truck during transfer.

Distillation Unit

The distillation unit, a component of the pilot project, uses evaporation and subsequent condensation to separate methanol, water, and glycerin, which respectively evaporate (and condense) at 145 degrees Fahrenheit (°F), 212 °F, and above 275°F. Once the biodiesel production system is optimized (see Section 2.2.2.3), the distillation unit would no longer be used.

Solar Technology

The proposed solar technology would convert up to 80% of the sun's incident energy into both electricity and hot water by using mirrors to concentrate sunlight from a wide collector area onto a narrow photovoltaic/thermal receiver (Figure 2-3). The 30-50 kilowatt (kW) system could cover up to 18,000 square ft and would track the sun to keep the reflected light focused on the receiver. By combining photovoltaic and thermal technologies, the proposed equipment would extract nearly twice the energy value per area as conventional solar collection infrastructure. The system is expected to be ballasted with non-surface penetrating concrete blocks (Figure 2-4), although 3-ft helical screws installed into the ground may also be used (Figure 2-5). Engineers from the companies providing the equipment will determine whether concrete blocks or helical screws will be used.

Algae Tanks

Up to 18,000 square ft of algae tanks would be installed (see Figure 2-1) to use some of the gray water and glycerin bottoms co-products from the biodiesel production process and to research the on-site production of brine shrimp for use as feedstock. As approved by NBVC, locally occurring algae were collected in water from the nearby harbor and cultured in aquaria in which the salinity was gradually increased. This process allowed for the selection of algae that would thrive under high salinity, to provide food for commercially obtained brine shrimp (*Artemia franciscana*). This species of brine shrimp occurs throughout the Americas in hypersaline pools, ponds, and lakes, and is used as fish food in aquaculture

and by aquarists. Approximately 1.2 million gallons of water per year would be lost to evaporation and the harvest of brine shrimp, although adult brine shrimp harvested are expected to provide a negligible amount of feedstock.

Table 2-2. Description of the Proposed Project Equipment

Equipment Identification Number[1]	*Equipment Description*
T-20	6,500 gallon feedstock oil storage fixed roof tank #1 (existing)
T-21	6,500 gallon feedstock oil storage fixed roof tank #2 (existing)
T-22	6,000 gallon glycerin storage horizontal tank with shared vapor recovery unit
T-22B	6,000 gallon glycerin storage horizontal tank with shared vapor recovery unit
T-23	6,000 gallon methanol supply horizontal tank with shared vapor recovery unit
T-24	6,000 gallon methylate supply horizontal tank with shared vapor recovery unit
T-25A	6,000 gallon biodiesel storage horizontal tank with shared vapor recovery unit
T-25B	6,000 gallon biodiesel processing horizontal tank with shared vapor recovery unit
T-26	6,000 gallon biodiesel product storage horizontal tank
T-26B	6,000 gallon biodiesel product storage horizontal tank
T-27	6,000 gallon methanol recovery horizontal tank with shared vapor recovery unit
T-28	6,000 gallon fresh water supply horizontal tank
T-29	6,000 gallon wastewater collection horizontal tank
R-1	1,829 gallon biodiesel reaction vessel with shared vapor recovery unit
R-2	1,829 gallon biodiesel reaction vessel with shared vapor recovery unit
T-3	585 gallon methanol-catalyst mixing fixed roof tank with shared vapor recovery unit
T-4	700 gallon glycerin collection fixed roof tank with shared vapor recovery unit
T-5	152 gallon glycerin separator tank with shared vapor recovery unit
T-6	75 gallon methanol dump tank with shared vapor recovery unit
T-8	75 gallon methanol condensation tank with shared vapor recovery unit
T-9	55 gallon drum(s) – phosphoric acid storage
C-1	25 square ft methanol condenser

Note 1: Equipment Identification Number as shown on Figure 2-2.

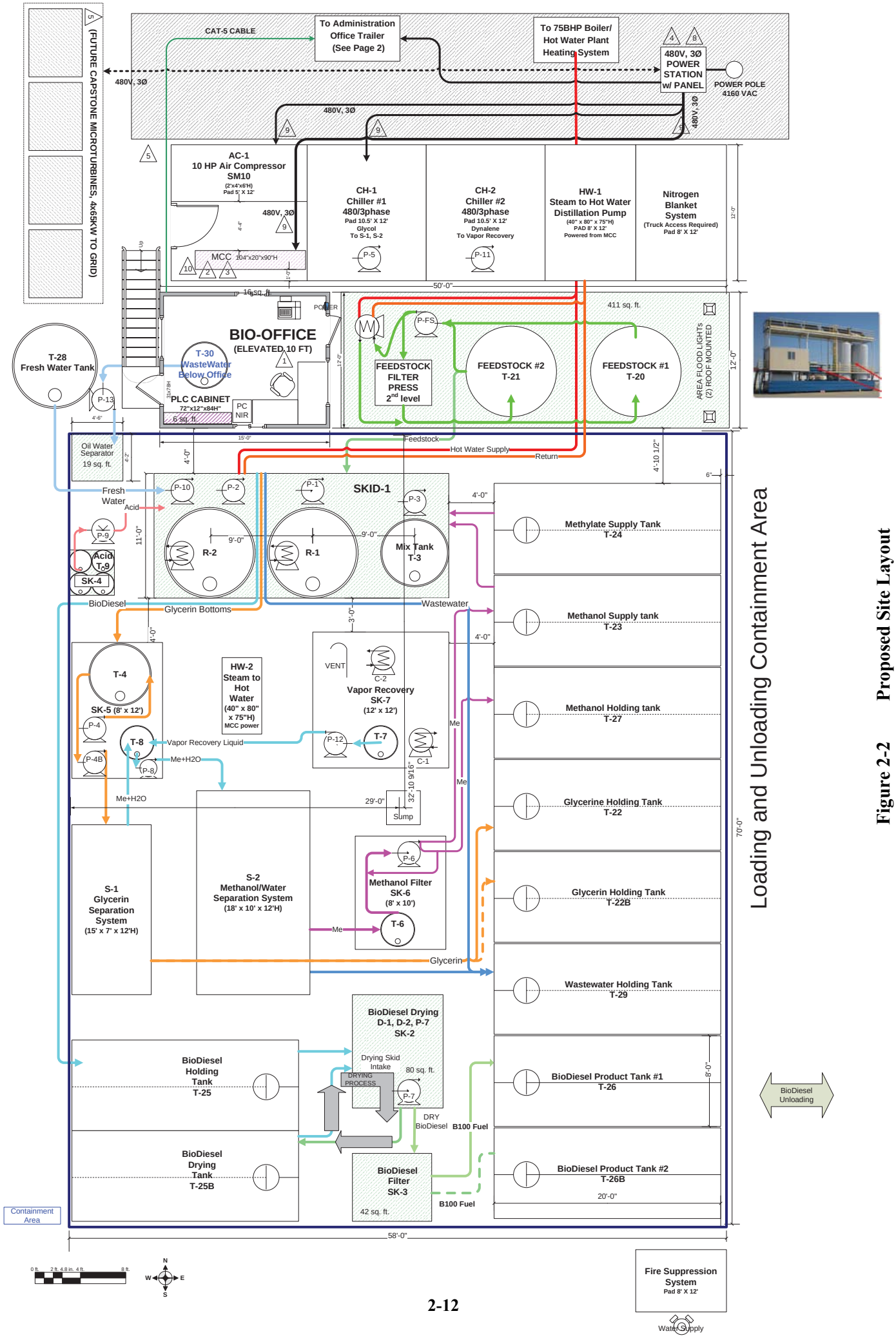


Figure 2-2 Proposed Site Layout

Figure 2-3 Example of the Proposed Solar Technology

Figure 2-4
Example Installation of the Proposed Solar Technology Ballasted by Concrete Blocks

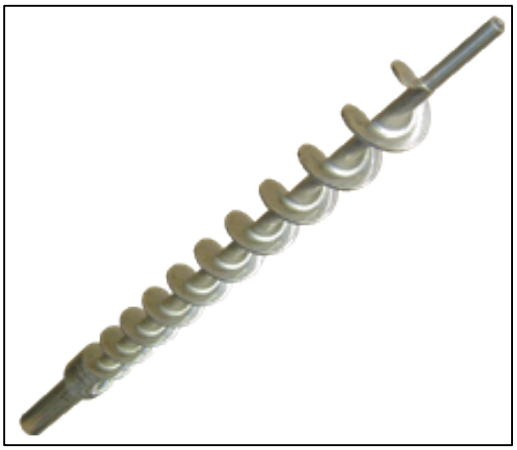


Figure 2-5
Example of a Helical Screw

2.2.2.2 Production Process

Feedstock would be mixed with an alcohol (methanol) in the presence of a catalyst (sodium methylate [methylate]) in a batch reactor to produce up to 30,000 gallons of biodiesel per day and up to 6,000 gallons of glycerol (glycerin) per day. The biodiesel and glycerin would be stored in tanks and loaded into tanker trucks for delivery to customers. No tanks would be pressurized. The production process is shown in Figure 2-6 and is described below. Biodiesel production could require up to 7,000 truck trips per year (approximately 20 truck trips spread throughout any single day) to receive raw materials and distribute biodiesel and related co-products, but the use of locally produced biodiesel would reduce regional traffic associated with the transportation of fuel and used cooking oil.

Raw Material Receiving and Storage

Raw material (feedstock, methanol, methylate, sodium hydroxide, phosphoric acid, and sulfuric acid) would be received, stored, and processed onsite as follows:

- **Feedstock** received via truck would be placed into existing tank T-20, heated to 110 °F, pumped through a filter press to remove debris (remnants of fried food) and water, and temporarily stored in existing tank T-21. Here, the feedstock would be heated to 140°F and allowed to settle to remove additional water before being transferred to the plant reactors for biodiesel processing. A variety of different feedstock inputs may be utilized with the majority being yellow grease (used restaurant cooking oil) purchased from third parties. Wastewater would be transferred to an existing 500-gallon tank, T-30, where it would then be passed through an oil/water separator for disposal. T-20 and T-21 are identical, vertical fixed-roof tanks with a 6,500 gallon capacity heated by solar panels and hot fluid transfer from the boiler. Under Alternative 1, all debris removed by the filter would be properly disposed; Alternative 2 would eliminate this small solid waste stream by processing all debris in the anaerobic digesters. This non-hazardous waste would have a negligible impact on recycling and diversion of waste off-base; EXWC and Biodico will coordinate with NBVC and the NRSW SSW Program to ensure proper waste management.
- **Methanol** received by tank truck would be stored in T-23, a 6,000-gallon ISO stainless steel tank. Recovered methanol from the system would be re-introduced into T-23 from tank T-27, an identical tank used in the methanol recovery and treatment process. Both tanks would be attached to the vapor recovery system (VRS), described below, and would be at ambient temperature.
- **Sodium Methylate,** a mixture of approximately 70% methanol and 30% sodium methoxide (an organic salt), would be received by truck and offloaded into tank T-24, a horizontal ISO 6,000-gallon stainless steel tank otherwise identical to tanks T-23 and T-27. Methylate is the primary reaction catalyst that would convert feedstock and methanol into biodiesel. T-24 would also be attached to the VRS at ambient temperature.
- **Sodium Hydroxide** was originally proposed for use as a catalyst to convert feedstock and methanol into biodiesel in the pilot project (Navy 2003a). Sodium hydroxide could also be used as a reaction catalyst in the proposed expansion, although it is expected that methylate would be the primary reaction catalyst. If used, sodium hydroxide would be received by truck and stored in 55-gallon drums surrounded by an 8-inch high berm or stored in self-contained pallets.

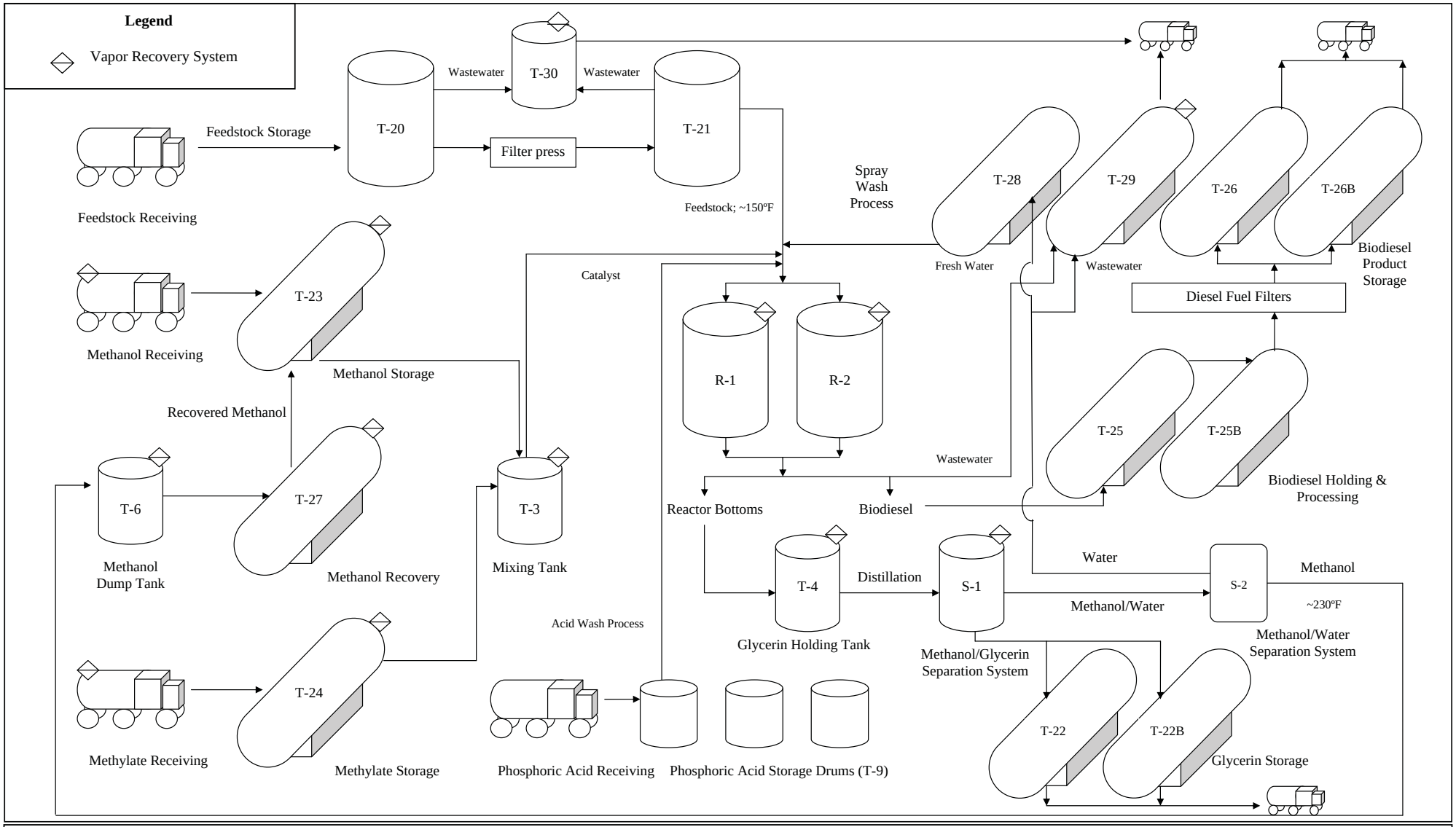


Figure 2-6 Biodiesel Production Process

- **Phosphoric Acid** (70-90%) or its equivalent (e.g., citric acid) would be received by truck in standard 55-gallon drums (T-9). Up to 100 gallons per day would be used in the reaction processes. The drums would be carried in a containment device using a pallet jack forklift, stored at ambient temperature, and connected directly to a metered pump that would deliver the required quantity to the reactor processes.
- **Sulfuric Acid** or its equivalent (e.g., sulfonic acid) would be received by truck in standard 55-gallon drums. Up to 100 gallons per day would be used in the reaction processes. The drums would be carried in a containment device using a pallet jack forklift, stored at ambient temperature, and connected directly to a metered pump that would deliver the required quantity to the reactor processes.

Materials Transportation

At maximum operating capacity, transportation of the feedstock to the project site, and delivery of the byproducts, co-products, and biodiesel, would require up to 20 truck trips per day, spread throughout the day (7,000 truck trips per year). Feedstock/biodiesel collection trucks range from 1,000-3,000 gallons and materials transport trucks are about 6,500 gallons. Once operational, all used cooking oil generated by NBVC facilities would be processed by the proposed project. Yellow grease (used cooking oil) would also be collected from local (e.g., within Ventura County), off-base sources such as food service providers. Other feedstock (e.g., various plant oils) may be supplied from elsewhere in California (e.g., the San Joaquin Valley) and could be received in bulk through the Port of Hueneme.

Biodiesel would be distributed to petroleum distributors in California, primarily in Ventura County. Glycerol would be transported to anaerobic digester operators in the Central Valley. Under Alternative 2, a portion of the glycerol would be consumed in the onsite anaerobic digesters. These anaerobic digesters may produce a very small quantity of non-hazardous solid waste by-product. Most of this would be recycled as a co-product through biological activities in the algae tanks; the remainder would be disposed in accordance with standard base operations. Also under Alternative 2, material processed by the gasifier would be turned into non-hazardous ash and reduced by weight by at least 95%. The remaining material would be sold, provided commercially (e.g., as a cement additive), disposed as dry waste in a landfill in accordance with standard base operations, or recycled by biological activities in the algae tanks or the anaerobic digesters.

To reduce the total number of truck trips, biodiesel would be distributed using the same trucks used to collect local feedstock. In addition, under Alternative 2, some of NBVC's non-hazardous solid wastes (e.g., wood pallets, yard waste) could also be processed in the gasifier or the anaerobic digesters in compliance with all applicable regulations and permitting requirements for solid waste management, thereby eliminating the off-base transportation of any wastes processed onsite.

Biodiesel Production

The facility would use two 1,829-gallon, stainless-steel reactor tanks, R-1 and R-2, with fixed roofs and cone bottoms, for simultaneous biodiesel batch processing. Converting feedstock oils to biodiesel, known as trans-esterification, requires methanol and is promoted by a methylate catalyst. Glycerin is a byproduct of this reaction process. Excess catalyst is used to ensure an efficient reaction. The reaction process used in each reactor is described as follows:

- After purification and preparation (described above), approximately 1,442 gallons of feedstock oil from T-21 would be moved into a reactor tank.

- A 585-gallon mixing tank, T-3, would be used to mix the methanol with the methylate, the reaction catalyst, for a total of approximately 217 gallons. Mixing would occur at ambient temperature and is a slightly exothermic reaction. By volume, the catalyst is typically 15% of the feedstock initially loaded into the reactor.
- Once the catalyst preparation is complete, the mixture would be moved from T-3 to the reactor tank for a normal working volume of 1,659 gallons for the trans-esterification reaction. The mixture would be circulated to improve the reaction process for about 15 minutes. Ethylene Glycol and/or hot water would be used via a closed-loop system to heat the reactor tank to 140°F for a period of 1-4 hours. The reactants would be converted into biodiesel, glycerol, and free fatty acid and allowed to settle. Glycerin would be decanted from the bottom of the reactor tank and moved to the 700-gallon glycerin-bottoms holding tank, T-4, where it would be further processed (described below). The remaining biodiesel product would be tested for free fatty acids and total glycerin. If the tests are within specification, no further reaction cycles would be required and spray washing (described below) would occur in the reactor tank. If tests are not within specification, additional reaction cycles would be completed as required, involving additional catalyst mixing and subsequent reaction processes. Total biodiesel volume is expected to be very close to the initial feedstock volume (approximately 1,442 gallons).
- The remaining biodiesel volume would be spray-washed by adding approximately 15% fresh water by volume from T-28, the 500-gallon fresh water supply tank. The product would be allowed to settle and the water would be decanted from the bottom of the reactor tank to the 6,000-gallon wastewater holding tank, T-29. Depending on specification requirements and test results, spray washing may be repeated more than once with smaller volumes of water (typically 10% and 5% in the second and third cycle, respectively). The biodiesel volume is again expected to be similar to the initial feedstock volume (approximately 1,442 gallons).
- Acid washing is the final process that would occur in the reactor. Phosphoric acid, supplied from 55-gallon drums (T-9), would be moved by a metering pump, mixed with water, and inserted into the reactor. Typical total usage for up to three cycles is 1.5 quarts of acid per batch. When specifications are met, the biodiesel product is transferred from the reactor to T-25A, the biodiesel holding tank.

Once in T-25A, the biodiesel holding tank, excess water is removed from the biodiesel, known as the "biodiesel drying process." When the volume in this tank is sufficient, the biodiesel in T-25A would be sent to T-25B through the biodiesel drying skid. The drying process then continues looping from T-25B through the biodiesel drying skid and back to T-25B. When the water content of the biodiesel meets specifications, the biodiesel is then sent through the final processing filters to remove final traces of water and particulates. The processing filters are standard diesel fuel filters, some of which are "hydrosorb" corn starch impregnated. The finished biodiesel is then stored at ambient temperature in either T-26 or T-26B, the biodiesel product storage tanks, for transfer into tank trucks for distribution.

Glycerin Processing

The glycerin and methanol decanted from the bottom of the reactor tank would be diverted to the 700-gallon holding tank, T-4. Material is stored here at ambient temperature. The mixture would be transferred to a single-stage methanol/glycerin separation system, S-1, which would continuously process at a rate of 2.5 gal/min. Ethylene glycol and/or hot water in a closed-loop system would be used to heat the mixture, with temperatures reaching up to 230°F. At this temperature, methanol forms a vapor and

disassociates from the glycerin. The methanol would be condensed and transferred to S-2 for further processing (described below). The glycerin would be piped to tanks T-22 and T-22B for storage. Both tanks are ISO stainless steel, horizontal cylindrical tanks with a capacity of 6,000 gallons. From here, glycerin would be transferred into trucks for distribution and use.

Methanol Recovery and Purification

A methanol-water mixture from S-1 would be transferred to a separation system, S-2. In S-2, water would be removed until the methanol is 99.5% free of water. Condensed methanol from S-2 would be piped to the Methanol Dump Tank, T-6, which is a vertical, cylindrical, stainless steel, fixed-roof, 75-gallon tank. The methanol would then be transferred to the methanol recovery tank, T-27, where it would be stored at ambient temperate for reuse in the biodiesel reaction process. Water separated in S-2 would be transferred to Tank T-28 for reuse or T-29 for disposal.

2.2.2.3 Production Process Optimization

Much of the initial optimization effort was completed as part of the pilot project, although additional optimization would be required for the expanded system. This involves repeatedly adjusting, testing, and evaluating all aspects of the biodiesel production process. Optimization is necessary to determine precisely the reactant ratios, reaction timing, and reaction temperatures necessary to eliminate waste and maximize the reuse of materials onsite. Optimization may also include adjusting the number of algae tanks and how they are managed, or adjusting the amount or location of the solar equipment. The automated control system must also be further developed to allow military enlisted personnel to operate the unit both onsite and remotely. Optimization is critical to make the proposed unit economical and deployable.

2.2.2.4 Biodiesel and Petroleum Diesel Mixing

B100 is commonly mixed with petroleum diesel for use as a fuel. All B100 would be transported by truck and sold to one or more licensed petroleum distributors, primarily within Ventura County. These distributors are expected to mix the B100 with petroleum diesel to produce B20. No on-base mixing would occur.

2.2.2.5 Biodiesel Testing

Small amounts of B100 produced may be quality tested at the NAVFAC EXWC laboratory on NBVC Port Hueneme. The tests would have no certifications or warrantees, but they would include American Society for Testing and Materials standards for viscosity, density, flash point, water content, and several other parameters. Biodico would also make biodiesel available for emissions research as desired by the Navy. If performed, emissions research would be done using biodiesel fuel on stationary and mobile diesel engines. The test data would be used to prove that biodiesel produced onsite is suitable for Naval operations in a variety of applications. At this time, however, the Navy does not anticipate requesting Biodico to provide biodiesel for emissions research purposes.

2.2.2.6 Project Environmental and Safety Features

Process Containment

A 58 ft x 70 ft bermed concrete containment pad, constructed as part of the pilot project, would contain any accidental spills and would allow for localized cleanup (see Figure 2-1). With the exception of the fresh water tank, all tanks and associated equipment would be made of carbon or stainless steel and would be located on the containment pad, which has a concrete coating specifically designed for the chemicals

used and stored at the biodiesel production facility to protect and seal the area. A sump pump would send normal rainfall collected from the concrete containment pad to the oil/water separator holding tank or to a separate wastewater holding tank. The tank selection and pump operation would be manually controlled by the plant operator to ensure proper sewage pre-treatment. The concrete containment pad is designed to hold the contents of the largest storage tank and the 24-hour rainfall of a 100-year storm (a combined total of 20,043 gallons) and to withstand the ground motion and shaking caused by most earthquakes. The standard containment volume, designed by NAVFAC ESC (now NAVFAC EXWC), is 150% of the volume of the largest storage tank.

Oil-Water Separator

The oil-water separator, shown on Figure 2-2, provides proper oil-water separation and allows the effluent to be properly disposed in the sewer. Operating personnel would follow a written procedure for all discharges prior to disposal and would manually start and stop the process as required. The containment volume would be large enough to contain specific stormwater runoff volumes as well as any volume that could be spilled during an emergency event, thereby ensuring the proper disposal of all combined liquids. Any removed oil would be re-inserted into the feedstock receiving tank and re-processed. All discharges would be processed by the oil-water separator, including feedstock/water from normal operations, and stormwater collected from the concrete containment pad. The first priority would be to use stormwater in the biodiesel production process; additional stormwater not needed for the production process would be discharged to the sewer after being processed by the oil-water separator. Due to the low throughput of the oil-water separator, any stormwater discharge into the sewer would not occur during peak flow and the vast majority would be discharged at a slow rate after the storm event has ended. This process meets the discharge specifications of the City of Oxnard, Wastewater Division, Permit Number OC-4. All other plant process wastewater that does not meet these specifications would be diverted to T-29 and processed. With the exception of hydrocarbon-based oils used for lubrication and maintenance of the biodiesel production equipment, no other oils would be used or removed from the biodiesel production facility.

Nitrogen Blanket System

To ensure safe plant operation, a nitrogen blanket system will be used for appropriate tanks, devices and systems. The system would eliminate flash combustion and/or the unwanted reaction properties of chemicals when they are exposed to air, improving product reliability and process quality.

Safety Training and Equipment

Safety training and processes include but are not limited to:

- Project managers, site workers and/or contractors must complete both EMS Awareness training and Storage Tanks training via the ECATTS website (https://environmentaltraining.ecatts.com/);
- Chemical handling, safety, and equipment use;
- Fire procedures;
- Plant operator training and education;
- Plant reporting requirements;
- Leak and correction inspection procedures and reports;
- Plant documentation and reporting requirements;
- Preventative maintenance training and schedules;

- Emergency processes, with posted procedures and emergency numbers; and
- Regular plant operation data reviews.

Safety equipment includes but is not limited to:

- Small spill equipment and materials;
- Chemical personnel equipment; and
- A foam-based fire suppression system.

The foam-based fire suppression system could be fixed in place and connected to a water line or could be mobile through the use of a cart-based system. A fixed system would require minor (less than 3 ft) trenching within the project area for a new electrical line along the eastern fence line as well as minor (less than 3 ft) trenching for new water lines near the southern and western borders of the existing concrete containment pad.

2.2.3 Impact Mitigation Measures

Under the CRADA, Biodico would operate the facility in accordance with established regulations and safety requirements, including a safety plan jointly developed by NAVFAC EXWC and Biodico, and would implement the following impact mitigation measures as appropriate:

EXECUTIVE ORDER 13112 (INVASIVE SPECIES)

EO 13112 requires agencies to:

- identify actions that may affect the status of invasive species
- prevent the introduction of, detect, and control invasive species
- not authorize actions that are likely to promote the introduction or spread of invasive species

- To protect biological resources, and to ensure compliance with EO 13112 (*Invasive Species*), any plant or animal species proposed for use would be reviewed and approved by NBVC before being brought to the base. As described in Table 2-1, NBVC has already approved the use of brine shrimp and locally collected algae.
- To minimize potential impacts to health and safety, safety procedures implemented as part of the proposed expansion of the previous biodiesel pilot project would be consistent with the *Hazardous Waste Management Plan* (NBVC 2010), NBVC Instruction 5090.7B *Hazardous Material Management Plan* (NBVC 2013), and the *Oil and Hazardous Substance Integrated Contingency Plan* (also known as "The Red Plan") (NBVC 2012a). Additionally, to minimize potential exposure to subsurface soil or groundwater that may contain elevated concentrations of metals (e.g., hexavalent chromium), construction workers would wear personal protective equipment during any excavation in the northern portion of the proposed project area (see Section 3.6).
- Low Impact Development (LID) requirements to reduce impacts to water resources may apply as the total project footprint is 1.02 acres. However, the project is located on a previously paved and bermed area and the project would be consistent with LID requirements as stormwater would be managed onsite (see Section 2.2.2.6) and runoff would not be increased. Stormwater BMPs (e.g., straw wattles, sand bags) would be implemented during any ground-disturbing construction activities.
- All trenching and grading activities would be monitored by a qualified archaeologist. In the event previously unknown archaeological deposits are encountered, work will stop in that area until the deposits can be evaluated.

- EXWC and Biodico would coordinate with NBVC Force Protection to ensure that project-related traffic does not contribute to back-ups at the Victoria Gate.

2.3 ALTERNATIVE 1

Under Alternative 1, the proposed action described above would be implemented using conventional biodiesel production technologies. Specifically, an existing electrical connection and a new boiler connected to an existing gas line would be used to provide additional electricity and heat as needed.

2.4 ALTERNATIVE 2 (THE PREFERRED ALTERNATIVE)

Alternative 2, the preferred alternative, includes and expands upon Alternative 1 by also including anaerobic digesters and a gasifier, both of which are described below. Once optimized, this equipment is expected to virtually eliminate waste and produce enough heat and electricity to eliminate the need for the distillation unit, the boiler, and electricity generated off-base. Moreover, excess electricity is expected to be provided to the Navy and/or fed back into the grid through an existing junction box at the site, offsetting the Navy's electricity bill. The junction box is equipped with a net metering device to measure the electricity produced onsite, thereby allowing the Navy to receive credit toward its renewable energy goals (see Section 1.2.2, *Need*). The system would also produce excess heat that would be released to the atmosphere.

2.4.1 Anaerobic Digesters

The modular anaerobic digesters proposed are capable of processing a wide variety of materials with more than 30% moisture content (e.g., wastewater, glycerin, and plant matter from landscape maintenance) and would initially be located within the existing concrete containment pad. Up to 15 anaerobic digesters, for a total potential capacity of 90,000 gallons, would be added as needed and could be stacked vertically. If additional digesters are required and would exceed the capacity of the existing concrete containment pad, an additional containment pad would be constructed within the proposed project area (see Figure 2-1). Each digester would be modular, 8 ft x 8 ft x 20 ft, hold up to 6,000 gallons, and weigh over 50,000 pounds when full. Gas produced via anaerobic digestion, known as "biogas," would be harnessed and burned for energy. This biogas, primarily composed of CH_4 and CO_2, would be burned in an approved boiler or gasifier (see Section 2.4.2, below) as it is produced. Figure 2-7 provides the general anaerobic digester process flow. The anaerobic digesters would be optimized over time to efficiently process waste onsite to produce biogas. The anaerobic digesters may also produce small quantities of non-hazardous solid waste by-product. Most of this would be recycled onsite through biological activities in the algae tanks as a co-product; the remainder would be disposed in accordance with standard base operations.

2.4.2 Gasifier

The proposed gasifier would be similar to a prototype gasification unit developed by Biodico with support from the California Energy Commission (CEC). It is a modular, palletized 20 kW unit that can be tied into the existing electrical grid and can produce both heat and power by consuming up to 2,400 pounds of dry-weight biomass per day (Figure 2-8). The gasifier is for research purposes and may consume a variety of materials (e.g., wood pallets, seed husks) consistent with the project's air permit. If the permit can be

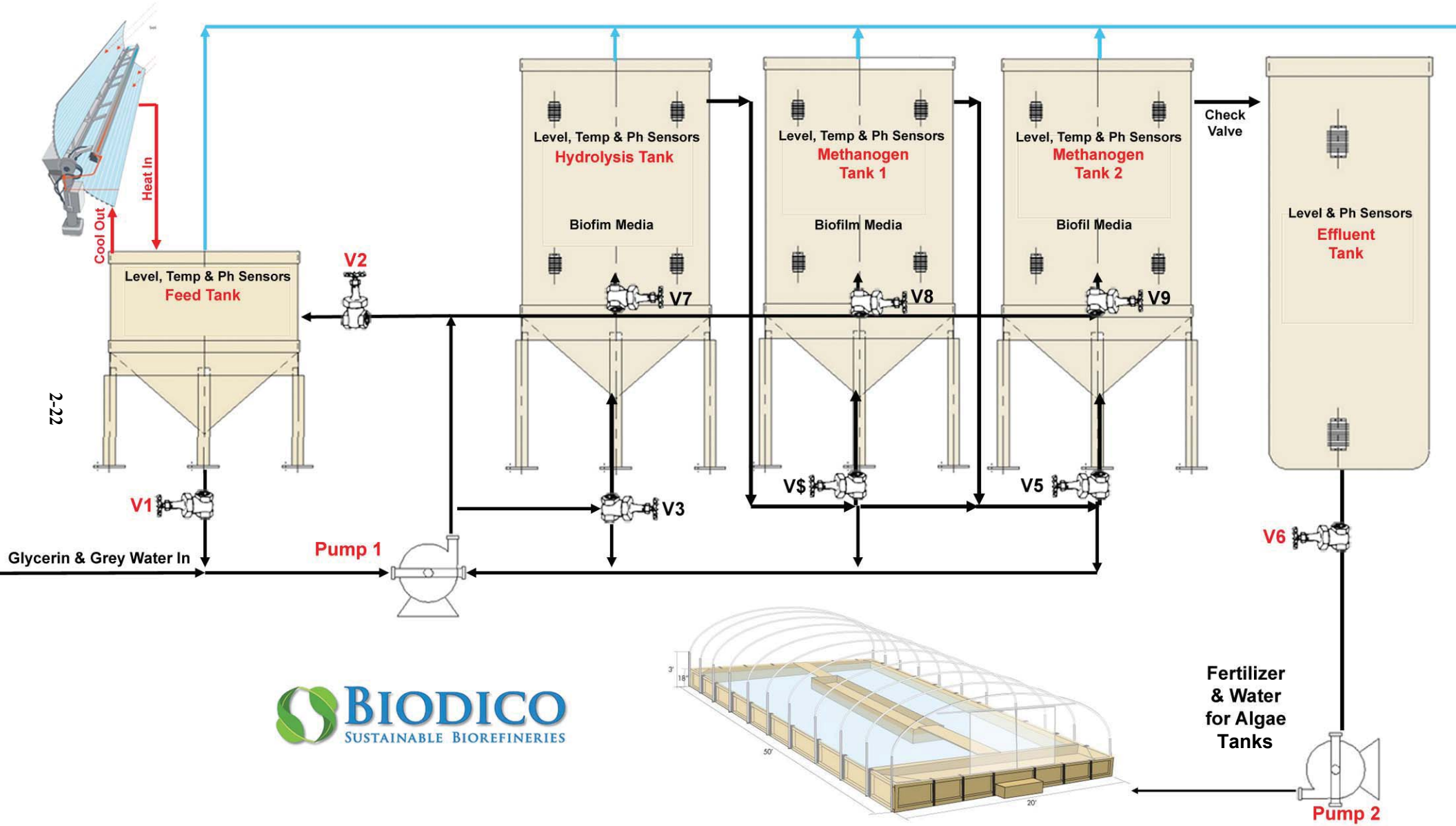


Figure 2-7 Anaerobic Digester, Solar Technology, and Algae Tank Process Flow

POWER PALLET SPECS	10 kW	20 kW
Power Output	1-10 kW	2-20 kW
Biomass Consumption	12 kg / 26 lbs per hour at 10 kW	22 kg / 50 lbs per hour at 20 kW
Fuel Moisture Tolerance	Up to 30%	Up to 30%
Dimensions	1.2m x 1.2m x 1.8m 48" x 48" x 72"	1.2m x 1.3m 1.8m 51" x 53" x 72"
Weight	499 kg / 1100 lbs	658 kg / 1450 lbs

Figure 2-8 Prototype Gasifier Components and Process

expanded to allow for the gasification of trash, this material would also be included in the test plan. The unit is 4 ft x 4 ft x 8 ft and weighs approximately 1,200 pounds and would be installed under a temporary weather protection structure. Only one unit is proposed. The gasifier produces a mixture of H_2 and CO, known as "syngas," from waste materials with less than 30% moisture content. Syngas would be consumed by the on-board generator as it is produced. The on-board generator is also configured to operate on biogas from the anaerobic digestion units (see Section 2.4.1, above). Figure 2-8 provides the description of gasifier components and general syngas production process. The gasifier would be optimized to efficiently burn biogas or syngas to produce the greatest amount of heat or electricity, as needed. Small quantities (less than 5% of the starting material) of gasifier residue (non-hazardous ash) would also be sold in accordance with standard base operations, provided to local users as a co-product (e.g., a cement additive), disposed of as dry waste at a landfill, or recycled by biological activities in the algae tanks or the anaerobic digesters. The gasifier may enhance the Navy's ability to meet DoD, DoN, and CA solid waste diversion requirements. However, the proposed project is for R&D purposes and the resulting beneficial environmental impacts in the near future would be negligible. Gasification activities will comply with all applicable regulations and permitting requirements for solid waste management.

2.5 NO-ACTION ALTERNATIVE

Under the no-action alternative, the pilot project at NBVC Port Hueneme would continue as a biofuels R&D facility, testing alternative feedstocks, with biodiesel production limited to the previously approved 370,000 gallons or less of B100 per year. Current activities on NBVC that involve two feedstock collection truck (1,000-3,000 gallons) trips per day, with additional truck (6,500 gallons) trips less than once per month, would continue. The consequences of the no-action alternative would be to prevent the expansion of the pilot project at NBVC Port Hueneme and would not fulfill the goals and commitments in the current CRADA. This would slow the development of alternative energy sources and hinder the attainment of various energy production and usage goals set by legislative acts, EOs, and agencies like the USEPA, the DoD, and the Navy. Although this would not meet the purpose and need for the proposed action, it is carried forward for analysis in this EA as required by NEPA.

2.6 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD FOR DETAILED ANALYSIS

Alternatives considered but not carried forward for detailed analysis are discussed below.

2.6.1 Alternative Locations

The purpose of the proposed action is to fulfill the goals and commitments in the current (October 2012) CRADA demonstrating the maximum capacity of the pilot project equipment (10 million gallons per year) for R&D purposes while minimizing waste, encouraging the reuse of waste, and minimizing the impact to the environment (see Section 1.2.1). Furthermore, the pilot project site has been previously excavated, graded, fenced, and enclosed in a containment area with a purpose-built secondary containment area. In addition, gas and utility connections have also been previously upgraded. Any other site would require similar development which would create additional environmental impacts. As such, no other on or off-base location would meet the purpose and need for the proposed action and other locations are not considered for further analysis in this EA.

2.6.2 Alternative Technologies

Alternative 2 is designed to combine multiple novel technologies to virtually eliminate waste from the biodiesel production process while simultaneously providing excess electricity to the Navy and/or the grid, and other co-products (e.g., gasifier residue) to local users. It is not feasible to further reduce the potential environmental impacts of Alternative 2 by using alternative technologies. Alternative 1 does not

include the anaerobic digesters or the gasifier and employs more traditional biodiesel production methods (e.g., use of natural gas, a boiler, and off-base generated electricity). Furthermore, the project was conceived, and subsequently funded through a competitive grant process, specifically to further the development of these innovative technologies. As such, other technologies are not carried forward for further analysis in this EA.

2.6.3 Alternative Production Capacities

Under the no-action alternative, the pilot project would produce up to 370,000 gallons or less of B100 per year. As such, the no-action alternative effectively represents a significantly decreased production capacity alternative. Furthermore, to meet the purpose and need, the full capacity of the pilot project (10 million gallons per year) must be demonstrated for R&D purposes. Finally, since the proposed action maximizes the production capacity of the proposed technology, it is not feasible to increase the proposed production capacity further. As such, other production capacities are not considered for further analysis in this EA.

CHAPTER 3
AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the existing environmental conditions on and around the project area for resources potentially affected by implementation of the alternatives discussed in Chapter 2: Air Quality, Land Use, Water Resources, Biological Resources, Visual Resources, Health and Safety, Transportation and Circulation, Noise, and Utilities. Information presented in this chapter represents baseline conditions and identifies potential significant impacts against which Alternative 1, Alternative 2, and the no-action alternative are evaluated.

3.1 AIR QUALITY

Air quality is defined as the ambient air concentrations of specific criteria pollutants determined by the USEPA to be of concern to the health and welfare of the general public. As part of the CAA, the USEPA has established criteria for seven major pollutants of concern, called "criteria pollutants." These criteria pollutants include CO, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), particulate matter smaller than 2.5 microns in diameter ($PM_{2.5}$), particulate matter between 2.5 microns and 10 microns in diameter (PM_{10}), and lead (Pb).

The criteria set for these pollutants, the National Ambient Air Quality Standards (NAAQS), represent maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect the public health and welfare. Based on measured ambient criteria pollutant data, the USEPA designates areas in the U.S. as having air quality better than (attainment) or worse than (nonattainment) the NAAQS.

In addition to criteria pollutants, the USEPA has defined 187 substances as hazardous air pollutants (HAPs). HAPs are substances that have been determined to present some level of acute or chronic health risk (cancer or non-cancer) to the general public. These pollutants may be emitted in trace amounts from various types of sources, including combustion sources. HAPs are regulated for specific source categories under the USEPA's National Emission Standards for Hazardous Air Pollutants regulations.

Greenhouse gases (GHGs) are also regulated under the Federal CAA. The USEPA defines greenhouse gases as any of the following compounds: CO_2, CH_4, nitrous oxide (N_2O), and fluorinated gases such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHGs have varying global warming potential (GWP). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main greenhouse gases that have been attributed to human activity include CH_4, which has a GWP of 21, and N_2O, which has a GWP of 310. Carbon dioxide equivalent (CO_2e) emissions are defined as the amount of CO_2 that would have the same GWP, when measured over a specified timescale (generally, 100 years). CO_2e emissions are calculated by multiplying the mass emissions by the GWP.

The potential effects of GHG emissions from the proposed action are by nature global. Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the project alternatives have been quantified to the extent feasible in this EA for information and comparison purposes.

Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule, states that a federal agency cannot issue a permit for or support an activity unless the agency determines that it will conform

to the most recent USEPA-approved State Implementation Plan (SIP). This means that projects using federal funds or requiring federal approval must not: 1) cause or contribute to any new violation of a NAAQS, 2) increase the frequency or severity of any existing violation, or 3) delay the timely attainment of any standard, interim emission reduction, or other milestone. Ventura County is currently designated a serious nonattainment area for O_3. The currently approved SIP is based on the VCAPCD's *2007 Air Quality Management Plan* (VCAPCD 2008). Within Ventura County, if net annual emissions of O_3 precursors (volatile organic compounds [VOCs] or NO_x) increase by less than 25 tons each, a CAA conformity determination is not required. If emissions of one or both of these pollutants exceed a *de minimis* threshold, NBVC must demonstrate conformity under one of the methods prescribed by the General Conformity Rule.

Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. The California Air Resources Board (CARB) enforces air pollution regulations and sets guidelines to attain and maintain the NAAQS and the California Ambient Air Quality Standards (CAAQS) within the state of California. These guidelines are found in the California SIP. Ventura County is designated as a nonattainment area for the CAAQS for O_3 and PM_{10}.

The California CAA of 1988, as amended in 1992, outlines a program to attain the CAAQS for O_3, NO_2, SO_2, particulate matter, and CO by the earliest practical date. Some of the CAAQS are more stringent than the NAAQS, which translates into more emissions reductions generally within the region being required to show that it has attained an applicable CAAQS than will be required to show its attainment of the comparable NAAQS. The CARB delegates the authority to regulate stationary source emissions to local air quality management districts. The CARB requires these agencies to develop their own strategies for achieving compliance with the NAAQS and CAAQS, but maintains regulatory authority over these strategies, as well as all mobile source emissions throughout the state.

Within Ventura County, the authority to regulate air quality has been designated to the VCAPCD. The VCAPCD has adopted rules and regulations designed to control air emission sources. San Joaquin Valley Air Pollution Control District Rule 9110 implements the USEPA's General Conformity Rule.

Table 3-1 presents the NAAQS and the CAAQS.

Table 3-1. Ambient Air Quality Standards

Pollutant	*Averaging Time*	NATIONAL STANDARDS [a]		CALIFORNIA STANDARDS
		Primary [b,c]	*Secondary* [b,d]	
O_3	8-hour	0.075 ppm (147 µg/m^3)	Same as primary	0.070 ppm (137 µg/m^3)
	1-hour	—	Same as primary	0.09 ppm (180 µg/m^3)
CO	8-hour	9 ppm (10 mg/m^3)	—	9.0 ppm (10 mg/m^3)
	1-hour	35 ppm (40 mg/m^3)	—	20 ppm (23 mg/m^3)

Pollutant	Averaging Time	National Standards [a]		California Standards
		Primary [b,c]	Secondary [b,d]	
NO_2	Annual	0.053 ppm (100 µg/m^3)	Same as primary	0.030 ppm (57 µg/m^3)
	1-hour	0.100 ppm (188 µg/m^3)	—	0.18 ppm (339 µg/m^3)
SO_2[e]	24-hour	—	—	0.04 ppm (105 µg/m^3)
	3-hour	—	0.5 ppm (1,300 µg/m^3)	—
	1-hour	0.075 ppm (196 µg/m^3)	—	0.25 ppm (655 µg/m^3)
PM_{10}	Annual	—	—	20 µg/m^3
	24-hour	150 µg/m^3	Same as primary	50 µg/m^3
$PM_{2.5}$	Annual	12.0 µg/m^3	15 µg/m^3	12 µg/m^3
	24-hour	35 µg/m^3	Same as primary	—
Pb[f]	Rolling 3-month period	0.15 µg/m^3	Same as primary	—
	30-Day Average	—	—	1.5 µg/m^3
Sulfates	24 hours	—	—	25 µg/m^3
Hydrogen Sulfide	1 hour	—	—	0.03 ppm (42 µg/m^3)
Vinyl Chloride	24 hours	—	—	0.01 ppm (26 µg/m^3)

Notes:
a Standards other than the 1-hour ozone, 24-hour PM_{10}, 24-hour $PM_{2.5}$, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.
b Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.
c Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.
d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
e The 1971 24-hour and annual average NAAQS for SO2 have been revoked for all areas except areas that were classified as nonattainment areas for the 1971 standards.
f The 1978 calendar quarter NAAQS for Pb has been revoked for all areas except areas that were classified as nonattainment areas for the 1978 standard.

µg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter; CO = carbon monoxide; NO_2 = nitrogen dioxide; O_3 = ozone; Pb = lead; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate between 2.5 and 10 microns in diameter; ppm = parts per million; SO_2 = sulfur dioxide
Source: CARB 2013a.

3.1.1 Affected Environment

3.1.1.1 Baseline Air Quality

Ventura County is part of the South Central Coast Air Basin, which includes all of Santa Barbara, Ventura, and San Luis Obispo Counties. In the vicinity of NBVC, ambient air quality measurements are collected at the El Rio Monitoring Station. The El Rio Monitoring Station measures O_3, NO_2, PM_{10}, and $PM_{2.5}$. There are no monitoring stations within Ventura County that measure lead, CO, or SO_2, and these pollutants are not considered to be of concern in the region. Table 3-2 presents a summary of ambient air quality data for the period from 2010-2012.

Table 3-2. Ambient Air Monitoring Data for El Rio Monitoring Station

Air Quality Indicator	*2010*	*2011*	*2012*
Ozone (O_3)			
Peak 1-hour value (ppm)	0.083	0.081	0.082
Days above state standard (0.09 ppm)	0	0	0
Peak 8-hour value (ppm)	0.072	0.068	0.065
Fourth high 8-hour value (ppm)	0.062	0.065	0.054
Days above federal standard (0.075 ppm)(1,2)	0	0	0
Days above state standard (0.070 ppm)	1	0	0
Particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$)			
Peak 24-hour value (federal) ($\mu g/m^3$) (4)	21.4	18.3	30.8
Peak 24-hour value (state) ($\mu g/m^3$) (4)	27.7	28.7	21.8
Days above federal standard (35 $\mu g/m^3$) (3,4)	0	0	0
Annual Average value (federal) ($\mu g/m^3$) (4)	8.4	8.8	8.7
Annual Average value (state) ($\mu g/m^3$) (4)	8.5	11.4	NA
Particulate matter less than or equal to 10 microns in diameter (PM_{10})			
Peak 24-hour value (federal) ($\mu g/m^3$) (4)	59.9	50.6	56.3
Peak 24-hour value (state) ($\mu g/m^3$) (4)	61.5	51.7	56.9
Days above federal standard (150 $\mu g/m^3$)	0	0	0
Days above state standard (50 $\mu g/m^3$)	1	1	1
Annual Average value (federal) ($\mu g/m^3$) (4)	21.2	21.6	20.4
Annual Average value (state) ($\mu g/m^3$) (4)	21.7	22.2	21.0
Nitrogen Dioxide (NO_2)			
Peak 1-hour value (ppm)	0.060	0.090	0.042
Days above federal standard (0.100 ppm)	0	0	0
Days above state standard (0.18 ppm)	0	0	0
Annual Average value (ppm)	0.007	0.007	NA

Notes: (1) The federal 8-hour O_3 standard was revised downward in 2008 to 0.075 ppm.

(2) The federal 8-hour O_3 standard was previously defined as 0.08 ppm (1 significant digit). Measurements were rounded up or down to determine compliance with the standard; therefore a measurement of 0.084 ppm is rounded to 0.08 ppm. The 8-hour O_3 ambient air quality standards are met at an ambient air quality monitoring site when the average of the annual fourth-highest daily maximum 8-hour average O_3 concentration is less than or equal to the standard.

(3) The federal $PM_{2.5}$ standard was revised downward in 2007 to 35 $\mu g/m^3$. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over three years, are equal to or less than the standard.

(4) State and federal statistics may differ for the following reasons: (1) State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and federal statistics may therefore be based on different samplers. (2) State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

(5) The federal 1-hour SO_2 standard was adopted in 2010.

$\mu g/m^3$ = micrograms per cubic meter; NA = data not available; ppm = parts per million

Source: CARB 2013b

3.1.1.2 Regional and Local Air Pollutant Sources

The majority of emissions within Ventura County are attributable to mobile sources. This emissions category includes emissions from diesel-fueled vehicles that operate at NBVC. Area sources and stationary sources also contribute to emissions in Ventura County. This emissions category includes sources such as fuel combustion, solvent use, landfills, and agricultural activities.

Current activities on NBVC involve two feedstock collection truck (1,000-3,000 gallons) trips per day with additional truck (6,500 gallons) trips less than once per month.

Table 3-3 summarizes the regional emissions (stationary and mobile) of criteria pollutants and precursor emissions for the affected areas.

Table 3-3. Regional Emissions for Ventura County

	EMISSIONS (TONS/DAY)					
	VOCs	*NOx*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*
Stationary Sources	11.87	4.69	9.56	0.60	1.33	0.98
Area-Wide Source	13.40	1.67	13.40	0.25	23.30	5.60
Mobile Sources	19.70	53.62	136.77	16.08	4.45	3.93
Total Ventura County	**44.97**	**59.99**	**169.46**	**16.74**	**29.08**	**10.51**

CO = carbon monoxide; NO_x = oxides of nitrogen; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter between 2.5 and 10 microns in diameter; SO_2 = sulfur dioxide; VOC = volatile organic compound
Source: CARB 2013b

3.1.2 Environmental Consequences

Emissions associated with the proposed action would result from the facility's construction and operation. Air quality impacts associated with the proposed action were reviewed for significance relative to Federal, state, and local air pollution standards and regulations. In the case of criteria pollutants for which the Region of Interest is in attainment of the NAAQS, the analysis used the Prevention of Significant Deterioration (PSD) threshold for new major sources of 250 tons per year of that pollutant as an indicator of significance or non-significance of projected air quality impacts. In the case of criteria pollutants for which the project region does not attain a NAAQS, the analysis used the pollutant threshold that triggers a conformity determination (the *de minimis* threshold) under the General Conformity Rule. In Ventura County, the *de minimis* threshold for ozone precursors NO_X and VOCs is 50 tons per year based on the current attainment status of the air basin. The air basin is in attainment of all other criteria pollutants. If emissions attributable to the proposed action (1) do not contribute to an exceedance of an ambient air quality standard or (2) conform to the approved SIP, impacts to air quality would not be significant.

It should be noted that the federal CAA conformity requirements apply only to nonattainment pollutants, and only to sources that are not presumed to conform to the SIP. Sources that undergo permitting under the New Source Review program, as administered by the VCAPCD, are presumed to conform to the applicable SIP.

This EA is also intended to inform the CEQA review conducted by the VCAPCD as part of its permitting process. To evaluate whether a project would result in a violation of an air quality standard or cumulative impact, the VCAPCD has identified a threshold of 25 pounds/day for ozone precursors (VOCs and NO_X).

The VCAPCD has not set forth emission thresholds for attainment pollutants. Alternative 1, Alternative 2, and the no-action alternative have been evaluated on the basis of these thresholds.

3.1.2.1 Alternative 1

Impacts to Air Quality associated with the construction and operation of Alternative 1 are discussed below. As discussed in Section 1.1.5, the VCAPCD granted Biodico the ATC (Appendix C) for a biodiesel production, demonstration and validation facility that could produce up to 370,000 gallons of biodiesel fuel in the year with the highest production rate (the second year) in 2003. Construction of the pilot project was completed and Biodico must obtain a PTO before production of biodiesel for sale can begin.

Construction

Proposed construction activities under Alternative 1 would expand the existing pilot project from 0.46 acre to 1.02 acres, would be located on existing asphalt and concrete containment pads, and would require 12 months to complete. Biodico would obtain a new ATC from the VCAPCD prior to commencing any construction activities that were not previously permitted. Ground-disturbing construction activities include installing 3-ft helical screws into the ground to secure the solar cogeneration equipment, if concrete blocks are not used as ballasts, and minor (less than 3 ft) trenching near the eastern, southern, and western edge of the existing concrete containment pad to install electrical and water lines if a fixed, rather than mobile, fire suppression system is used. If additional modular offices in the proposed project area are necessary, they would also be secured to the ground with 3-ft helical screws. Minor ground disturbance (e.g., asphalt removal) may also occur within the potential concrete pad expansion area (see Figure 2-1); this disturbance would be limited to approximately 2,500 square ft.

To estimate construction emissions associated with Alternative 1, emissions were calculated using the CalEEMod Model, assuming construction of a heavy industrial project on the entire expanded portion of the proposed project footprint (0.56 acre). Table 3-4 presents a summary of the construction emissions in comparison with the PSD/*de minimis* thresholds. Construction activities would be short-term in nature; no long-term increases in emissions would occur. Construction activities would not exceed the VCAPCD's threshold of 25 pounds/day for VOCs or NO_X, nor would the construction activities exceed the PSD/*de minimis* thresholds. Therefore, Alternative 1 construction activities would not result in significant impacts to air quality. Accordingly, there would be no significant impacts to Air Quality from construction activities associated with Alternative 1.

Table 3-4. Construction Emissions

	EMISSIONS						
	VOCs	*NOx*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*	*CO_2* [a]
Construction, pounds/day	15.73	18.40	13.57	0.03	1.19	1.19	2,452
Construction, tons/year	0.58	2.14	1.56	0.00	0.15	0.14	260
PSD/*de minimis* threshold, tons/year	**50**	**50**	**250**	**250**	**250**	**250**	**NA**

Operations

The implementation of Alternative 1 would expand the pilot project to produce up to 30,000 gallons of biodiesel per day with an annual limit of 10 million gallons for R&D purposes, resulting in the following changes. These and other Air Quality considerations are discussed in detail, below:

- Stationary source emissions associated with the expanded biodiesel production facility would be increased.
- Mobile source emissions would be directly changed as truck trips required to deliver the biodiesel fuel in the Ventura area would be increased but truck trips required to transport petroleum diesel fuel from Long Beach to Ventura would be decreased, as petroleum diesel demand in Ventura would be partially offset by the increased availability of biodiesel produced in the county. Truck trips required to transport used cooking oil from Ventura to Los Angeles would also be decreased because Biodico collected feedstock would be diverted to the proposed project in NBVC instead of facilities in Los Angeles.
- Mobile source emissions would be indirectly changed as B100 would be transported off-base by truck and sold to one or more licensed petroleum distributors, primarily within Ventura County, that are expected to blend it to produce 50 million gallons of B20 that would be consumed in place of traditional petroleum diesel.

Stationary Source Emissions Associated with the Expanded Biodiesel Production Facility

The pilot project is currently permitted under ATC No. 08073-100, which includes emission limits set forth in the permit (Appendix C). The emissions associated with the proposed expansion were assumed to increase the stationary source emissions proportionately with the existing permit limits for VOCs because VOCs are associated with fugitive emissions from process equipment and are proportional to throughput. It was assumed that other operational criteria pollutant emissions associated with facility operation would not increase because the emissions of other pollutants are mainly attributable to the natural gas-fired boiler, which would remain as permitted (3.14 MMBTU/hour). Table 3-5 provides the emissions associated with Alternative 1.

Table 3-5. Stationary Source Emissions

	EMISSIONS (TONS/YEAR)						
	VOCs	*NOx*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*	*CO_2*[a]
Alternative 1 (10,000,000 Gallons/Year)	**0.70**	**0.20**	**1.10**	**0.01**	**0.10**	**0.10**	**1,469**

[a] The existing permit does not include CO_2 emission limitations. CO_2 emissions were estimated on the basis of a 3.14 MMBTU/hour natural gas-fired boiler. Total annual emissions are presented as metric tons/year.

Mobile Source Emissions – Direct Changes

The expanded facility would generate up to 7,000 truck trips annually, or up to 20 trips spread throughout any single day. Implementation of Alternative 1 would also reduce the amount of conventional diesel that would need to be imported to Ventura from the Long Beach area (approximately 90 miles away, or 180 miles round trip). Based on a truck hauling capacity of 6,500 gallons of petroleum diesel (maximum truck size [6,500 gallons] is assumed for all air quality analyses), the annual production of 10 million gallons of biodiesel per year for R&D purposes would reduce the number of truck trips from Long Beach to Ventura by a total of 1,538 truck trips (approximately 277,000 vehicle miles traveled) annually. Table 3-6 provides the emissions from the delivery of biodiesel, the emissions reduced by the elimination of truck trips from Long Beach to Ventura, and the net emissions change resulting from the combination of both changes.

In addition to the elimination of 1,538 truck trips required to transport conventional diesel from Long Beach to Ventura, implementation of Alternative 1 would also prevent the need to transport an

unquantifiable amount of used cooking oil from Ventura to the Los Angeles area (approximately 65 miles away, or 130 miles round trip). As such, implementation of the proposed project would result in an unquantifiable decrease in emissions from eliminating the truck trips currently required to transport used cooking oil from Ventura to Los Angeles.

Table 3-6. Direct Mobile Source Emissions and Net Change

	EMISSIONS (TONS/YEAR)						
	VOCs	*NOx*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*	*CO_2*
Truck Trip Emissions Required to Deliver 10 Million Gallons of Biodiesel	0.30	6.30	1.62	0.01	0.34	0.27	1,287.20
Truck Trip Emissions Reduced by Not Transporting 10 Million Gallons of Conventional Diesel[a]	0.12	2.49	0.64	0.00	0.13	0.11	509.22
Net Emissions Change[b]	**0.18**	**3.81**	**0.98**	**0.01**	**0.20**	**0.16**	**777.98**

[a] Actual emissions would be less as the calculations provided do not include an unquantifiable number of truck trips associated with the transport of used cooking oil from Ventura to Los Angeles that would be eliminated.
[b] Any apparent discrepancies in the net emissions change are due to rounding the first two rows to the nearest hundredth.
Sources: Based on EMFAC2011 emission factors (CARB 2011b) for heavy-duty trucks, multiplied by average fuel efficiency of 6.6 miles per gallon (Huai, et al. 2006).

Mobile Source Emissions – Indirect Changes

All B100 produced at the expanded biodiesel production facility would be transported off-base and sold to one or more licensed petroleum distributors, primarily within Ventura County, that are expected to blend the B100 with petroleum diesel to produce 50 million gallons of B20.

According to a recent study (Robbins et al. 2009), use of B20, when compared to the use of petroleum diesel, would reduce emissions of CO by 18.7%, hydrocarbons by 21.2%, and particulate matter by 24.1%.

Robbins et al. (2009) also reported that NO_X emissions may be increased or decreased depending on the engine model, year of manufacture, and driving style (e.g., surface street or highway) and that the average trend is a slight (0.6%) decrease, particularly for more recent engine models. This result is different from a USEPA study published in 2002 (USEPA 2002) that reported a 2% increase in NO_X emissions, and the difference is attributed to studying more representative and newer engine models. The 2009 study was also consistent with a National Renewable Energy Laboratory (2006) study that found no difference in NO_X emissions when switching from petroleum diesel to B20. Therefore, for the purposes of this analysis, it is conservatively assumed that shifting from petroleum diesel to B20 will not affect NO_X emissions.

Table 3-7 provides the emissions associated with using 50 million gallons of petroleum diesel, using an equal amount of B20, and the net emissions change that would result from the implementation of Alternative 1.

Table 3-7. Indirect Mobile Source Emissions and Net Change

HEAVY DUTY DIESEL VEHICLE EMISSIONS	EMISSIONS (TONS/YEAR)						
	VOCs	*NOx*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*	*CO_2*
Petroleum Diesel (50 Million Gallons/Year)	141.48	2,970.79	763.73	5.85	158.85	126.33	606,822
B20 (50 Million Gallons/Year)	111.49	2,970.79	620.91	5.85	120.57	95.89	606,822[b]
Net Emissions Change[a]	**-29.99**	**0.00**	**-142.82**	**0.00**	**-38.28**	**-30.45**	**0.00[b]**

[a] Any discrepancies in the net emissions change are due to rounding the first two rows to the nearest hundredth.
[b] Does not include a currently unquantifiable amount of CO_2 that would be captured by algae growth.
Sources: Robbins et al. 2009; based on EMFAC2011 emission factors (CARB 2011b) for heavy-duty trucks, multiplied by average fuel efficiency of 6.6 miles per gallon (Huai, et al. 2006).

Net Emissions Changes

As described above, implementation of Alternative 1 would create stationary emissions and would directly and indirectly affect mobile source emissions. Table 3-8 provides the net emissions changes that would result from the implementation of Alternative 1.

Table 3-8. Net Emissions Changes

SOURCE	NET EMISSIONS CHANGE (TONS/YEAR)						
	VOCs	*NOx*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*	*CO_2[a]*
Stationary	0.70	0.20	1.10	0.01	0.10	0.10	1,469.00
Net Mobile (Direct)[b]	0.18	3.81	0.98	0.01	0.20	0.16	777.98
Net Mobile (Indirect)	-29.99	0.00	-142.82	0.00	-38.28	-30.45	0.00[d]
Overall Net Emissions Change[b,c]	**-29.11**	**4.01**	**-140.74**	**0.02**	**-37.98**	**-30.18**	**2,246.98[d]**
***De Minimis* Threshold**	**50**	**50**	**250**	**250**	**250**	**250**	**NA**

[a] The existing permit does not include CO_2 emission limitations. CO_2 emissions were estimated on the basis of a 3.14 MMBTU/hour natural gas-fired boiler. Total annual emissions are presented as metric tons/year.
[b] Actual emissions would be less as the calculations provided do not include an unquantifiable number of truck trips associated with the transport of used cooking oil from Ventura to Los Angeles that would be eliminated.
[c] Any discrepancies in the net emissions change are due to rounding the first two rows to the nearest hundredth.
[d] Does not include a currently unquantifiable amount of CO_2 that would be captured by algae growth.
Sources: Robbins et al. 2009; based on EMFAC2011 emission factors (CARB 2011b) for heavy-duty trucks, multiplied by average fuel efficiency of 6.6 miles per gallon (Huai, et al. 2006).

As shown in Table 3-8, emissions would decrease for all criteria pollutants except NO_X, which would be increased by a negligible amount and would be well below the *de minimis* threshold. As such, adverse impacts to air quality associated with operations under Alternative 1 would not be anticipated and impacts would not be significant. Appendix A provides the RONA.

Additional Air Quality Considerations

The project is located on NBVC. The area immediately surrounding (i.e., contiguous to) the project site does not include sensitive receptors such as schools, hospitals, nursing homes, etc. Because there are no sensitive receptors in the area immediately surrounding the site, the project would not expose sensitive receptors to substantial pollutant concentrations. Meanwhile, air quality throughout the region would generally be improved. As a result, no significant impacts to sensitive receptors would result from the implementation of Alternative 1.

Relatively mild odors are associated with the waste cooking oil, algae tanks, source chemicals, and the co-products and by-products that would be produced and handled on the site. Materials and chemical processes would be contained, and gaseous hydrocarbons would be captured, not vented to the air. The relative isolation of the site from sensitive receptors (homes, schools, offices) also makes it very unlikely that people not directly working on the project would be exposed to nuisance odors. Therefore, Alternative 1 would not result in significant impacts to air quality from odors.

Alternative 1 would result in a small increase in GHG emissions (Table 3-8) that is below thresholds proposed by a number of agencies and organizations, including the South Coast Air Quality Management District's threshold for industrial sources of 10,000 metric tons of CO_2e (SCAQMD 2011) and the PSD tailoring rule. Accordingly, the increase in GHG emissions from the implementation of Alternative 1 would not result in a significant impact on global climate.

Based on the evaluation, no significant impacts to air quality are anticipated under Alternative 1. Appendix A provides the RONA.

3.1.2.2 Alternative 2

Construction

Alternative 2 is similar to Alternative 1 but includes anaerobic digesters and a gasifier. Similar to Alternative 1, Biodico would obtain a new ATC from the VCAPCD prior to commencing any construction activities that were not previously permitted. Since the analysis for Alternative 1 conservatively assumed the entire expanded portion of the proposed project footprint would be developed for a heavy industrial project, and since Alternative 2 shares the same project footprint and construction timeline as Alternative 1 and is also conservatively assumed to be a heavy industrial project, the CalEEMod model predicts that emissions associated with Alternative 2 would be the same as those for Alternative 1. Construction activities would not exceed the VCAPCD's threshold of 25 pounds/day for VOCs or NO_X, nor would the construction activities exceed the PSD/*de minimis* thresholds. Therefore, construction activities associated with Alternative 2 would not result in significant impacts to air quality.

Operations

As discussed in Chapter 2, Alternative 2 would also expand the pilot project at NBVC Port Hueneme and would increase B100 production to 30,000 gallons per day with an annual limit of 10 million gallons for R&D purposes. The expanded facility under Alternative 2 would generate up to 7,000 truck trips annually (20 trips per day). Biodico would obtain a PTO from the VCAPCD prior to commencing operations.

As discussed in Section 2.4, Alternative 2 is identical to Alternative 1 but includes the addition of anaerobic digesters and a gasifier to respectively generate biogas and syngas onsite, thereby eliminating the need for the distillation unit, the 3.14 MMBTU/hour boiler, electricity generated off-base, and the emissions associated with these sources. Moreover, excess electricity is expected to be provided to the Navy and/or fed back into the grid through an existing electrical junction, thereby allowing the Navy to receive credit toward its renewable energy goals (see Section 1.2.2, *Need*), and excess heat would be released to the atmosphere.

While no emissions are associated with biogas and syngas generation, emissions are associated with the onsite combustion of these renewable resources in a generator. Although these emissions are expected to vary depending on the source, based on emission factors from AP-42 (*Compilation of Air Pollutant Emission Factors*), Section 3.1, for the combustion of biogas in a gas turbine, emissions of criteria

pollutants would be on same order of magnitude for biogas and syngas as for natural gas (see Table 3-5). Furthermore, the generator would meet CARB certification requirements, would be subject to the requirements of the VCAPCD's New Source Review rule (Regulation II, Rule 26), would therefore conform with the SIP, would not be subject to the General Conformity Rule as specified in 40 CFR Part 93.153 (d)(1).

Emissions associated with mobile sources (both direct and indirect), as well as the VOC emissions associated with the biodiesel production process, would be the same under Alternative 2 as described above for Alternative 1. For these reasons, the implementation of Alternative 2 would also improve overall air quality throughout the region by reducing traffic-related emissions.

Therefore, for the reasons described above, emissions associated with Alternative 2 are expected to be the same as or lower than the emissions associated with Alternative 1. As discussed under Alternative 1, emissions would be below the significance levels for all pollutants. Furthermore, Alternative 2 would not expose sensitive receptors to substantial pollutant concentrations and no significant impacts due to odors are anticipated for the same reasons as described for Alternative 1. GHG emissions associated with Alternative 2 would also be less than those associated with Alternative 1 due to the use of additional sources of renewable heat and electricity.

Based on the evaluation, no significant impacts to air quality are anticipated under Alternative 2. Appendix A provides the RONA.

3.1.2.3 No-Action Alternative

Emissions associated with the no-action alternative were found to be below *de minimis* levels and a RONA was signed as part of the previous EA (Navy 2003a). Under the no-action alternative, biodiesel production would be limited to 370,000 gallons or less of B100 per year, 3.7% of the volume that would be produced by implementation of the proposed action. Current truck trips (See Section 3.1.1.2) would also continue under the no-action alternative. Construction and operational emissions, as well as beneficial impacts, would also be less than those for either action alternative as the proposed solar technology, algae tanks, anaerobic digesters, and gasifier would not be included. As such, the no-action alternative would not result in significant impacts to air quality.

3.2 LAND USE

The attributes of land use considered in this analysis include general land use patterns, land ownership, special use areas, local ordinances, regulating activities, type and intensity of development land adjacent to the project site, and land management plans that guide the region's growth. General land use patterns that characterize the types of uses within a particular area can include urban, agricultural, residential, commercial, industrial, military, scenic, natural, or recreational. Land ownership is a categorization of land according to type of owner. The major land ownership categories include private, federal, and state. Land management plans include those documents prepared by agencies, including the Navy, to establish appropriate goals for future use and development. As part of this process, sensitive land use areas are often identified by agencies as being worthy of more rigorous or protective management. In an urban or suburban context, land use goals and controls are defined in General, Master, Comprehensive, or Five-Year Plans and are implemented through zoning or local ordinances.

3.2.1 Affected Environment

NBVC Port Hueneme encompasses approximately 1,650 acres (670 hectares) of flat, mostly developed or paved lands with residential, industrial, and commercial land uses. NBVC Port Hueneme is located within Port Hueneme's city limits and is bounded on the southwest by the residential communities of Silver Strand and Hollywood-by-the-Sea, on the northwest by commercial development associated primarily with Channel Islands Marina, on the north by commercial development, on the east by residential uses, and on the southeast by port development associated with the Port of Hueneme. Hueneme Beach lies directly south of the easternmost portion of the base, and Ormond Beach lies farther to the southeast. Silver Strand Beach adjoins the southernmost portion of the base (NBVC 2012b).

Land use at NBVC Port Hueneme is characterized by nine major classifications as shown on Map 1-3 of the 2012 Integrated Natural Resources Management Plan (INRMP): logistics, operations, training, housing, community support, administration, natural resource management areas, ordnance, and public works (NBVC 2012b). Nearly half of the land use acreage is devoted to logistics land uses. The operations category includes RDT&E activities as well as port operations land uses, which were described in the Naval Base Ventura County Activity Overview Plan of 2006 (NBVC 2006). Ordnance land uses are along the harbor at Wharf 5 and Wharf 6. The main training area for construction activities is at the northwest corner of the base, and a smaller training site is in the central eastern portion of NBVC Port Hueneme. The housing area is located at the central eastern boundary of NBVC Port Hueneme (NBVC 2012b).

The project site is at the NETTS and borders on the coastal zone (NBVC 2012b). This location is a paved, generally vacant lot just north of 23rd Avenue and east of Track 14 Road and is designated for use by the Public Works Department (NBVC 2006, NBVC 2008). The proposed project site was previously developed for the pilot plant. Land within the immediate vicinity of the project area is industrial in nature and used for parking, industrial storage, and equipment testing for R&D projects by NAVFAC EXWC (NBVC 2006). The Navy-owned, publicly accessible Seabee Golf Course borders this industrial area to the west, north, and northwest; the nearest portion of the golf course lies approximately 550 ft to the west. Channel Islands Blvd is the nearest publicly-owned and publicly-accessible land, approximately 0.4 mile to the north. Land immediately north of Channel Islands Blvd is commercially developed; the nearest residential development occurs north of this commercial development.

3.2.2 Environmental Consequences

The land use impact analysis considers whether or not impacts would: 1) be inconsistent or in non-compliance with applicable land use plans or policies, 2) preclude the viability of an existing land use activity, 3) preclude continued use or occupation of an area, or 4) be incompatible with adjacent or vicinity land use to the extent that public health or safety is threatened.

3.2.2.1 Alternative 1

If implemented, Alternative 1 would expand the pilot project's footprint by 0.56 acre; this area has been previously paved and is adjacent to a cement-covered area that has been developed for the pilot project. Use of the site would be in accordance with the CRADA, all license agreements, and the local site approval process (NBVC 2012c). Industrial production activities associated with the biodiesel production process would be consistent with other activities conducted at these locations. There are no nearby land uses that are sensitive to Alternative 1 as project activities would not generate traffic or noise levels considered incompatible with land use in the project area (see Section 3.7, *Transportation and Circulation* and Section 3.8, *Noise*). As such, Alternative 1 would be consistent with applicable land use

policies, would not preclude the viability of an existing land use activity, would not preclude continued use of the area, and would be compatible with adjacent land uses. Furthermore, public health or safety would not be threatened (see Section 3.6), the site is suitable for biodiesel production, and NBVC Port Hueneme is interested in such development. The proposed action borders on the coastal zone. In any case, the proposed action would have no effect on coastal resources and there would be no affect to any land use within the coastal zone. Therefore, implementation of Alternative 1 would not result in significant impacts to land use.

3.2.2.2 Alternative 2

Impacts to land use from Alternative 2 would be the same as those from Alternative 1. Therefore, the implementation of Alternative 2 would not result in significant impacts to land use.

3.2.2.3 No-Action Alternative

No changes in land use are associated with the no-action alternative. As such, the no-action alternative would not result in significant impacts to land use.

3.3 WATER RESOURCES

Water resources include both surface and subsurface water. Surface water includes all lakes, ponds, rivers, streams, and impoundments within a defined area or watershed. Subsurface water is commonly referred to as groundwater. Groundwater is usually recharged during rain events and is withdrawn for domestic, agricultural, and industrial purposes. Water resources analyzed in this section include the surface water, groundwater, and wetlands associated with Alternative 1 and Alternative 2. Flood hazards associated with the 100-year floodplain (areas generally subject to major flooding once every 100 years) are also addressed in this section.

The CWA of 1972 is the primary federal law that protects the nation's waters, including lakes, rivers, aquifers, coastal waters, and associated wetlands. The primary objective of the CWA is to restore and maintain the integrity of the nation's waters.

3.3.1 Affected Environment

3.3.1.1 Surface Water

The primary surface water features at NBVC Port Hueneme include four drainage channels, a tidal channel, wetlands at the northwestern corner of the base, and Port Hueneme Harbor. There are no natural streams on the base. Due to shallow groundwater and tidal influence, surface water is usually present in the main surface channels even between rain events. These channels include: the 23rd Avenue Channel (approximately 500 ft from the proposed site), Pennsylvania Road Channel (approximately 900 ft from the proposed site), and Pleasant Valley Road Channel (approximately 4,500 ft from the proposed site) (NBVC 2012b). No surface water is present at the proposed project site.

Impermeable building and pavement surfaces cover most of the base, resulting in a high amount of surface runoff during storms. Surface water flow at the installation is in response to intermittent seasonal precipitation. Stormwater runoff from the project area and surrounding site collects in an adjacent retention pond (see Figure 2-1) before being discharged to a drainage channel parallel to 23rd Avenue. Drainage channels at NBVC Port Hueneme parallel roadways and intercept overland flows. With the exception of the northernmost portion of the base, these drainage channels ultimately discharge into the Port Hueneme Harbor and the Pacific Ocean. Stormwater in the northern portion of the base drains off-base into Channel Islands Harbor through the Channel Island Boulevard Canal immediately north of the

base. NBVC Port Hueneme drainage channels also carry surface water through the base from surrounding urban and agricultural land use discharges. The surface waters draining into NBVC Port Hueneme are highly mineralized (NBVC 2012b).

3.3.1.2 Groundwater

NBVC Port Hueneme is in the Oxnard Plain, a subbasin of the Santa Clara River Valley Basin. Underlying the Oxnard Plain is a substantial aquifer system that is the primary source of water for the region's population, used for urban and agricultural purposes. Five major aquifers underlie NBVC; in order of increasing depth, these are the Semi-Perched, Oxnard, Mugu, Hueneme, and Fox Canyon aquifers. These aquifers are divided into three systems: the uppermost system consists of the semi-perched aquifer, the upper aquifer system consists of the Oxnard and Mugu aquifers, and the lower aquifer system consists of the Hueneme and Fox Canyon aquifers. The aquifers are separated from one another by aquitards (barriers to water flow) of continuous layers of silt or clay. The Oxnard and the Fox Canyon aquifers are considered the two primary freshwater-bearing units (NBVC 2012b).

There is one active on-base water well, Well 22 (State Well No. T1N/R21W-17C03), used to pump groundwater for irrigation purposes only. Within approximately 0.5 mile of NBVC Port Hueneme there are 11 active groundwater supply wells tapping into the upper and lower aquifers beneath the Oxnard Plain. Three are screened in the Oxnard aquifer, two in the Hueneme aquifer, two in the Fox Canyon aquifer, and four in the lower aquifer system. Before 1983, 16 additional wells were screened in the Oxnard aquifer near NBVC Port Hueneme. These wells were abandoned after seawater intrusion progressively rendered them unusable for potable water (NBVC 2012b).

3.3.1.3 Floodplains

The Oxnard Plain is bounded by the Ventura River floodplain on the northwest and the Calleguas Creek floodplain on the southeast. The major flood-generating influence on the plain is the Santa Clara River. However, flooding sources are some distance from Port Hueneme. Minor flooding can occur several times per year at Port Hueneme, usually due to inadequate drainage during storm events and unusually high tides (Navy 2003a).

Port Hueneme is located within areas designated by the Federal Emergency Management Agency as flood hazard Zones A and B. Zone A designates areas subject to 100-year flooding and includes the area in the vicinity of the harbor and along the shoreline. Zone B generally designates areas between the limits of the 100-year and 500-year flood; most of Port Hueneme is located in Zone B, including the project site (NBVC 2012b). The project site is also outside of the tsunami inundation zone (California Emergency Management Agency *et al*. 2009). The 100-year flood zone and the tsunami inundation zone are shown on Map 3-1 of the 2012 INRMP (NBVC 2012b).

3.3.1.4 Wetlands

Jurisdictional wetlands, as defined under Section 404 of the CWA, were formally delineated at NBVC Port Hueneme by the U.S. Army Corps of Engineers in 2007 according to protocol set forth in the 1987 U.S. Army Corps Wetlands Delineation Manual, Arid West Supplement, and recent Rapanos Guidance. NBVC Port Hueneme has 12.45 acres of jurisdictional wetlands that primarily consist of drainage channels that empty into traditional navigable waters as well as the Arroyo willow habitat north of the 23rd Avenue Channel. The proposed project location is in a developed area with no wetlands present; the nearest wetlands are located within the 23rd Avenue Channel across the Track 14 Road at the southwestern end of the NETTS. The nearest portion of these wetlands is approximately 450 ft southwest of the proposed project site (NBVC 2012b).

3.3.2 Environmental Consequences

The evaluation of potential impacts to water resources considers the potential effects of implementing Alternative 1 or Alternative 2 on water quality and on the hydrologic characteristics of the proposed action locations and the immediate vicinity.

3.3.2.1 Alternative 1

No groundwater would be used by the project. Ground-disturbing construction activities include installing 3-ft helical screws into the ground to secure the solar cogeneration equipment, if concrete blocks are not used as ballasts, and minor (less than 3 ft) trenching near the eastern, southern, and western edge of the existing concrete containment pad to install electrical and water lines if a fixed, rather than mobile, fire suppression system is used. If additional modular offices in the proposed project area are necessary, they would also be secured to the ground with 3-ft helical screws. Minor ground disturbance (e.g., asphalt removal) may also occur within the potential concrete pad expansion area (see Figure 2-1); this disturbance would be limited to approximately 2,500 square ft.

The biodiesel plant at this location would be on a paved, generally vacant lot outside of the 100-year floodplain at the NETTS that has been previously developed for biodiesel production. Therefore, the project would not alter groundwater recharge or existing drainage patterns and stormwater would be managed onsite; there would be no impact to the quality or quantity of runoff. While the proposed action is well below the one-acre threshold of ground disturbance that would trigger the need for a stormwater pollution prevention plan, stormwater BMPs (e.g., straw wattles, sand bags) would be implemented as necessary to capture sediment on-site during any ground excavation. All appropriate hazardous materials and hazardous waste storage techniques would be taken to reduce the potential for spills, and any spills that occur would be properly contained (see Section 3.6). Some of the gray water byproduct from biodiesel production that was previously disposed through the sewer system on-base would instead be re-used onsite in the algal tanks. Therefore, the project would not violate any water quality standards and there would be no significant impacts to water resources with the implementation of Alternative 1.

3.3.2.2 Alternative 2

Impacts to water resources from Alternative 2 would be the same as those from Alternative 1, except that more of the glycerin and gray water byproducts from biodiesel production would be re-used onsite in the anaerobic digesters, thereby reducing the amount disposed through the sewer system. Therefore, the implementation of Alternative 2 would not result in significant impacts to water resources.

3.3.2.3 No-Action Alternative

Impacts to water resources from the no-action alternative would be essentially the same as Alternative 1 but with less gray water disposal to the sewer system. As such, impacts to water resources would not be significant.

3.4 BIOLOGICAL RESOURCES

Biological resources include native and naturalized (i.e., non-native species that have become established) plants and animals and the habitats in which they occur in areas that may be affected by the proposed action. This analysis focuses on species or habitats that are important to ecosystem function; are recognized as rare, threatened, or endangered by federal, state, or local agencies; or are legally protected. For purposes of this EA, biological resources are divided into three categories: vegetation communities, wildlife, and special-status species.

3.4.1 Affected Environment

3.4.1.1 Vegetation Communities

Existing vegetation communities at Port Hueneme include coyote brush, California annual grassland, bulrush-cattail, sand verbena-beach bursage, sandy beach, and marine subtidal. The proposed project location is a paved, generally vacant and previously developed lot just north of 23rd Avenue and east of Track 14 Road (see Figure 2-1) and is identified in the Port Hueneme INRMP as having "no potential constraints from natural resource issues" (see Map 2-1 in NBVC 2012b). The area surrounding the project area has also been previously developed. No vegetation is found within or immediately adjacent to the proposed project area; the nearest natural area is a patch of coyote brush scrub located 300 ft to the west of the western project boundary, on the opposite side of the Track 14 Road.

3.4.1.2 Wildlife

Wildlife species likely to be found at the proposed project location are those commonly found in urban and human-disturbed environments; these include California ground squirrel (*Otospermophilus beecheyi*), deer mouse (*Peromyscus maniculatus*), mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*).

3.4.1.3 Special-Status Species

No special status plant or wildlife species, including those that are federally- or state-protected, occur within the proposed project site due to the absence of suitable habitat.

3.4.2 Environmental Consequences

The analysis identifies the potential significance of impacts to biological resources based on: 1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource; 2) the proportion of the resource that would be affected relative to its occurrence in the region; 3) the sensitivity of the resource to proposed activities; and 4) the duration and ecological ramifications of the impact. For example, an impact would be considered significant if it would permanently reduce the population size or distribution of a protected species.

3.4.2.1 Alternative 1

<u>Plant Communities</u>

The project would not conflict with any policies, ordinances, or plans, and would obtain all necessary requirements and approvals through the site approval process. The minimal ground-disturbing activity proposed, and the placement of the project's modular equipment on top of the asphalt or concrete containment pad, would not affect plant communities, riparian habitat, or wetlands (see Section 3.3).

B100 is a non-toxic and biodegradable substance (U.S. Department of Energy [DOE] 1999). However, some chemicals used in the biodiesel production process are toxic (see Section 3.6), and there is a possibility for a spill of these chemicals to occur during the production process. A potential spill of hazardous chemicals would be contained by an 8-inch (20-centimeter) high berm surrounding the stored hazardous chemicals, by self-contained pallets or by double-walled tanks, allowing for localized clean-up.

Instead of disposing gray water byproduct from biodiesel production through the sewer system on-base, the expanded biodiesel production facility would reuse some of this water onsite. As approved by NBVC, locally occurring algae were collected in water from the nearby harbor and cultured in aquaria in which the salinity was gradually increased. This process allowed for the selection of algae that would thrive under high salinity, to provide food for commercially obtained brine shrimp (*Artemia franciscana*),

discussed below. Since the algae are already present, there is no risk of introduction/invasion and spread locally. In other parts of the world, the same procedure could be followed to obtain locally occurring algae. However, the proposed action is only to demonstrate this technology and production capacity at the NETTS. Worldwide use would require further analysis and consideration of local circumstances and impacts.

Therefore, for the reasons described above and with the implementation of the proposed impact mitigation measures (see Section 2.2.3), the implementation of Alternative 1 would not result in significant impacts to plant communities.

Wildlife

Neither construction nor operation of the biodiesel plant would constitute a significant source of noise (see Section 3.8, *Noise*) and would not disturb wildlife. The proposed project would be located on an open, paved and bermed area that has been previously developed for biodiesel production. The proposed species of brine shrimp, *Artemia franciscana*, occurs throughout the Americas in hypersaline pools, ponds, and lakes, and is used as fish food in aquaculture and by aquarists. Since the brine shrimp are native in hypersaline environments, they do not pose a risk of introduction/invasion and spread locally. In other parts of the world, consideration should be given to whether different species of brine shrimp are present, in which case native sources should be sought. However, the proposed action is only to demonstrate this technology and production capacity at the NETTS. Worldwide use would require further analysis and consideration of local circumstances and impacts. Therefore, with the implementation of the proposed impact mitigation measures (see Section 2.2.3), implementation of Alternative 1 would not result in significant impacts to wildlife, including the migration or movement of any wildlife species.

Special-Status Species

No special-status species, including federally- and state-protected species, are known to occur at the proposed project location. Therefore, there would be no effect on special-status species with implementation of Alternative 1 and impacts not would be significant.

3.4.2.2 Alternative 2

Impacts to biological resources from Alternative 2 would be the same as those from Alternative 1. Therefore, with the implementation of the proposed impact mitigation measures (see Section 2.2.3), the implementation of Alternative 2 would not result in significant impacts to biological resources.

3.4.2.3 No-Action Alternative

Impacts to biological resources associated with the no-action alternative would be the same as for either action alternative and would not be significant.

3.5 VISUAL RESOURCES

Visual resources are the natural and cultural features that make up the landscape of a viewer from a vantage point. The features include the land, water, vegetation, structures, and other features within the view of a casual observer. Impacts to the visual environment are measured by the degree to which implementation of the proposed action would change the view from a vantage point.

3.5.1 Affected Environment

The visual setting of Port Hueneme consists primarily of developed lands, with administrative buildings or housing throughout the base. There are also isolated patches of natural areas that are considered a visual resource due to their aesthetic and natural value. This includes a 33-acre grassland that is also an

active Installation Restoration Program site approximately 0.3 mile west of the proposed project site, the SeaBee golf course, and the strip of coyote brush scrub located 300 ft to the west of the western project boundary on the opposite side of the Track 14 Road. Port Hueneme is visible from the surrounding communities, and views from public recreational areas (such as beaches and parks) are considered to be sensitive. The proposed project site and immediate surroundings is developed, industrial and is not visible from public recreational areas, and it is expected that the trees, fences, and surrounding buildings would screen the view of the project site from the Seabee Golf Course.

3.5.2 Environmental Consequences

Visual resources impacts would be significant if they would substantially alter the visual character or quality of a visually sensitive area (e.g., a scenic landscape of vista) with high public exposure.

3.5.2.1 Alternative 1

Alternative 1 would be located at the pilot project within an industrial area, would be visually consistent with existing facilities in the project area, and would not create a new source of light or glare. No scenic vistas, natural areas, or other resources would be impacted. While the modular units and/or storage tanks would be visible from nearby, on-base roads, and could be partially visible from a small portion of the Navy-owned SeaBee Golf Course, they would be consistent with the visual setting of the area. Furthermore, Alternative 1 would not be visible to viewers off-base. As such, implementation of Alternative 1 would not degrade the visual character and quality of the area and would have no impact to visual resources.

3.5.2.2 Alternative 2

Impacts to visual resources associated with Alternative 2 would be the same as those from Alternative 1 (i.e., no impact). Therefore, the implementation of Alternative 2 would not result in significant impacts to visual resources.

3.5.2.3 No-Action Alternative

Impacts to visual resources associated with the no-action alternative would be the same as for either action alternative (i.e., no impact) and would not be significant.

3.6 HEALTH AND SAFETY

The primary health and safety concern associated with the proposed action is associated with biodiesel production operations, which include receiving, storing, using, and transporting potentially hazardous materials, wastes, and/or fuels. The potential for hazardous materials, wastes, and/or fuels at NBVC Port Hueneme to affect the proposed action (e.g., explosive quantity distance arcs and installation restoration program sites) is also considered.

<u>Hazardous Materials</u>

A hazardous material is a substance, pollutant, or contaminant that, due to its quantity, concentration, or physical and chemical characteristics, poses a potential hazard to human health and safety or to the environment if released into the workplace or the environment. This definition is consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by Superfund Amendments and Reauthorization Act of 1986. The Chief of Naval Operations *Environmental Readiness Program Manual* (OPNAV M-5090.1, 10 January 2014) states that hazardous substances include:

- Any substance so designated by the CWA;

- Any element, compound, mixture, solution, or substance so designated by CERCLA;
- Any solid waste having the characteristics identified under or listed pursuant to the Solid Waste Disposal Act (but not including any waste suspended by an Act of Congress);
- Any hazardous air pollutant listed under the CAA; and
- Any imminently hazardous chemical substance or mixture upon which the Administrator of USEPA has acted under Toxic Substances Control Act.

Hazardous Wastes

The Resource Conservation and Recovery Act (RCRA) of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984, defines hazardous wastes. A hazardous waste is a solid waste or combination of wastes which, due to its quantity, concentration, or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in either serious irreversible, or incapacitating reversible illness, or may pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, disposed of, or otherwise managed. A solid waste is a hazardous waste if it exhibits any ignitable, corrosive, reactive or toxic characteristic; or if it is listed in Subpart D of RCRA.

Fuel Storage

Underground storage tanks (USTs) and aboveground storage tanks (ASTs) are used to store both nonhazardous and hazardous substances and petroleum products. Because oil/water separators are often underground and can create environmental issues similar to USTs, they are included in this discussion.

Explosive Safety Quantity Distance Arcs

Explosive safety quantity distance arcs (also known as “quantity distance arcs”) have been developed to protect humans from the possible sabotage or accidental detonation of explosives or ammunition. These arcs surround each magazine and facility used for the storage or handling of ordnance. The distance that the arc extends from the magazine or facility is dependent on the type and quantity of explosives authorized for storage or handling. Quantity distance arcs prohibit the placement of inhabited buildings within unsafe distances from ordnance storage facilities.

Quantity distance arcs are defined by Naval Sea Systems Command Operating Procedure 5(1) (1995) and are used to establish the minimum safe distance between ordnance storage facilities (often referred to as magazines) and inhabitable buildings. The type and amount of ordnance material which can be stored in a magazine is determined by the DoD Explosive Safety Board. To ensure safety, personnel movements are restricted in areas surrounding a magazine or group of magazines.

Installation Restoration Program

The purpose of the Installation Restoration Program (IRP) is to identify, investigate, and clean-up or control releases of hazardous substances from past waste disposal operations and hazardous material spills at Navy facilities.

3.6.1 Affected Environment

3.6.1.1 Hazardous Materials

Hazardous materials are used for various operations throughout Port Hueneme and are managed under NBVC Instruction 5090.7B, *Hazardous Material Management Plan* (NBVC 2013). Hazardous materials

include batteries, lubricants, paints, adhesives, pesticides, herbicides, and sealing compounds. Most of the hazardous materials are used for facility operations.

The majority of hazardous materials used at Port Hueneme are stored by the Supply Department in the Hazardous Material Minimization Center. Individual shops are also authorized to store hazardous materials in small quantities. Generally, shops are limited to storing one week's worth of hazardous materials for tasks that are performed on a routine basis.

3.6.1.2 Hazardous Wastes

Hazardous wastes generated at NBVC Port Hueneme consist primarily of used oil, absorbents, waste paint, spill residues, batteries, antifreeze, hydraulic fluid, and waste cleaning compounds. Hazardous wastes generated at Port Hueneme are presently accumulated at satellite areas at or near the point of generation and from 90-day facilities. From there, they are manifested and transported off the station by a contractor to a USEPA-permitted storage, treatment, and disposal facility. Hazardous wastes generated from use of hazardous materials are managed according to RCRA Subtitle C (40 CFR Parts 260-280) regulations administered by the USEPA, unless otherwise exempted by CERCLA actions.

NBVC has a Hazardous Waste Management Plan (NBVC 2010) that provides guidance and direction for the use, storage, and compliance activities for hazardous materials and wastes at the base. The plan contains major sections on the following areas:

- Regulatory overview;
- Specific responsibilities for functional areas;
- Requirements for hazardous waste generators;
- Storage, transportation, disposal requirements;
- Management of specific waste streams;
- Personnel training requirements;
- Health and Safety;
- Inspections;
- Reporting and record keeping;
- Contingency and Emergency Plans;
- Hazardous waste minimization;
- Explosive ordnance derived wastes; and
- Hazardous wastes inventories and site-specific maps.

The *Hazardous Waste Management Plan* (NBVC 2010) is a comprehensive compilation of procedures and requirements that are mandated by law, directive, or regulation. The plan has a compliance orientation to ensure safe and efficient control, use, transport, and disposal of hazardous waste.

3.6.1.3 Fuel Storage

USTs and ASTs are used to store hazardous substances and petroleum products throughout the base. Many USTs have been taken out of service and removed from the ground. Ten USTs and 26 ASTs are used to store hazardous substances and petroleum products throughout Port Hueneme. The fuel storage

tanks have been upgraded to meet environmental requirements, and modern control systems (e.g., high level alarms) have been installed. An *Oil and Hazardous Substance Integrated Contingency Plan* (also known as "The Red Plan") has also been implemented for the base (NBVC 2012a). Spill response equipment is stored at each fuel storage area, and the Fire Department responds to any spills over 5 gallons (19 liters) on pavement and any spills to soil or water.

3.6.1.4 Explosive Safety Quantity Distance Arcs

Ordnance loading and unloading at Port Hueneme is limited to Wharf 5 and Wharf 6, which are located more than 1 mile from the proposed project location. The explosive safety quantity distance arcs for Wharf 5 and Wharf 6 are 850 ft and 1,250 ft, respectively.

3.6.1.5 Installation Restoration Program

The DoD has established the IRP as a means to identify, investigate, and remediate or control hazardous waste sites located at military installations. The IRP is intended to be a tool for the identification and clean-up of any contaminant releases that could endanger public health, welfare, or the environment. Two IRP sites are located near the proposed project location.

IRP Site 15 is located approximately 500 ft northwest of the proposed location and is contaminated by polychlorinated biphenyls [PCBs] in the soil. The contamination has been delineated horizontally and vertically and does not extend southward of the site boundary. An action to remove the PCB contamination is scheduled to begin in July 2014 (Granade 2014).

Solid Waste Management Unit (SWMU) 37 is an IRP Site that borders the northern portion of the NETTS and is a subsection of IRP Site Group 11. Isolated areas of subsurface contamination (hexavalent chromium) have been found on SWMU 37 and could exist in the soil beneath the pavement on the project site (NAVFAC 2011, Granade 2014).

3.6.2 Environmental Consequences

This section evaluates potential safety impacts associated with Alternative 1 or Alternative 2. Safety impacts would occur if either alternative would substantially increase risks to personnel, the public or the environment. Impacts associated with hazardous materials and wastes are considered significant if the storage, use, transportation, or disposal of these substances increases human health risks or environmental exposure.

3.6.2.1 Alternative 1

<u>Hazardous Materials and Wastes</u>

Under the proposed action, some hazardous materials associated with the production of biodiesel would be used and stored at the project location. All hazardous materials would be stored inside a concrete containment pad or in drums on self-contained pallets and in double-walled tanks, all of which would be located inside a protective asphalt berm, to prevent the spread of materials in the event of a spill. Transportation of any hazardous material would be in compliance with all applicable laws and regulations.

This project would be implemented in accordance with all hazardous material and hazardous waste handling and storage regulations including but not limited to all spill containment requirements. Specifically all hazardous materials would be stored with compatible materials in self-contained pallets or in 55-gallon (208-liter) drums in a contiguous layer berm (sized to hold 100% of the product plus 6 inches [15 centimeters] of rain) or in a double-walled tank. Materials that can react violently with other materials

used in the biodiesel fuel production process would not be stored in close proximity to each other. All required spill response materials would be kept on site with appropriately trained personnel.

Instructions contained in the Material Safety Data Sheets for the materials below would be followed as appropriate. Safety procedures implemented at the proposed biodiesel plant would be consistent with the *Hazardous Waste Management Plan* (NBVC 2010), NBVC Instruction 5090.7B *Hazardous Material Management Plan* (NBVC 2013), and the *Oil and Hazardous Substance Integrated Contingency Plan* (also known as "The Red Plan") (NBVC 2012a). Specifically, a newly constructed berm would contain any accidental spill of these materials and allow for localized cleanup.

By following the requirements outlined above, and the material handling requirements for the hazardous substances described below, impacts to health and safety from hazardous materials and wastes would not be significant.

Methanol

Approximately 4,110 gallons (15,600 liters) would be used in the process per day; this is approximately 1.5 million gallons (5.7 million liters) annually. The maximum volume that would be stored onsite is 12,000 gallons. Methanol is a clear, colorless, flammable liquid with a strong alcohol odor. Inhalation of high concentrations of the vapor may be fatal. Methanol is toxic by ingestion; direct skin and eye contact may be irritating. Methanol may be ignited by static and will produce toxic gases if burned. Methanol is a flammable material and an appropriate fire safety protocol will be developed (e.g., by Pro-Tech Fire Protection Systems), approved by the NBVC Project Review Board, and implemented. Safe handling involves the use of goggles, a shield, laboratory coat, and proper gloves. Methanol containers should be stored in a well-ventilated area and must be kept separate from incompatible materials. Methanol will react violently with sodium hydroxide (another material used in biodiesel fuel production), and care should be taken to prevent close storage of these materials. The proposed project is designed to minimize methanol release to the environment and any inadvertent releases would be reported in the toxics release inventory.

Sodium Methylate

Approximately 1,370 gallons (5,190 liters) would be used in the process per day as the primary reaction catalyst to convert feedstock to biodiesel. This equates to 500,000 gallons (1.9 million liters) annually. The maximum volume that would be stored onsite is 12,000 gallons. Methylate is corrosive and can cause severe irritation and burns to the area of body contact. Repeated or prolonged exposure may cause dermatitis or severe and permanent damage to the digestive tract. It reacts with water, acid, oxygen, carbon dioxide, and other materials. Safe handling involves the use of goggles, a laboratory coat and apron, vent hood, and proper gloves. Methylate should be stored in a cool, dry place away from heat sources. Containers of this material may still be hazardous when empty since they retain product residues.

Sodium Hydroxide

Up to 100 pounds (45 kilograms) could be used in the process per day if methylate is not used as the primary reaction catalyst; this is up to approximately 36,500 pounds (16,425 kilograms) annually. The maximum volume that would be stored onsite is 500 pounds. Sodium hydroxide is corrosive and is rated as a severe poison. It may be fatal if swallowed and harmful if inhaled. It causes burns to any area of body contact. It reacts with water, acid, and other materials. Safe handling involves the use of goggles and shield, a laboratory coat and apron, vent hood, and proper gloves. Sodium hydroxide can react violently with methanol (another material used in biodiesel fuel production), and care should be taken to prevent storage of these materials in close proximity to each other. Sodium hydroxide should be stored in a cool,

dry place away from heat sources. Containers of this material may still be hazardous when empty since they retain product residues.

Phosphoric Acid

Approximately 100 gallons (380 liters) would be used in the process per day; this is approximately 36,500 gallons (138,700 liters) annually. The maximum volume that would be stored onsite is 330 gallons. Phosphoric acid is corrosive and can cause severe irritation and burns to the area of body contact. It is harmful or fatal if swallowed. Inhalation is not an expected hazard, unless it is misted or heated to high temperatures. Safe handling involves the use of goggles and shield, a laboratory coat and apron, vent hood and proper gloves. Phosphoric acid should be stored in a tightly closed container in a cool, dry, ventilated area away from heat sources. It is not considered to be a fire hazard.

Sulfuric Acid

Approximately 100 gallons (380 liters) would be used in the process per day; this is approximately 36,500 gallons (138,700 liters) annually. The maximum volume that would be stored onsite is 330 gallons. Sulfuric acid is a strong corrosive and may cause severe burns. It can be fatal if ingested or inhaled. This material will react violently with organic materials and water when heated and may cause boiling or splattering. This material may also react with metals, releasing flammable hydrogen gas. Safe handling involves the use of goggles and shield, a laboratory coat, and impervious gloves. Sulfuric acid should be stored in a ventilated area with acid-resistant floor and good drainage. Containers of this material may still be hazardous when empty since they retain product residues.

Glycerin

Glycerin is a by-product of biodiesel fuel production. The maximum volume that would be stored onsite is 12,000 gallons. Glycerin is produced at a rate of 11% by volume during the biodiesel production process. Approximately 6,000 gallons (22,700 liters) would be produced per day; this is approximately 2.2 million gallons (8.3 million liters) annually. Glycerin would be stored in 55 or 30-gallon drums as needed, until it is ultimately re-used onsite. It will react with strong oxidizers. It may cause skin irritation as well as eye irritation, and ingestion may be fatal. Safe handling involves the use of goggles and shield, a laboratory coat, and proper gloves. Glycerin should be stored in tightly closed containers away from incompatible materials.

<u>Nonhazardous Materials and Wastes</u>

Although the following substances are non-hazardous materials or wastes, important safety considerations are noted.

Biodiesel

The amount of B100 produced would be up to 30,000 gallons per day with an annual production limit of 10 million gallons for R&D purposes. The maximum volume that would be stored onsite is 12,000 gallons. Biodiesel may cause eye irritation as well as gastro-intestinal symptoms if ingested; inhalation of the vapors may also cause irritation. It is flammable, and combustion will produce carbon monoxide, carbon dioxide, and thick smoke. An appropriate fire safety protocol, under development by Pro-Tech Fire Protection Systems, will be implemented. Safe handling involves the use of goggles, a shield, laboratory coat, and proper gloves.

Biodiesel vegetable oil methyl esters contain no volatile organic compounds that would give rise to any poisonous or noxious fumes. The biodiesel does not contain any aromatic hydrocarbons (benzene,

toluene, xylene) or chlorinated hydrocarbons. There is no lead or sulfur to react and release harmful or corrosive gases. However, in blends with petroleum diesel there would continue to be significant fumes released by the benzene and other aromatics present in the petroleum fraction (80%) of the blend.

Since the biodiesel has no volatile components (vapor pressure of less than 0.04 inch [1 millimeter] mercury) and a high flash point (typically over 360 degrees °F [180 degrees Celsius]), the product poses no risk of explosion caused by accumulated fumes. The only significant fire risk would be from the spontaneous combustion of rags and paper towels soaked in biodiesel and stored in an area with low ventilation or high temperatures (like the inside of an engine room); implementing established safety procedures would prevent this from occurring.

Biodiesel Production By-Products and Co-Products

Under Alternative 1, the installation and operation of the algae tanks would allow for the reuse of some of the gray water as a co-product and to research the onsite production of brine shrimp for use as feedstock. Non-hazardous biomass wastes would be removed by truck and properly disposed. Handling and storage of these wastes pose negligible risks to health and safety.

Therefore, for the reasons described above, the implementation of Alternative 1 would not create significant nonhazardous materials and wastes impacts.

Personnel Safety

Implementation of the proposed action would not result in adverse impacts to personnel safety at Port Hueneme. Compliance with the instruction specified in the existing *Hazardous Waste Management Plan* (NBVC 2010), NBVC Instruction 5090.7B *Hazardous Material Management Plan* (NBVC 2013), and the *Oil and Hazardous Substance Integrated Contingency Plan* (NBVC 2012a) would be followed. In addition, prior to project implementation, a safety and health plan would be generated to identify storage and handling procedures for biodiesel and any associated chemicals involved in the production process. The procedures in this plan would also comply with the Hazardous Material Management Plan and Oil and Hazardous Substance Spill Contingency Plan. Hazardous materials would be handled in compliance with all local, state, and federal regulations which address these substances (see discussion above). Specific safety measures would include eye-wash stations, emergency showers, specialized firefighting equipment such as water-fog-foam; automatic shut-offs throughout the system and continuous monitoring by mechanical methods, personnel, or both. The caustic materials are stored as solid pellets. Biodico would properly dispose of caustic wastes, such as empty barrels used to contain acid, off-base at approved off-base locations. Therefore, implementation of Alternative 1 would not result in significant personnel safety impacts.

Explosive Safety Quantity Distance Arcs and Installation Restoration Program Sites

The biodiesel production facilities would not be located within or near an existing quantity distance arc. Contamination at IRP Site 15 does not extend southward of the site boundary and would not affect the proposed project. There is a minor possibility that subsurface soil or groundwater under the NETTS may contain elevated concentrations of metals (e.g., hexavalent chromium) due to the proximity of IRP Site SWMU 37. The installation of 3-ft helical screws to secure the solar cogeneration equipment, which would only be used if concrete blocks are not used as ballasts; placement of additional modular offices within the project area, if necessary, that would also be secured with 3-ft helical screws; the potential minor (less than 3 ft) trenching near the eastern, southern, and western edge of the existing concrete containment pad to install electrical and water lines if a fixed, rather than mobile, fire suppression system is used; and potential asphalt removal within the concrete pad expansion area are the only potential

project activities that could expose personnel to subsurface soil or groundwater. To minimize potential exposure to subsurface soil or groundwater that may contain elevated concentrations of metals, construction workers would wear personal protective equipment during any excavation in the northern portion of the proposed project area. Therefore, impacts to health and safety under Alternative 1 would not be significant.

Health and Safety Conclusion

For the reasons described above, and with the implementation of the proposed impact mitigation measures (see Section 2.2.3), implementation of Alternative 1 would not create significant hazards to the public or the environment and therefore would not result in significant impacts to health and safety.

3.6.2.2 Alternative 2

Impacts to health and safety from Alternative 2 would be similar to those from Alternative 1, although non-hazardous waste would be reduced because all by-products would be used, sold, or provided as co-products. The anaerobic digesters produce a small amount of non-hazardous by-product, most of which would be recycled onsite via biological activities in the algae tanks as a co-product; the remainder would be disposed in accordance with standard base operations. In addition, small amounts of non-hazardous gasifier residue (ash) would also be sold, provided to local users as a co-product (e.g., a cement additive), disposed of as dry waste at a landfill in accordance with standard base operations, or recycled onsite in the algae tanks or anaerobic digesters. It is currently anticipated that in the near future biodiesel by-products and co-products will be used exclusively as the input material for anaerobic digestion and gasification. Consistent with recent consultation with the Ventura County Environmental Health Division, no solid waste permit is required (http://www.calrecycle.ca.gov/LEA/Regs/Tiered/TierChart.htm). Other input materials discussed in this EA may be used in the future, but only after EXWC and Biodico coordinate further with the Ventura County Environmental Health Division to identify permitting thresholds and comply with all federal, state, local, and Navy regulations and applicable permitting requirements for solid waste management. Therefore, with the implementation of the proposed impact mitigation measures (see Section 2.2.3), the implementation of Alternative 2 would not result in significant impacts to health and safety.

3.6.2.3 No-Action Alternative

Compared to Alternative 1 or Alternative 2, the no-action alternative would have a much smaller volume of feedstock, hazardous materials, and biodiesel received, stored, processed, and transported from the project site, and would not have a significant impact to health and safety.

3.7 TRANSPORTATION AND CIRCULATION

Transportation and circulation refer to the movement of vehicles on roadway networks. Primary roads, such as major interstates, are designed to move traffic and do not necessarily provide access to all adjacent areas. Secondary roads (or surface streets) are used to gain access to residential and commercial areas, hospitals, and schools.

Operating conditions and the adequacy of roadway systems and intersections are described in terms of their average daily traffic volumes and level of service (LOS). The LOS measure is an indicator of a roadway's ability to accommodate vehicular movement. LOS describes operational conditions as influenced by speed, travel time, freedom to maneuver, safety, driving comfort, and convenience. LOS measurements range from good (LOS A) to gridlock (LOS F).

3.7.1 Affected Environment

A comprehensive network of local roadways serves NBVC Port Hueneme and the surrounding area (see Figure 1-1). Conditions at key intersections near NBVC Port Hueneme are summarized in Table 3-9. As shown in the table, the intersections with the heaviest congestion during peak-hour conditions are Victoria Avenue at Monaco Drive and Ventura Road at Channel Islands Boulevard.

The proposed project location is a paved, generally vacant lot just north of 23rd Avenue and between Track 14 Road and Track 13 Road. During weekdays, trucks traveling to the pilot project access the base via the Victoria Avenue gate, a commercial truck-only gate (as effective 29 September 2014 [see below]), and would proceed to the project site via 23rd Avenue and would enter the NETTS via Track 13 or Track 14. During the weekends, when the Victoria Avenue gate is closed and traffic entering and exiting the base is reduced, trucks would enter via the Sunkist Street gate and would proceed to the project site via 23rd Avenue and would enter the NETTS via Track 13 or Track 14.

Table 3-9. Level of Service During A.M. and P.M. Peak Hours

Intersection	*Level of Service (LOS) During Peak Hours*	
	A.M.	*P.M.*
Channel Islands Blvd. at Victoria Ave[1]	A	B
Victoria Ave at Monaco Dr.[1]	B	B
Victoria Ave at 5th St[2]	B	A
Ventura Rd and Channel Islands Blvd[2]	B	B
Port Hueneme Road at Ventura Rd[2]	A	A
Port Hueneme Road at Saviers Rd[2]	A	A

Note: LOS A = free flow; LOS B = reasonably free flow; LOS C = stable flow, at or near free flow; LOS D = approaching unstable flow; LOS E = unstable flow, operating at capacity; LOS F = forced or breakdown flow.
Sources: [1] Associated Transportation Engineers 2012. [2] Southern California Association of Governments 2008.

The Southern California Association of Governments (2008) conducted a three-day survey of truck drivers entering NBVC Port Hueneme through the Victoria Avenue gate in March, 2008. On average, 92 trucks entered NBVC through the Victoria Avenue gate each day. About half (52%) of the trucks entered NBVC between 6:00 AM and 10:00 AM, with 32% of all trucks entering during the morning peak period of 6:00 AM to 8:00 AM. Truck size, in terms of weight, was also reported; approximately 20% were light (8,500 – 14,000 pounds), 39% were medium (14,001 – 33,000 pounds), and 41% were heavy (more than 33,000 pounds). These truck trips comprise about 5% of the total number of trucks that travel on Victoria Avenue on a daily basis (Southern California Association of Governments 2008). Since this study, security requirements at the Victoria Avenue gate have increased. To mitigate traffic-related conflicts, as implemented 29 September 2014, NBVC Force Protection now only allows commercial trucks to enter the base through Victoria Gate; all vehicles can still use the gate to exit the base and operating hours are unchanged. All three inbound lanes at Victoria Gate have been made accessible exclusively for staging, screening, searching, and processing commercial trucks, alleviating congestion and back-up.

On NBVC Port Hueneme, the highest traffic volume occurs at 23rd Avenue and the Sunkist Street gate, where approximately 15,000 vehicles were counted in a 24-hour period. Once on-base, however, average daily traffic volumes drop dramatically and range from 5,700 vehicles down to less than 100 vehicles. A

total of approximately 28,000 vehicles enter and exit the base daily. In the morning, most vehicles are entering the base (peak of 1,750 vehicles per hour); in the afternoon, most vehicles exit. At midday, the volumes entering and exiting are relatively equal and make up the highest two-way total for a typical day (Navy 2003a).

Current activities involve two feedstock collection truck (1,000-3,000 gallons) trips per day with additional truck (6,500 gallons) trips less than once per month.

3.7.2 Environmental Consequences

Impacts to transportation and circulation could be significant if, for example, the proposed project would substantially increase traffic in relation to the existing traffic load and capacity of the street system, exceed a LOS standard, or substantially increase hazards due to a design feature. For the purposes of this analysis, it is conservatively assumed that all vehicles involved would be large industrial trucks (6,500 gallons).

3.7.2.1 Alternative 1

Proposed construction activities (e.g., algae tank construction and modular equipment placement) would require the delivery of equipment and materials. Traffic associated with these construction activities would be short-term and minor; no long-term impact to on or off-base traffic circulation would occur.

Alternative 1 would produce up to 10 million gallons of B100 per year for R&D purposes at the proposed project site, which would require up to 20 truck trips per day (7,000 truck trips per year) to enter NBVC Port Hueneme to transport raw materials to, and products from, the project site. Compared to the no-action alternative, the number of truck trips required for the proposed action is relatively small because the trucks involved would have an increased cargo or tank capacity. Feedstock/biodiesel collection trucks range from 1,000-3,000 gallons (light to medium-weight trucks) and materials transport trucks are about 6,500 gallons (heavy-weight trucks).

Truck trips would occur throughout the day, averaging 2 trucks entering NBVC Port Hueneme per hour, and would not be concentrated during morning peak hours. The daily traffic volume increase would represent only a small portion of the total existing traffic volume on Victoria Avenue, at NBVC Port Hueneme, at the nearest major intersections (Channel Islands Boulevard at Victoria Avenue, Channel Islands Boulevard at Ventura Road, and Ventura Road at Port Hueneme Road), or in the region (Associated Transportation Engineers 2012, Southern California Association of Governments 2008). As such, this increase would have a negligible impact to the roadways surrounding NBVC Port Hueneme and no impact to regional traffic. Moreover, the implementation of Alternative 1 would slightly reduce regional truck traffic because the increased production of biodiesel in Ventura would reduce the need to import petroleum diesel from Long Beach (approximately 90 miles to the south) and because the use onsite of used cooking oil would reduce the need to transport the oil from Ventura to Los Angeles (approximately 65 miles to the south) for processing. Therefore, vehicles associated with operations under Alternative 1 would not substantially increase traffic on nearby roadways in relation to the existing traffic load or capacity of the street system or exceed a LOS standard.

With respect to traffic entering NBVC Port Hueneme, the proposed increase would have a negligible impact to traffic entering via the Sunkist Street gate on weekends but would appreciably increase (by approximately 20%) the number of trucks entering via the Victoria Avenue gate on weekdays. To alleviate traffic-related conflicts that developed in recent years at the Victoria Gate, as implemented 29 September 2014 and described above, only commercial trucks are allowed to enter the base through Victoria Gate. Since this change, congestion has been greatly reduced and is not anticipated to be a

problem in the future. EXWC and Biodico would coordinate with NBVC Force Protection to ensure that project-related traffic does not contribute to back-ups at the Victoria Gate; therefore, Alternative 1 would not have a significant impact on traffic.

The implementation of Alternative 1 would not increase hazards due to a design feature or incompatible use or impact parking, emergency access, alternative transportation plans or policies, or change air traffic patterns or levels. Therefore, no significant impacts to transportation and circulation would occur as a result of implementation of Alternative 1.

3.7.2.2 Alternative 2

Impacts to transportation and circulation from Alternative 2 would be the same as or less than those from Alternative 1, as the anaerobic digesters and the gasifier would process biodiesel production and NBVC wastes on-site and no appreciable quantities of off-site wastes would be brought to NBVC for use in the digesters or the gasifier. Therefore, the implementation of Alternative 2 would not result in significant impacts to transportation and circulation.

3.7.2.3 No-Action Alternative

Under the no-action alternative, current truck trips (see Section 3.7.1) would continue. The no-action alternative would generate less traffic than either action alternative. Therefore, the implementation of the no-action alternative would not result in significant impacts to transportation and circulation.

3.8 NOISE

Noise is generally defined as any sound that interferes with communication, is intense enough to damage hearing, or is otherwise annoying (Federal Interagency Committee on Noise [FICON] 1992). Noise can be intermittent or continuous, steady or impulsive, as well as stationary or transient. Stationary noise sources are typically associated with specific land uses (e.g., schools or industrial facilities). Transient noise sources move through the environment, either along relatively established paths (e.g., highways, railroads, and aircraft flight tracks around airports) or randomly. For purposes of this analysis, noise is measured in decibels (dB) Community Noise Level Equivalent (CNEL), which represents the average sound level over a 24 hour period and includes a 5 dB penalty for noise generated between 7 PM and 10 PM and a 10 dB penalty for noise generated between 10 PM and 7 AM. Since sound energy is measured on a logarithmic scale, a doubling of sound energy (by doubling the traffic volume, for example) is needed to cause a 3-dB increase in noise levels. Groundborne vibration is also considered.

There are a wide range of responses to noise depending on the type of noise and the characteristics of the sound source, as well as the sensitivity and expectations of the receptor, the time of day, and the distance between the noise source and the receptor (e.g., a person or animal).

3.8.1 Affected Environment

The most common source of noise in the proposed project area is from transportation-related sources, primarily motor vehicles. Channel Islands Boulevard, Victoria Boulevard, Ventura Boulevard, and local arterial roadways are major traffic noise sources in the Port Hueneme area. Other noise sources include equipment used to load and unload ships in the harbor, the railroad, heavy vehicle repairs, foghorns, and a machine shop located 300 ft to the northeast of the proposed project. Noise levels along primary roadways, such as Hueneme Road and Ventura Road, are about 65 dB CNEL immediately adjacent to the roadways and drop to 60 dB CNEL within approximately 500 ft of the road’s edge. The nearest sensitive receptors include the Seabee Golf Course 550 ft to the west and an office building 700 ft to the northeast of the proposed project location.

3.8.2 Environmental Consequences

The primary factor considered in determining the significance of noise effects includes the extent or degree to which implementation of the proposed action would affect baseline noise environments. The primary issue of concern with regard to noise or groundborne vibration is the potential for impacts to humans and terrestrial wildlife. Factors for evaluating noise impacts include ambient CNEL levels at noise-sensitive land uses beyond the "normally acceptable" land use compatibility criteria. These criteria are typically 60 or 65 dB CNEL for residential, education, and health care land uses. Ventura County uses a CNEL level of 65-dB as the normally acceptable limit for residential and other noise-sensitive land uses. As such, significant noise impacts would occur if implementation of the proposed action would directly or indirectly:

- Increase ambient CNEL levels at noise-sensitive land uses beyond the "normally acceptable" land use compatibility criteria (65 dB CNEL for residential, education, and health care land uses); or
- Establish noise-sensitive land use (residential, educational, and health care uses) in areas exposed to ambient noise levels that are higher than the applicable land use compatibility criteria (65 dB CNEL).

Less stringent guidelines are applied to temporary noise sources that are restricted to daytime hours (such as most construction and demolition activities) unless they affect noise-sensitive land uses and result in CNEL levels more than 10 dB above the respective land use compatibility criteria.

3.8.2.1 Alternative 1

<u>Construction</u>

Construction activities would be limited to (1) installing 3-ft helical screws into the ground, if concrete blocks are not used as ballasts, to secure the solar cogeneration equipment; (2) trenching at less than 3 ft for the subsurface installation of electrical and water lines if a fixed, rather than mobile, fire suppression system is used; (3) the placement of modular equipment/offices on the paved project site that would also be secured with 3-ft helical screws; and (4) asphalt removal within the potential concrete pad expansion area. These activities would be short-term and minor; no long-term construction or vehicle noise impacts, including groundborne vibration, would occur.

Construction traffic associated with Alternative 1 would be minimal (see Section 3.7, *Transportation and Circulation*), and no long-term increase in traffic volume would occur. Therefore, additional traffic associated with construction vehicles would have no significant impacts on ambient noise levels along the roadways leading to the proposed project location under Alternative 1. Accordingly, there would be no significant impact to noise under Alternative 1.

<u>Operations</u>

An additional 20 truck trips going to and from the project site at NBVC Port Hueneme would be a negligible increase over current traffic levels in the surrounding area (see Section 3.7, *Transportation and Circulation*). As such, additional traffic associated with delivery vehicles would not noticeably increase ambient traffic noise levels along the roadways leading to the proposed project location and impacts would not be significant.

Biodiesel production is a previously analyzed and permitted industrial activity at this location. Minimal operational noise would be generated by the electric pumps. At the fence line, this noise would be audible at low levels only, would be well below the 65 dB CNEL threshold of significance, and would be

consistent with the surrounding noise environment. Moreover, this noise would not substantially change temporary or permanent ambient noise levels, generate groundborne vibrations, or affect sensitive receptors.

The proposed project location would continue to experience average noise levels below 65dB CNEL. For reasons described above, the slight increase in production plant operation noise at this location would not have a noticeable change on the ambient noise environment, conflict with any noise standards, or affect any sensitive receptors. Therefore, the implementation of Alternative 1 would not result in significant impacts to noise.

3.8.2.2 Alternative 2

Impacts to noise from Alternative 2 would be the same as those from Alternative 1. Therefore, the implementation of Alternative 2 would not result in significant impacts to noise.

3.8.2.3 No-Action Alternative

Under the no-action alternative, biodiesel production would be limited to 370,000 gallons or less of B100 per year. Compared to Alternative 1 or Alternative 2, construction and operational noise associated with the no-action alternative would less because the proposed solar technology, algae tanks, anaerobic digesters, and gasifier would not be installed; the amount of time processing biodiesel would be 96.3% less; and there would be at least 70% fewer truck trips. Implementation of the no-action alternative would not result in significant impacts to noise.

3.9 UTILITIES

Utilities are defined as services such as electricity, natural gas, telephone, potable water, and sewage systems, which are typically provided by either public or private service companies (i.e., electricity, natural gas, and telephone) or municipalities (i.e., water and sewer systems). Each type of utility has its own associated infrastructure, such as pipelines, cables, conduits, electrical substations, and pumping stations, which allow for the provision of services to a specific location.

3.9.1 Affected Environment

Both underground and overhead utilities are present at NBVC Port Hueneme. The existing utilities are owned and/or operated by the City of Port Hueneme (drinking water and sewer lines), Southern California Edison (electrical lines), Southern California Gas Company (natural gas lines), Verizon (telephone lines), and Time Warner Cable (cable lines). Since the pilot project was initially considered in 2003, the proposed project site has had a new, upgraded transformer and gas line installed to service the biodiesel production facility. A modular trailer with ties into the existing water and sewer lines has also been added to the site.

3.9.2 Environmental Consequences

Impacts to utilities could be significant if the proposed action would alter or create substantial new demands on existing electrical, natural gas, sanitary sewer, water, stormwater, wastewater, or communications infrastructure.

3.9.2.1 Alternative 1

The local “One-Call Center” would be contacted to obtain detailed information on the location and depth of all existing utility lines in the project area prior to commencing any ground-disturbing activities. If existing utilities are identified that could be impacted by any ground-disturbing activity, the proposed equipment would be re-aligned or modified to avoid impacts to existing utilities. Potential equipment

modifications include, but are not limited to, the use of non-surface penetrating concrete blocks as ballasts for the solar equipment or the use of a mobile fire suppression system.

If a fixed fire suppression system is used, one new electrical connection will be added at the northeastern end of the existing concrete containment pad, extending south along the eastern fence; and one new 8" water connection will be added at the southeastern end of the existing concrete containment pad, connecting to a pump and a new 6" line that extends along the southern and western borders of the existing concrete containment pad. No new natural gas, sanitary sewer, stormwater, wastewater, or communications connections would be required, and use of the existing connections would not be substantially altered. The existing Interconnect Agreement with Southern California Edison will be amended to include all electricity generated. All work would be done in accordance with all applicable laws, regulations, standards, and procedures. No new water supply would be needed. Maximum potable water consumption under Alternative 1 would be 2 million gallons annually, up from 74,000 gallons annually under the pilot project (approximately 20% of the volume of biodiesel produced). However, 2 million gallons is a negligible portion of NBVC Port Hueneme's annual water use – approximately 0.84% based on 2015 projected values – and would not have a significant impact (Port Hueneme Water Agency [PHWA] 2011). Some of the glycerin and gray water created during the biodiesel production process would be re-used onsite in algae tanks; the remainder would be disposed through the sewer system or sold as co-product. Under Alternative 1, feedstocks that minimize the need for solid waste disposal (e.g., yellow grease [used restaurant cooking oil], brine shrimp) would be prioritized and solid wastes removed by truck are expected to be minimal. A very small amount of non-hazardous solid waste would result from processing feedstock; this would have a negligible impact on recycling and diversion of waste off-base, and Biodico would coordinate with NBVC and the NRSW SSW Program to ensure proper waste management. Therefore, with implementation of the procedures discussed above, no significant impacts to existing utilities infrastructure would occur with the implementation of Alternative 1.

3.9.2.2 Alternative 2

Impacts to utilities from Alternative 2 would be the same or less than those from Alternative 1. No natural gas would be needed for Alternative 2, and all solid waste would be reprocessed onsite in the gasifier or anaerobic digesters; gasifier residue would be sold as a co-product and could be used as a cement additive, disposed of as dry waste in a landfill in accordance with standard base operations, or recycled by biological activities in the algae tanks or the anaerobic digesters. The implementation of Alternative 2 would also provide a relatively small amount of excess electricity to the Navy and/or be fed back into the grid via an existing junction box at the site, offsetting the Navy's electricity bill. The junction box is equipped with a net metering device to measure the electricity produced onsite, thereby allowing the Navy to receive credit toward its renewable energy goals (see Section 1.2.2, *Need*). Existing electrical lines would typically have sufficient capacity for this small increase in electricity and would not require new electrical lines. Excess heat would be released to the atmosphere. Additionally, when compared to Alternative 1, more of the glycerin and gray water co-product would be used on site in the anaerobic digesters, thereby reducing the amount disposed through the sewer system. Therefore, no significant impacts to existing utilities infrastructure would occur with the implementation of Alternative 2.

3.9.2.3 No-Action Alternative

Under the no-action alternative, biodiesel production would be limited to 370,000 gallons or less of B100 per year, or 3.7% of the volume that would be produced by implementation of the proposed action. Although excess electricity would not be produced, impacts to utilities associated with the no-action alternative would generally be similar to those associated with Alternative 1 or Alternative 2 and would therefore not be significant.

CHAPTER 4
CUMULATIVE IMPACTS

Federal law (42 USC 4321 et seq.) and Navy regulations for implementing NEPA (32 CFR 775), as described in the Chief of Naval Operations *Environmental Readiness Program Manual* (OPNAV M-5090.1, 10 January 2014), require that the cumulative impacts of a proposed action be assessed. According to CEQ regulations, the analysis of cumulative impacts in an EA should consider the potential environmental impacts resulting from "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency… or person undertakes such other actions" (40 CFR 1508.7).

4.1 DEFINITION OF CUMULATIVE IMPACTS

Cumulative impacts may occur when there is a relationship between a proposed action and other actions expected to occur in a similar location or during a similar time period. This relationship may or may not be obvious. Actions overlapping, or in close proximity to, the proposed action can have more potential for cumulative impacts on "shared resources" than actions that may be geographically separated. Similarly, actions that coincide temporally would tend to offer a higher potential for cumulative impacts.

4.2 PAST, PRESENT, AND REASONABLY FORESEEABLE PROJECTS

Baseline conditions for the cumulative effects region are described in Chapter 3 of this EA. This cumulative impacts analysis focuses on past, present, and reasonably foreseeable actions that are near the proposed project in space and/or time, and have potential to affect the same environmental resources as those affected by the proposed project (see Figure 4-1). Cumulative actions considered for analysis are described below. Chad Lousen (2014), NBVC NEPA Planner, provided the descriptions of the on-base actions that follow.

4.2.1 Past Projects

4.2.1.1 Virtual Test Capability (VTC) Port Hueneme Division NSWC Surface Warfare Engineering Facility (SWEF), May 2000.

This project included the proposed development and operation of the VTC at the SWEF, NBVC Port Hueneme. The VTC would electronically connect Navy facility assets (e.g., laboratories and ranges) with Navy fleet assets (e.g., aircraft and ships). The network that would be established would allow engineers and technicians to integrate the use of Navy systems and hardware (radars, directors, and launchers), software (computer programs), and communications devices (satellites and radios). The VTC would build upon existing SWEF facility, equipment, and operation programs, it would require the installation of some new equipment, and more tests, exercises, and training would be conducted.

4.2.1.2 Port Hueneme Contaminated Sediment Dredging and Confined Aquatic Disposal Site Construction, August 2008.

This project included the proposed dredging of sediments contaminated with elevated concentrations of chemicals, including metals, pesticides, tributylin, and PCBs, within Port Hueneme Harbor and their placement and confinement in an engineered subaqueous Confined Aquatic Disposal facility and related beach nourishment, accomplished with clean sediments excavated to construct the Confined Aquatic Disposal facility.

Figure 4-1
Locations of Past, Present, and Reasonably Foreseeable Cumulative Projects

4.2.1.3 Port Hueneme 2012 INRMP, April 2012.

The Port Hueneme INRMP was revised in 2012. A memorandum was also prepared in 2012 that determined that the EA and FONSI completed for the 2002 Port Hueneme INRMP sufficiently met the NEPA requirements for the 2012 Port Hueneme Revised INRMP. The likely and occurring effects of the Revised INRMP would not be significantly different or qualitatively more severe than what was documented in the 2002 INRMP EA and FONSI. Therefore, no additional NEPA documentation is required for the 2012 Port Hueneme Revised INRMP.

4.2.1.4 Ventura Road Bike Path Project, 2012.

The Ventura Road Bike Path Project is adjacent to NBVC, just north of Pleasant Valley Road. The project would remove existing wooden poles adjacent to the path and overhead telecommunication lines serving NBVC would be undergrounded. Right-of-way issues and an agreement with NBVC authorizing this work were reached in 2012 (City of Port Hueneme 2012).

4.2.2 Present Projects

4.2.2.1 Homeporting of the Littoral Combat Ships on the West Coast of the United States, April 2012.

Under the preferred alternative, the Navy would homeport up to 16 Littoral Combat Ships at Naval Base San Diego and use a combination of existing military assets in the Southern California area (e.g., Naval Base San Diego, NBVC Point Mugu, NBVC Port Hueneme, Naval Station North Island) to provide berthing space, ship hotel services (e.g., utilities), tug service, maintenance support, drydocking facilities, fueling services, ordnance handling and storage, cargo and mission module handling and storage, support facilities, and aviation asset support. Existing facilities, Buildings 362 and 364 at NBVC Point Mugu; and Building 1392 at NBVC Port Hueneme, would be used, and minor improvements (i.e., interior renovations and minor exterior site improvements) would be required for some of the existing facilities used.

4.2.2.2 Victoria Mixed Use Project, June 2013.

A mixed use residential and commercial project was proposed near the northeast intersection of West Channel Islands Boulevard and South Victoria Avenue in Port Hueneme. The project would provide for a residential development of 19,000 sq. ft of retail uses, 112 apartments, and associated parking. Additional improvements would be provided on Victoria Avenue and Monaco Drive, including a new four-way traffic signal, cross walks, and bus stop. A circulation and traffic study found that the project would generate a total of 2,132 average daily trips. Of these, 100 would occur during the morning peak hours and 194 would occur during the afternoon peak hours. Impacts associated with the proposed project were found to be not significant and a Final Mitigated Negative Declaration was approved in June of 2013 (City of Port Hueneme 2014a).

4.2.2.3 Construction and Operation of Solar Photovoltaic Systems at Multiple Installations in California, March 2014.

Under the Proposed Action, the Navy and one or more private solar power developers would enter into 20-year service agreements permitted under 10 U.S.C. § 2922A, known as Power Purchase Agreement, to allow the solar power developers to construct, operate, maintain, and own photovoltaic systems on five installations within NRSW in California. Installations include Naval Air Facility El Centro, Naval Support Activity Monterey's Main Site and Navy Annex, Naval Weapons Station Seal Beach, Naval Weapons Station Seal Beach Detachment Norco, and NBVC Port Hueneme. At NBVC Port Hueneme, the proposed action would construct a 1.46 acre, carport-mounted photovoltaic system at building

PH-1388. The system would be connected to the installation's existing electricity grid via electrical lines that would be installed and connected to an electrical junction (i.e., electrical feed meters, switchgear, inverters, circuit breakers, transformers, or other small electrical equipment). The total output from the generation facility would be approximately 432.8 megawatt hours per year.

4.2.2.4 Mandalay Village Marketplace, January 2014.

The 17.22-acre shopping center had the greatest vacancy, in terms of square footage, than any other center in the City in 2012. Renovations to upgrade and enhance the Marketplace with new landscaping, décor, and enhanced common areas began in 2012. The City of Port Hueneme has been expediting tenant approvals to fill commercial vacancies. As of January 2014 this project is nearing completion (City of Port Hueneme 2014a).

4.2.3 Reasonably Foreseeable Projects

4.2.3.1 Warehouse No.1A and 1B Central Plant and Control Retrofit, January 2014.

The project consists of, but is not limited to, implementing a Central Plant and Controls Retrofit Project in the Oxnard Harbor District to achieve improved energy and operations efficiency. As of January 2014, this project is in the bidding stages and does not yet have an anticipated completion date (City of Port Hueneme 2014b).

4.2.3.2 Hueneme Beach Park Shore Protection Project, January 2014

Construction of a 2,400 foot-long revetment at Hueneme Beach Park between Market Street and the Port Hueneme Pier. Revetment to be constructed as far upland as possible, adjacent to the existing wall and sidewalk, and below the natural beach elevation such that the revetment would be buried during normal sand replenishment years. Rock would be imported from Emma Wood State Beach, Solimar Beach, or a local quarry. Up to 7,700 tons of rock would be needed for each 500-foot segment. The purpose of the project is to prevent damage to onshore improvements resulting from accelerated erosion at Hueneme Beach Park occurring as a result of an interruption in beach nourishment. This project has finished review as of February 2014 (OPR 2014).

4.2.3.3 Charles Street Housing

This project would create four new parcels and construct four new single-family residences on Charles Street, south of Pleasant Valley Road in the City of Oxnard. As of July 2014, the project has been approved by the City of Oxnard Planning Division and is undergoing a plan check prior to construction (City of Oxnard Planning Division 2014).

4.2.3.4 Victoria/Hemlock Condominiums

This project would construct 116 residential condominium units at 1830 S. Victoria Avenue, north of Hemlock Street in the City of Oxnard. The project has been approved by the City as of July 2014 but is not yet under construction (City of Oxnard Planning Division 2014).

4.2.3.5 Vista Pacifica Project

The Vista Pacifica Project would consist of construction of a 44 unit multi-family condominium complex in 6 buildings with one community park. Vista Pacifica would be located at 5557 Saviers Road, north of Port Hueneme Road in the City of Oxnard. The proposed project is pending approval as of July 2014 (City of Oxnard Planning Division 2014).

4.2.3.6 Commercial Retail Building

This project would construct one new commercial retail building at 105 W Pleasant Valley Road in the City of Oxnard. The 11,400 square foot building would be one-story and "L" shaped. The proposed project is pending approval as of July 2014 (City of Oxnard Planning Division 2014).

4.2.3.7 Pedestrian and Bike Crossing Phase I

The multi-use path serving the Bubbling Springs Recreational Corridor does not provide for a mid-block crossing on Pleasant Valley Road east of Ventura Road. An engineering study has concluded that right-of-way and driveway approach modifications are required if a mid-block crossing were to be constructed. Once right-of-way issues are resolved, the preparation of plans and specifications for construction can proceed (City of Port Hueneme 2012).

4.3 CUMULATIVE IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

4.3.1 Air Quality

As described in Section 3.1.2, annual emissions from either Alternative 1 or Alternative 2 (including both construction and operational emissions) would be below the PSD major source thresholds and/or the General Conformity Rule *de minimis* thresholds as set forth in the CAA for all pollutants. Moreover, the implementation of Alternative 1 or Alternative 2 would result in beneficial impacts to air quality due to an overall net reduction in VOC, CO, PM10, and PM2.5 emissions.

Because the project would be permitted with the VCAPCD, the project would be required to comply with the SIP-approved Rules and Regulations adopted by the VCAPCD. The proposed project would therefore not cumulatively result in significant air quality impacts with any of the other projects.

The potential effects of proposed GHG emissions are by nature global, as individual sources of GHG emissions are not large enough to have an appreciable effect on climate change. Therefore, an appreciable impact on global climate change would only occur when proposed GHG emissions combine with GHG emissions from other man-made activities on a global scale. Therefore, there would be no significant cumulative impacts to air quality under any of the project alternatives.

4.3.2 Land Use

Implementation of either Alternative 1 or Alternative 2 would require a relatively small expansion of land (approximately 0.56 acre, located entirely within the NETTS) devoted to biodiesel production. The proposed project would not adversely impact the facility's mission or essential activities and would be insignificant in terms of potential cumulative impact with any of the listed past, present, or reasonably foreseeable projects. Furthermore, the proposed project would not affect adjacent public or private lands and all projects analyzed in this analysis are (or would be) separated geographically/temporally from the proposed project location. Therefore, there would be no significant cumulative impacts to land use under any of the project alternatives.

4.3.3 Water Resources

The biodiesel plant at this location would be on a paved, generally vacant lot outside of the 100-year floodplain at the NETTS that has been previously developed for biodiesel production. Groundwater recharge and existing drainage patterns would not be altered. All appropriate hazardous materials and hazardous waste storage techniques would be taken to reduce the potential for spills. In the event of a spill, the existing asphalt pavement, concrete containment pad, and 8" berm would prevent water contamination. The reuse of some (Alternative 1) or most (Alternative 2) of gray water onsite would

reduce gray water discharges into the local sewer system. Additionally, no other projects would cumulatively affect water resources at the proposed project location. Therefore, there would be no significant cumulative impacts to water resources under any of the project alternatives.

4.3.4 Biological Resources

Implementation of the proposed action would have little to no impact on vegetation communities, wildlife, or special status species. Therefore, there would be no significant cumulative impacts to biological resources under any of the project alternatives.

4.3.5 Visual Resources

The proposed project would be located at the pilot project within an industrial area, would be visually consistent with existing facilities in the project area, and would not create a new source of light or glare. No scenic vistas or resources would be impacted, the visual character and quality of the area would not be degraded, and the proposed project would not be visible to viewers off-base. Therefore, there would be no significant cumulative impacts to visual resources under any of the project alternatives.

4.3.6 Health and Safety

Construction, operation, and maintenance of the expanded biodiesel production facility would involve increasing the quantities of hazardous materials delivered, stored, and used onsite. However, appropriate procedures for the handling, storage, and disposal of hazardous materials and wastes would be implemented in accordance with the Resource Conservation and Recovery Act and other applicable federal, state, and local regulations. Furthermore, the existing asphalt pavement, concrete containment pad, and 8” berm would prevent soil or water contamination in the event of a spill. No other projects would cumulatively affect health and safety within the NETTS. Therefore, there would be no significant cumulative impacts to health and safety under any of the project alternatives.

4.3.7 Transportation and Circulation

There are no significant impacts of the proposed action on transportation and circulation (Section 3.7.2) as (1) the daily traffic volume increase would represent only a small portion of the total existing traffic volume on Victoria Avenue, at NBVC Port Hueneme (including the Sunkist Street gate), at the nearest major intersections, or in the region; (2) Biodico would coordinate with NBVC Force Protection to ensure that project-related traffic does not contribute to back-ups at the Victoria Gate; and (3) the proposed action would slightly reduce regional truck traffic. Additionally, a nearby project of interest (Mandalay Village Marketplace) already exists and the addition of new landscaping, décor, and enhanced common areas would not create a traffic impact or affect truck traffic at the Victoria Avenue gate. As such, there is no potential for the project to add to cumulative effects from other projects. Therefore, there would be no significant cumulative impacts to transportation and circulation under any of the project alternatives.

4.3.8 Noise

Based on the minimal impacts of the proposed action on noise (Section 3.8), the previous level of development at and around NBVC Port Hueneme, and the lack of other projects within the immediate vicinity, there would be no significant cumulative impacts to noise under any of the project alternatives.

4.3.9 Utilities

Implementation of the proposed action would require one new electrical connection and one new water connection if a fixed fire suppression system is used. Natural gas, sanitary sewer, stormwater, wastewater, or communications connections, and use of the existing connections would not be substantially altered.

The proposed project would not affect NBVC recycling programs and would generate only a small amount of non-hazardous solid waste. Coordination with the NRSW SSW Program would occur as needed to ensure no change or impact to business operations and environmental surety. Additionally, other projects would have no cumulative impacts to utilities within the NETTS. Therefore, there would be no significant cumulative impacts to utilities under any of the project alternatives.

4.4 CUMULATIVE IMPACTS CONCLUSION

Cumulative impacts to the environmental resource areas evaluated herein from the proposed action in conjunction with other past, present, and reasonably foreseeable future actions would not be significant under Alternative 1 or Alternative 2.

4.5 POSSIBLE CONFLICTS BETWEEN THE ACTION AND THE OBJECTIVES OF FEDERAL, REGIONAL, STATE, AND LOCAL PLANS, POLICIES, AND CONTROLS

Implementation of Alternative 1 or Alternative 2 would be consistent with federal, regional, state and local plans, policies, controls, laws, and regulations. No potential conflicts have been identified. Table 4-1 summarizes the status of required environmental compliance actions for any of the project alternatives.

Table 4-1. Status of Compliance with Relevant Land Use Plans, Policies, and Controls

Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*
NEPA (42 USC § 4321 *et seq*.) Department of the Navy Procedures for Implementing NEPA (32 CFR 775)	Navy	This EA has been prepared in accordance with the CEQ Regulations implementing NEPA and Navy NEPA procedures.
CAA, as amended (42 USC § 7401 *et seq*.)	USEPA	Per CAA regulations, the proposed action would not compromise air quality attainment status or conflict with attainment status and maintenance goals established in the VCAPCD SIP. A formal CAA conformity determination is not required. The proposed action would be in compliance with the CAA and would comply with all applicable VCAPCD Rules and Regulations.
ESA (16 USC § 1531)	NMFS/USFWS	The proposed action would have no effect on any USFWS- or NMFS-listed species, and consultation is not required.
EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 Federal Register 7629)	Navy	There would be no disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. The proposed action would be in compliance with EO 12898.
EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (62 Federal Register 19885)	Navy	The proposed action poses no environmental risks to children and is, therefore, in compliance with EO 13045.

Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*
NHPA (Section 106, 16 USC 470 *et seq*.)	Advisory Council in Historic Preservation, California State Historic Preservation Office	The proposed action would have no effect on NRHP or eligible properties. The action would not affect any known archaeological sites or other known cultural resources at NBVC Port Hueneme, as none are found within the Area of Potential Effect. However, initial consultation with the SHPO is required because no consultation was completed for the 2003 pilot project at the NETTS. The proposed project may entail minimal excavation of a previously developed site and therefore has little to no potential to impact previously undiscovered buried cultural resources. All trenching and grading activities will be monitored by a qualified archaeologist. In the event previously unknown archaeological deposits are encountered, work will stop in that area until the deposits can be evaluated. The California SHPO reviewed the proposed undertaking and issued concurrence on 27 January 2015 that the proposed undertaking would have no adverse effect on identified historic properties (SHPO 2015 [see Appendix B, *Correspondence and Comments*]). Therefore, the proposed action would be in compliance with the NHPA.
CA AB 341, *Waste Diversion*	State of California	The proposed action would generate only a very small amount of non-hazardous solid waste. Additionally, the anaerobic digesters, gasifier, and algae tanks may be used to divert and reduce other wastes (e.g., yard waste, food waste, and other solid and liquid biomasses) generated on-base from NBVC's waste stream in compliance with all applicable regulations and permitting requirements. Therefore, the proposed action would be in compliance with CA AB 341.
CA AB 32, *GHG Solutions*	State of California	The proposed action (see Section 3.1, Air Quality) would result in a decrease in emissions for all criteria pollutants and GHGs except NO_X and SO_2, which would be increased by a negligible amount and would be well below the de minimis threshold. Therefore, the proposed action would be in compliance with CA AB 32.

CHAPTER 5
OTHER CONSIDERATIONS

This chapter addresses additional topics required by NEPA and is also intended to inform the CEQA review conducted by the VCAPCD as part of its permitting process. Topics addressed include:

- Irreversible and irretrievable commitments of resources and possible conflicts with federal, regional, state and local plans, policies, and controls (Section 5.1);
- Short-tern environmental impacts and long-term productivity (Section 5.2);
- EO 12898, F*ederal Actions to Address Environmental Justice in Minority and Low-income Populations*, and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (Section 5.3); and
- The potential for the project to induce economic or population growth (Section 5.4).

5.1 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long term or permanent basis. This includes the use of non-renewable resources such as metal, fuel, and other natural or cultural resources. These resources are non-retrievable in that they would be used for this project when they could have been used for other purposes. Human labor is also considered a non-retrievable resource. Another topic that falls under this category is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

Under the proposed action, the pilot project would be expanded. This expansion would require the irretrievable use of relatively small quantities of construction materials, chemicals, and other supplies (e.g., commercially available brine shrimp), none of which is unique. Space for the expansion would also be a commitment of resources; however, the use of the space would provide additional fuel for the Navy's use on-base, and the use of an additional 0.56 acre would have a negligible impact on land use. Once established, the automated nature of the proposed action would have a negligible impact on human labor associated with facility operations. For these reasons, implementation of the proposed project would not result in a significant irreversible or irretrievable commitment of resources.

The proposed project would not affect NBVC recycling programs and would generate only a small amount of non-hazardous solid waste. Coordination with the NRSW SSW Program would occur as needed to ensure no change or impact to business operations and environmental surety.

5.2 RELATIONSHIP BETWEEN SHORT-TERM ENVIRONMENTAL IMPACTS AND LONG-TERM PRODUCTIVITY

NEPA requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing a single development option reduces future flexibility in pursuing other options, or that giving over a parcel of land or other resource to a certain use often eliminates the possibility of other uses being performed at that site.

The proposed action would, reversibly, dedicate an area of land, equipment, and other resources to a particular use during a limited period of time. These resources would not be available for other productive uses throughout the duration of the project. However, these impacts are considered negligible, as the facilities and geographic areas associated with the proposed action are designated for and have historically accommodated the types of uses proposed. Therefore, the proposed action would not result in any impacts that would reduce environmental productivity or permanently narrow the range of beneficial uses of the environment.

5.3 ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN

Biodiesel production would occur at NBVC Port Hueneme, a military installation controlled by the Navy. Human inhabitants of NBVC Port Hueneme are DoD personnel and/or contractors for the purpose of managing and maintaining Navy land and facilities. Military personnel live on-base at Port Hueneme. Low-income populations, minorities, and children would not be disproportionately affected by the proposed action. Therefore, the provisions of EO 12898 and 13045 are satisfied.

5.4 GROWTH-INDUCING IMPACTS

No change in personnel levels would occur at NBVC. Biodico could hire up to 10 new employees, likely from within the local region, that would provide a small economic benefit that requires no further analysis. The potential population growth associated with hiring up to 10 employees would be negligible, and implementation of the proposed project would not result in the construction of additional housing. As such, there would be no significant growth-inducing impacts.

CHAPTER 6
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CHAPTER 7
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Appendix A

Record of Non-Applicability and Air Quality Data

RECORD OF NON-APPLICABILITY (RONA) FOR CLEAN AIR ACT CONFORMITY

Biodiesel Expansion Project
Naval Base Ventura County,
Port Hueneme
California

VENTURA COUNTY

INTRODUCTION

The U.S. Environmental Protection Agency (USEPA) published *Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule* in the 30 November 1993, Federal Register (40 Code of Federal Regulations [CFR] Parts 6, 51, and 93). On 30 July 2013, the Commander of Naval Operations published *Navy Guidance for Compliance with the Clean Air Act General Conformity Rule*. These publications provide implementing guidance to document Clean Air Act (CAA) Conformity Determination requirements.

Federal regulations state that no department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license to permit, or approve any activity that does not conform to an applicable implementation plan. It is the responsibility of the Federal agency to determine whether a Federal action conforms to the applicable implementation plan before the action is taken (40 CFR Part 1, Section 51.850[a]).

The general conformity rule applies to federal actions proposed within areas which are designated as either nonattainment or maintenance areas for a National Ambient Air Quality Standard (NAAQS) for any of the criteria pollutants. Former nonattainment areas that have attained NAAQS are designated as maintenance areas. Emissions of pollutants for which an area is in attainment are exempt from conformity analyses.

The project would occur at Naval Base Ventura County, Port Hueneme, California. Ventura County is currently in serious nonattainment of the 8-hour ozone (O_3) NAAQS. The County attains the NAAQS for all other criteria pollutants. Therefore, only project emissions of O_3 (or its precursors, volatile organic compounds [VOCs] and oxides of nitrogen [NO_x]) are analyzed for conformity rule applicability.

The annual *de minimis* levels for this region are 50 tons of VOC and NO_X, as listed in Table 1. Federal actions may be exempt from conformity determinations if they do not exceed designated *de minimis* levels (40 CFR Part 1, Section 51.853[b]).

Table 1. Conformity *de minimis* Levels for Criteria Pollutants in Ventura County

CRITERIA POLLUTANT	*DE MINIMIS* LEVEL (TONS/YEAR)
Volatile Organic Compounds (VOCs)	50
Oxides of Nitrogen (NO_x)	50

PROPOSED ACTION

Action Proponent: Naval Facilities Engineering Command (NAVFAC) Engineering and Expeditionary Warfare Center (EXWC) have entered into a Cooperative Research and Development Agreement (CRADA) to allow the design, construction, and operation of a project to produce biodiesel fuel at Naval Base Ventura County (NBVC), Port Hueneme. NAVFAC EXWC is the action proponent and is the manager of the project site. The proposed action is funded by grants obtained by Biodico with NAVFAC EXWC as a partner.

Location: Naval Base Ventura County, Port Hueneme.

Proposed Action Name**:** Biodiesel Expansion Project, NBVC, Port Hueneme.

Proposed Action & Emissions Summary: Under an earlier CRADA between Biodico and the Navy, Biodico was to construct and operate the pilot project to demonstrate that locally collected feedstocks (primarily yellow grease [used restaurant cooking oil]) could be used to produce biodiesel. Operations were limited to the production of 38,000 gallons of 100% biodiesel fuel (B100) in the first year, 370,000 gallons in the second year, and 250,000 gallons in the third, fourth, and fifth years.

The proposed action would expand the pilot project to allow for the production of up to 30,000 gallons of biodiesel per day with an annual limit of 10 million gallons for research and development (R&D) purposes. Major new components of the proposed action include expanded use of solar technology and as well as the installation of algae tanks that would be used to research the production of brine shrimp for use as feedstock. The expanded solar technology, which combines solar thermal and solar photovoltaic technology in one unit, would create additional heat and power onsite. Water for the algae tanks would come from system-produced gray wastewater.

Two alternatives (Alternative 1 and Alternative 2 [the preferred alternative]) are under consideration for the proposed action. Alternative 1 would use an existing electrical connection and a new boiler connected to an existing gas line to provide additional electricity and heat as needed. Alternative 2, the preferred alternative, is similar to Alternative 1 but includes anaerobic digesters and a gasifier. The anaerobic digesters would process materials with more than 30% moisture content (e.g., waste water, glycerin, plant matter from landscape maintenance) to produce "biogas" (primarily methane [CH_4] and carbon dioxide [CO_2]). The gasifier would use other materials with less than 30% moisture content (e.g., wood pallets, seed husks) to produce "syngas" (primarily hydrogen and carbon monoxide [CO]). Biogas and syngas produced onsite would be captured and combusted in the gasifier to generate electricity

and heat onsite. Once optimized, Alternative 2 would eliminate the need for the boiler and distillation unit. Feedstock (e.g., yellow grease [used cooking oil]) inputs could come from various on- or off-base waste streams. This system, in combination with the algae tanks, is expected to increase capacity for R&D purposes, reduce waste streams, create some feedstocks onsite, reduce/eliminate the need for off-site power and natural gas, virtually eliminate waste from the production process, and could provide excess electricity to the Navy and/or the grid.

Proposed Action Emissions:

Alternative 1

Construction

Alternative 1 would generate emissions from construction of the expanded biodiesel facility. The construction activities required for Alternative 1 would expand the pilot project from 0.46 acre to 1.02 acres and produce up to 30,000 gallons of biodiesel per day with an annual limit of 10 million gallons for R&D purposes. It is anticipated that construction of the expanded facility would require 12 months to complete. To estimate construction emissions associated with Alternative 1, emissions were calculated using the CalEEMod Model, assuming construction of a heavy industrial project on the entire expanded portion of the proposed project footprint (0.56 acres). Table 2 presents the emissions associated with construction of the proposed action. Based on the air quality analysis for construction of Alternative 1, the estimated operational emissions would be below conformity *de minimis* levels.

Table 2. Construction Emissions – Alternative 1

SOURCE	EMISSIONS, TONS/YEAR	
	VOCs	*NOx*
Construction, tons/year	0.58	2.14
De minimis threshold, tons/year	**50**	**50**

Operations

The implementation of Alternative 1 would expand the pilot project to produce up to 30,000 gallons of biodiesel per day with an annual limit of 10 million gallons for R&D purposes, resulting in the following changes. These and other Air Quality considerations are discussed in detail, below.

- Mobile source emissions would be directly changed as truck trips required to deliver the biodiesel fuel in the Ventura area would be increased but truck trips required to transport petroleum diesel fuel from Long Beach to Ventura would be decreased, as petroleum diesel demand in Ventura would be partially offset by the increased availability of biodiesel produced in the county. Truck trips required to transport used cooking oil from Ventura to Los Angeles would also be decreased because feedstock collected by Biodico would be diverted to the proposed project at NBVC instead of facilities in Los Angeles.

- Mobile source emissions would be indirectly changed as the annual production of up to 10 million gallons of B100 would be transported off-base by truck and sold to one or more licensed petroleum distributor(s), primarily within Ventura County, that are expected to blend it with petroleum diesel to produce 50 million gallons of 20% biodiesel fuel (B20) that would be consumed in place of traditional petroleum diesel.

Annual operational emissions associated with the proposed action are shown in Table 3. Based on the air quality analysis for the proposed action, the maximum estimated emissions would be below conformity *de minimis* levels (Table 3).

Table 3. Operational Emissions – Alternative 1

SOURCE	EMISSIONS, TONS/YEAR	
	VOCs	*NOx*
Mobile – Direct[a] (Δ)	0.18	3.81
Mobile – Indirect (Δ)	-29.99	0.00
Overall Net Emissions Change[a,b]	**-29.81**	**3.81**
De minimis threshold, tons/year	**50**	**50**

[a] Actual emissions would be less as the calculations provided do not include an unquantifiable number of truck trips associated with the transport of used cooking oil from Ventura to Los Angeles that would be eliminated.
[b] Any apparent discrepancies in the net emissions change are due to rounding the first two rows to the nearest hundredth.

Alternative 2

Construction

Alternative 2 is similar to Alternative 1 but includes anaerobic digesters and a gasifier. Since the analysis for Alternative 1 conservatively assumed the entire expanded portion of the proposed project footprint would be developed for a heavy industrial project, and since Alternative 2 shares the same project footprint and construction timeline as Alternative 1 and is also conservatively assumed to be a heavy industrial project, the CalEEMod model predicts that construction emissions associated with Alternative 2 would be the same as those for Alternative 1. Similar to the air quality analysis for construction of Alternative 1, the maximum estimated emissions would be below conformity *de minimis* levels for Alternative 2.

Operations

Alternative 2 would also expand the pilot project at NBVC Port Hueneme and would increase B100 production to 30,000 gallons per day with an annual limit of 10 million gallons. Alternative 2 is identical to Alternative 1 but includes the addition of anaerobic digesters and a gasifier to respectively generate biogas and syngas onsite, thereby eliminating the need for the distillation unit, the 3.14 MMBTU/hour boiler, electricity generated off-base, and the emissions associated with these sources. While no emissions are associated with biogas and syngas generation, emissions are associated with the onsite combustion of these renewable resources in a generator and would be on the same order of magnitude as for natural gas. Emissions associated with mobile sources (both direct and indirect), as well as the VOC emissions associated with the biodiesel production process, would be the same under Alternative 2 as described above for Alternative 1; implementation of Alternative 2 would also improve overall air quality

throughout the region by reducing traffic-related emissions. Therefore, emissions associated with Alternative 2 would be the same as or lower than the emissions associated with Alternative 1. As discussed under Alternative 1, emissions would be below the conformity *de minimis* levels.

Affected Air Basin: Ventura County

Date RONA Prepared: 8 December 2014

RONA Prepared By: Cardno Government Services

PROPOSED ACTION EXEMPTION(S)

The Proposed Action is located within a nonattainment area; therefore, the Proposed Action is **not** exempt from General Conformity Rule Requirements.

ATTAINMENT AREA STATUS AND EMISSIONS EVALUATION CONCLUSION

Ventura County is a serious nonattainment area for the 8-hour federal O_3 standard; VOCs and NO_x are precursors to the formation of O_3.

Emissions associated with Alternative 1 and Alternative 2 were calculated using data presented in Chapter 3 of the EA, general air quality assumptions, and emission factors compiled from the following sources: *CalEEMod Model, Version 2013.2.2*; *CARB EMFAC2011* Model; and Emission Factors from the *U.S. EPA's Compilation of Air Pollutant Emission Factors (AP-42)*.

The U.S. Navy concludes that *de minimis* thresholds for applicable criteria pollutants would not be exceeded as a result of the implementation of Alternative 1 or Alternative 2. The emissions data supporting that conclusion are shown in Tables 2 and 3, which summarize the calculations, methodology, and data included in Attachment A. Therefore, the U.S. Navy concludes that formal Conformity Determination procedures are not required, resulting in this RONA.

RONA APPROVAL

To the best of my knowledge, the information presented in this RONA is correct and accurate, and I concur in the finding that implementation of either Alternative 1 or Alternative 2 does not require a formal CAA Conformity Determination.

Daniel T. Shide

Dan Shide
NBVC Installation Environmental
Program Director

1/15/15

Date

CalEEMod Version: CalEEMod.2011.1.1

Date: 7/25/2013

Biodico NBVC

Ventura County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	24.4	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	
Climate Zone	8		2.6		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - 12-month construction schedule

A-6

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2013	0.08	0.56	0.39	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	64.14	64.14	0.01	0.00	64.26
2014	0.50	1.58	1.17	0.00	0.02	0.10	0.11	0.00	0.10	0.10	0.00	195.18	195.18	0.02	0.00	195.55
Total	**0.58**	**2.14**	**1.56**	**0.00**	**0.02**	**0.14**	**0.15**	**0.00**	**0.14**	**0.14**	**0.00**	**259.32**	**259.32**	**0.03**	**0.00**	**259.81**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2013	0.08	0.56	0.39	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	64.14	64.14	0.01	0.00	64.26
2014	0.50	1.58	1.17	0.00	0.00	0.10	0.10	0.00	0.10	0.10	0.00	195.18	195.18	0.02	0.00	195.55
Total	**0.58**	**2.14**	**1.56**	**0.00**	**0.00**	**0.14**	**0.14**	**0.00**	**0.14**	**0.14**	**0.00**	**259.32**	**259.32**	**0.03**	**0.00**	**259.81**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.12	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	28.18	28.18	0.00	0.00	28.35
Mobile	0.04	0.07	0.33	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	47.38	47.38	0.00	0.00	47.42
Waste						0.00	0.00		0.00	0.00	30.49	0.00	30.49	1.80	0.00	68.33
Water						0.00	0.00		0.00	0.00	0.00	1.35	1.35	3.66	0.09	106.40
Total	**0.16**	**0.10**	**0.35**	**0.00**	**0.06**	**0.00**	**0.06**	**0.00**	**0.00**	**0.00**	**30.49**	**76.91**	**107.40**	**5.46**	**0.09**	**250.50**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.12	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	28.18	28.18	0.00	0.00	28.35
Mobile	0.04	0.07	0.33	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	47.38	47.38	0.00	0.00	47.42
Waste						0.00	0.00		0.00	0.00	30.49	0.00	30.49	1.80	0.00	68.33
Water						0.00	0.00		0.00	0.00	0.00	1.35	1.35	3.66	0.09	106.40
Total	**0.16**	**0.10**	**0.35**	**0.00**	**0.06**	**0.00**	**0.06**	**0.00**	**0.00**	**0.00**	**30.49**	**76.91**	**107.40**	**5.46**	**0.09**	**250.50**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.07	0.54	0.36	0.00		0.03	0.03		0.03	0.03	0.00	58.22	58.22	0.01	0.00	58.35
Total	**0.07**	**0.54**	**0.36**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**58.22**	**58.22**	**0.01**	**0.00**	**58.35**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.12	3.12	0.00	0.00	3.12
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79	2.79	0.00	0.00	2.80
Total	**0.00**	**0.02**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.91**	**5.91**	**0.00**	**0.00**	**5.92**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.07	0.54	0.36	0.00		0.03	0.03		0.03	0.03	0.00	58.22	58.22	0.01	0.00	58.35
Total	**0.07**	**0.54**	**0.36**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**58.22**	**58.22**	**0.01**	**0.00**	**58.35**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.12	3.12	0.00	0.00	3.12
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79	2.79	0.00	0.00	2.80
Total	**0.00**	**0.02**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.91**	**5.91**	**0.00**	**0.00**	**5.92**

3.2 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.20	1.47	1.04	0.00		0.09	0.09		0.09	0.09	0.00	172.02	172.02	0.02	0.00	172.36
Total	**0.20**	**1.47**	**1.04**	**0.00**		**0.09**	**0.09**		**0.09**	**0.09**	**0.00**	**172.02**	**172.02**	**0.02**	**0.00**	**172.36**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.25	9.25	0.00	0.00	9.26
Worker	0.01	0.01	0.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	8.07	8.07	0.00	0.00	8.08
Total	**0.02**	**0.06**	**0.09**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**17.32**	**17.32**	**0.00**	**0.00**	**17.34**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.20	1.47	1.04	0.00		0.09	0.09		0.09	0.09	0.00	172.02	172.02	0.02	0.00	172.36
Total	**0.20**	**1.47**	**1.04**	**0.00**		**0.09**	**0.09**		**0.09**	**0.09**	**0.00**	**172.02**	**172.02**	**0.02**	**0.00**	**172.36**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.25	9.25	0.00	0.00	9.26
Worker	0.01	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.07	8.07	0.00	0.00	8.08
Total	**0.02**	**0.06**	**0.09**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**17.32**	**17.32**	**0.00**	**0.00**	**17.34**

3.3 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.28					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.06	0.04	0.00		0.01	0.01		0.01	0.01	0.00	5.48	5.48	0.00	0.00	5.50
Total	**0.29**	**0.06**	**0.04**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**5.48**	**5.48**	**0.00**	**0.00**	**5.50**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.36	0.00	0.00	0.36
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.36**	**0.36**	**0.00**	**0.00**	**0.36**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.28					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.06	0.04	0.00		0.01	0.01		0.01	0.01	0.00	5.48	5.48	0.00	0.00	5.50
Total	**0.29**	**0.06**	**0.04**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**5.48**	**5.48**	**0.00**	**0.00**	**5.50**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.36	0.00	0.00	0.36
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.36**	**0.36**	**0.00**	**0.00**	**0.36**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.04	0.07	0.33	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	47.38	47.38	0.00	0.00	47.42
Unmitigated	0.04	0.07	0.33	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	47.38	47.38	0.00	0.00	47.42
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	36.60	36.60	36.60	106,854	106,854
Total	36.60	36.60	36.60	106,854	106,854

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	9.50	7.30	7.30	59.00	28.00	13.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Mitigated	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	28.18	28.18	0.00	0.00	28.35
NaturalGas Unmitigated	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	28.18	28.18	0.00	0.00	28.35
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	528016	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	28.18	28.18	0.00	0.00	28.35
Total		**0.00**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**28.18**	**28.18**	**0.00**	**0.00**	**28.35**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	528016	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	28.18	28.18	0.00	0.00	28.35
Total		**0.00**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**28.18**	**28.18**	**0.00**	**0.00**	**28.35**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	225456					0.00	0.00	0.00	0.00
Total						**0.00**	**0.00**	**0.00**	**0.00**

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	225456					0.00	0.00	0.00	0.00
Total						**0.00**	**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.12	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.12	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.03					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.10					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.03					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.10					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					1.35	3.66	0.09	106.40
Unmitigated					1.35	3.66	0.09	106.40
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	119.973 / 0					1.35	3.66	0.09	106.40
Total						**1.35**	**3.66**	**0.09**	**106.40**

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	119.973 / 0					1.35	3.66	0.09	106.40
Total						**1.35**	**3.66**	**0.09**	**106.40**

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8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					30.49	1.80	0.00	68.33
Unmitigated					30.49	1.80	0.00	68.33
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	150.21					30.49	1.80	0.00	68.33
Total						**30.49**	**1.80**	**0.00**	**68.33**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	150.21					30.49	1.80	0.00	68.33
Total						**30.49**	**1.80**	**0.00**	**68.33**

9.0 Vegetation

Table A.1-1 Stationary Source Emissions Associated with the Expanded Biodiesel Production Facility

	Emissions						
	VOCs	*NOx*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*	*CO_2*
Pilot Project	0.21	0.20	1.10	0.01	0.10	0.10	1,469
(370,000 Gallons/Year)							
Alternative 1	**0.70**	**0.20**	**1.10**	**0.01**	**0.10**	**0.10**	**1,469**
(10,000,000 Gallons/Year)							

Table A.1-2. On-Road Vehicle Emission Factors

Scenario/Vehicle Class	Emission Factors (Grams/Mile)						
	VOC	NOx	CO	SO2	PM10	PM2.5	CO2
Heavy-Duty Diesel Vehicless	0.388935101	8.16680311	2.09952315	0.0160759	0.436688	0.34729255	1668.1718

Note: Emission factors from EMFAC2011, Year 2013, multiplied by average fuel efficiency of 6.6 miles per gallon (Huai, et al. 2006).

Table A.1-3. Truck Trip Emissions Required to Deliver 10 Million Gallons of Biodiesel

Scenario/Vehicle Class	Number of Trucks/day	Number of Trucks/ year	Assumed Miles per Trip	Emissions						
				VOC	NOx	CO	SO2	PM10	PM2.5	CO2
Proposed Daily Emissions, lbs/day										
Heavy-Duty Truck Trips	20	7,000	100	1.71	36.01	9.26	0.07	1.93	1.53	7,355.42
Proposed Annual Emissions, tons/year										
Heavy-Duty Truck Trips	20	7,000	100	0.30	6.30	1.62	0.01	0.34	0.27	1,287.20

Table A.1-4. Truck Trip Emissions Reduced by Not Transporting 10 Million Gallons of Conventional Diesel and Net Change

Scenario/Vehicle Class	Number of Trucks/day	Number of Trucks/ year	Assumed Miles per Trip	Emissions						
				VOC	NOx	CO	SO2	PM10	PM2.5	CO2
Proposed Daily Emissions, lbs/day										
Heavy-Duty Truck Trips	4.4	1538	180	0.68	14.25	3.66	0.03	0.76	0.61	2,909.84
Net Change for Proposed Action				**1.04**	**21.76**	**5.60**	**0.04**	**1.16**	**0.93**	**4,445.58**
Proposed Annual Emissions, tons/year										
Heavy-Duty Truck Trips	4.4	1538	180	0.12	2.49	0.64	0.00	0.13	0.11	509.22
Net Change for Proposed Action				**0.18**	**3.81**	**0.98**	**0.01**	**0.20**	**0.16**	**777.98**

Table A.1-5. Indirect Mobile Source Emissions

Scenario	Gallons Consumed Per Year	Emissions (Heavy Duty Diesel Vehicle)						
		VOC	NOx	CO	SO2	PM10	PM2.5	CO2
Proposed Annual Emissions, tons/year								
Petroleum Diesel	50,000,000	141.48	2,970.79	763.73	5.85	158.85	126.33	606,821.90
B20	50,000,000	111.49	2,970.79	620.91	5.85	120.57	95.89	606,821.90
Net Change	N/A	-29.99	0.00	-142.82	0.00	-38.28	-30.45	0.00

Note: Emission factors from EMFAC2011, Year 2013, multiplied by average fuel efficiency of 6.6 miles per gallon (Huai, et al. 2006).

Table A.1-6. Net Emissions Associated with Alternative 1

Scenario	Emissions						
	VOC	NOx	CO	SO2	PM10	PM2.5	CO2
Proposed Annual Emissions Changes, tons/year							
Stationary	0.70	0.20	1.10	0.01	0.10	0.10	1,469.00
Mobile - Direct	0.18	3.81	0.98	0.01	0.20	0.16	777.98
Mobile - Indirect	-29.99	0.00	-142.82	0.00	-38.28	-30.45	0.00
Net Change	-29.11	4.01	-140.74	0.02	-37.98	-30.18	2,246.98

Note: Emission factors from EMFAC2011, Year 2013, multiplied by average fuel efficiency of 6.6 miles per gallon (Huai, et al. 2006).

Appendix B

Correspondence and Comments

DEPARTMENT OF THE NAVY
NAVAL BASE VENTURA COUNTY
311 MAIN ROAD SUITE 1
POINT MUGU, CA 93042-5033

IN REPLY REFER TO:
5090
Ser N0000CV/1059
2 Sep 14

Dr. Carol Roland-Nawi
State Historic Preservation Officer
Department of Parks and Recreation
1725 23rd Street, Suite 100
Sacramento, CA 95816-7100

Dear Dr. Roland-Nawi:

SUBJECT: SECTION 106 CONSULTATION FOR THE BIODIESEL EXPANSION PROJECT ENVIRONMENTAL ASSESSMENT AT NAVAL BASE VENTURA COUNTY, PORT HUENEME, CALIFORNIA

The Navy proposes to increase production at an existing biofuels production plant, located at Naval Base Ventura County (NBVC) Port Hueneme, California (undertaking). The proposed undertaking is the type of activity that could affect historic properties, assuming they were present. This letter initiates Section 106 consultation in accordance with 36 CFR 800.3(a), regulations implementing the National Historic Preservation Act of 1966, as amended. In summary, the Navy finds the proposed undertaking meets the standard for a finding of no historic properties affected, consistent with 36 CFR 800.4(d)(1). Per 36 CFR 800.2, the following outside parties are also consulted for this undertaking: the Friends of the Bard Mansion, the Port Hueneme Historical Society, the Ventura County Cultural Heritage Board, the Heritage Trust of Oxnard, the Santa Ynez Band of Mission Indians, and the San Buenaventura Conservancy.

The remainder of this letter is organized to present an overview of the undertaking and associated Area of Potential Effects (APE); review of identification efforts completed to date, as basis for determining whether historic properties might be affected; and discussion of the proposed project's potential to affect historic architectural and archaeological properties.

a. Description of Undertaking and APE

(1) The proposed undertaking is for installation of infrastructure related to the increase of production of biofuels. An Environmental Assessment was done in 2003 to

establish a pilot program at the National Environmental Technology Test Site (NETTS), located at NBVC Port Hueneme, to evaluate the sustainability of biofuels production at NBVC. The five-year pilot program was intended to test the viability of producing biodiesel fuel at NETTS, with a maximum production of 370,000 gallons per year, and a current production of 250,000 gallons per year. The existing and proposed layouts are depicted in the enclosed. Production will be increased to 10 million gallons per year, which will require installation of tanks and an associated solar energy system, as well as possible trenching for a fire system, and possible installation of helical screws to anchor the tanks and solar array, if anchoring with concrete blocks on the surface is not feasible. The tanks and solar array are above ground; the only ground-disturbing part of the project will be a two foot wide by three foot deep trench to install the fire suppression system, assuming it is installed below ground. Alternatively, it may be installed above ground.

(2) The APE is the NETTS, with a 50-foot buffer.

(3) No other buildings are within the APE for this undertaking

b. Identification of Historic Properties

(1) Previously completed professional cultural resources investigations and consensus determinations of eligibility provide a basis for identifying historic properties in the APE for the proposed undertaking.

(2) There have been several inventories of the installation for historic era buildings and structures (William Self Associates 1995: *Cultural Resources Overview Naval Construction Battalion Center, Port Hueneme, Ventura County, California*; EDAW Inc. 1994: *Final Report: Evaluation of National Register of Historic Places Eligibility for Portions of Naval Base Ventura County, Port Hueneme Site, Port Hueneme, California*; EDAW Inc. 2008: *Draft: Evaluation of National Register of Historic Places Eligibility for Eighteen Buildings on Naval Base Ventura County, Port Hueneme Site, Port Hueneme, California*; Smith 2012: *The Seabees: A Historic Context of the Cold War*. These reports applied archival research and fieldwork to evaluate buildings and structures utilizing the criteria of eligibility for listing in the National Register of Historic Places. Three historic districts are located at NBVC Port

Hueneme; none are within a quarter mile of this undertaking. One archaeological site, CA-Ven-663, has been located at NBVC Port Hueneme; it is not within a quarter mile of this undertaking.

c. Potential for Effects to Historic Architectural Resources

(1) There are no buildings within the APE for this undertaking. There are government fuel pumps located on the east side, small storage sheds on the north side, and the area is bounded on the south by 23rd Avenue, and the east, southeast, and west by railroad tracks.

(2) Founded in May 1942 as Advance Base Depot Port Hueneme, NBVC Port Hueneme was established as a West Coast base where Naval Construction Battalions ("Seabees") could be trained and construction materials marked for the Pacific theater could be amassed and loaded for shipment. Following the end of WWII, activities at Port Hueneme dwindled markedly. However, while all other Seabee facilities were closed, Port Hueneme was kept open and processed returning war materials until 1956. New spurts of activity were felt as Seabees were deployed to support the wars in Korea and Vietnam. Since 1974, the primary mission of the Naval facility at Port Hueneme, under various names, has been to provide homeport, training, administrative services, and logistical support for the Seabees as well as a number of related functions connected to mobilization of Naval construction forces.

d. Potential for Effects to Archaeological Resources

(1) Ground-disturbing activities for this undertaking include possible trenching on the east, south, and north sides of the facility to install a fire suppression system, as well as possible installation of four foot long helical screws to anchor the tanks and solar array. Soil consists of Holocene alluvial deposits. The entire NETTS area has been previously excavated and graded, and land in the immediate vicinity has been used for parking, industrial storage, and equipment testing for research and development, and is currently paved with asphalt. All trenching and grading activities will be monitored by a qualified archaeologist. In the event previously unknown archaeological deposits are encountered, work will stop in that area until the deposits can be evaluated.

(2) At the time of its establishment in 1942, the seaward half of NBVC Port Hueneme was either active salt marsh or former tidal wetlands recently reclaimed for agriculture. The inland portion of the base encompassed low-lying, farmed floodplain. The establishment of Port Hueneme as the principal West Coast base for Navy Seabee WWII operations fully developed all portions of the base, filling the former wetlands with the spoils from dredging the new harbor and significantly altering most of the inland portion of the base. Over time, only one archaeological site, CA-Ven-663, has been documented within the boundary of NBVC Port Hueneme. However, this shell midden site was last reported in 1933 and was probably destroyed during development of the Port Hueneme Harbor in the late 1930s and early 1940s. CA-Ven-663 is not within the APE for this undertaking. The proposed undertaking has no potential to affect historic archaeological properties.

e. Finding of Effect

Consistent with the above considerations and 36 CFR 800.4(d)(1), Naval Base Ventura County finds that no historic properties will be affected by the proposed undertaking.

The Navy respectfully requests your concurrence on the proposed delineation of the APE and its determination of no historic properties affected by the proposed undertaking within 60 days of receipt of this letter. Should you have any questions or need further information, please contact Catherine Girod at (805) 989-9249 or catherine.girod@navy.mil.

Sincerely,

L. R. VASQUEZ
Captain, U.S. Navy
Commanding Officer

Enclosures:
1. Vicinity, Location, and APE maps
2. Biodiesel Existing Infrastructure
3. Biodiesel Proposed Layout
4. Biodiesel Trench Locations
5. USGS Geologic Map of the Oxnard 7.5′ Quadrangle, Ventura County, California: A Digital Database
6. Location of CA-Ven-663

5090
Ser N0000CV/1059
2 Sep 14

Copy to:
Commander Navy Region Southwest, Environmental Department
Cultural Resources Management Program (w/o enclosures)
San Diego, CA 92147

Friends of the Bard Mansion
P.O. Box 113
Port Hueneme, CA 93044

Port Hueneme Historical Society
220 Market Street
Port Hueneme, CA 93041

Ventura County Cultural Heritage Board
800 South Victoria Avenue
Ventura, CA 93009

Heritage Trust of Oxnard
Attn: Ben Moss
125 North F Street
Oxnard, CA 93030

Santa Ynez Band of Mission Indians
Attn: Vincent Armenta - Chairman
P.O. Box 517
Santa Ynez, CA 93460

San Buenaventura Conservancy
P.O. Box 23263
Ventura CA 93002

-----Original Message-----
From: Shepherd, Anna CIV NAVFAC SW, MUGU [mailto:anna.shepherd@navy.mil]
Sent: Wednesday, November 26, 2014 2:54 PM
To: Daniel Rydberg
Cc: Chris Williamson; Martin Erickson; Thien Ng; Todd Housley; Holden, Bruce CIV EXWC, EV11; Lomeli, Jill CIV EXWC, EV1; Lawrence, Kyle CIV EXWC, EV12; Lousen, Chad A CIV NAVFAC, MUGU; Goodman, Daniel C CIV EXWC, EV12; Venable, William D CIV EXWC, OP53; Dungan, Michael; Noddings, Chris; Danza, James M CIV NAVFACSW; Montoya, Joseph L CIV NAVFAC SW, PRV42; Shide, Dan T CIV NAVFAC SW, MUGU; Kelley, Rebecca CIV NAVFAC SW
Subject: RE: FW: Meeting with Navy about Bio-diesel facility on NBVC - work with City ? (Nov 13 10AM)

Dan,

Thank you for reviewing the Navy's Draft Environmental Assessment (EA) for the expansion of the Biodiesel Facility at Naval Base Ventura County and providing comments from the City. We are considering the comments and will incorporate responses as appropriate into the Final EA, but I want to also respond directly via e-mail so that you have a better understanding of the project.

The current feedstock for the biodiesel plant is not Fats, Oils and Greases (FOG); it is yellow grease. Neither the Navy, nor Biodico, have completed a feedstock supply study to identify where trucks of FOG would originate because we have no immediate plans to gather FOG for biodiesel production or anaerobic digestion (AD). The biodiesel plant is intended for bioenergy production research. We may test FOG with other inputs in the ADs because the results would be valuable to Navy Bases that operate their own Wastewater Treatment Plant (WWTP) and to municipalities such as the City of Oxnard. If this were to occur, the amount used would be insignificant to the current Oxnard Water Treatment Plant (OWTP) deliveries. Biodico currently collects yellow grease from a variety (over 300) of restaurants in Ventura, Los Angeles and Santa Barbara Counties. Upon completion of the plant expansion, it will supplement the feedstock supply with virgin vegetable and seed oils. The glycerin produced from the production of biodiesel will be anaerobically digested onsite and sold.

Thank you for the opportunity to meet with your staff and for your comments on the Draft EA. We look forward to continued coordination with the City of Oxnard.

Sincerely,

Anna Shepherd, AICP
Community Plans and Liaison Officer
Naval Base Ventura County
805-989-9752 or DSN 351-9752

-----Original Message-----
From: Daniel Rydberg [mailto:Daniel.Rydberg@ci.oxnard.ca.us]
Sent: Wednesday, November 19, 2014 8:08 AM
To: Shepherd, Anna CIV NAVFAC SW, MUGU
Cc: Chris Williamson; Martin Erickson; Thien Ng; Todd Housley; Holden, Bruce CIV EXWC, EV11; Lomeli, Jill CIV EXWC, EV1; Lawrence, Kyle CIV EXWC, EV12
Subject: Re: FW: Meeting with Navy about Bio-diesel facility on NBVC - work with City ? (Nov 13 10AM)

Ann, Here are the comments we received from our consultant that reviewed the report. We will include this in our ongoing source control and rate studies to determine how this will affect your rates. Thanks. Dan

. The attached table summarizes the current ("no action") and proposed operations of the Navy biodiesel facility. The current feedstock (FOG) demand is approx. 2.4 3,000 gal trucks/week, slightly less than the 4 trucks/week of FOG delivered directly to the OWTP (per the July 2013 OWTP Energy Evaluation Report). The Navy proposes to increase biodiesel production by a factor of 27 - which corresponds to a jump in feedstock demand from 2.4 to 64 trucks/week. Has the Navy done a feedstock supply study to identify where these 64 trucks/week of FOG will come from? Depending on the tipping fee, the Navy biodiesel expansion project could divert current OWTP FOG deliveries.

. The Navy biodiesel facility generates two byproducts - a glycerin wastestream and a predominantly inorganic "grey water" wastestream. The current biodiesel facility operation converts of approx. 64 percent of the input volume (FOG, methanol, etc.) to biodiesel, with approx. 7 percent as the glycerin wastestream and 29 percent as the grey water wastestream. Modifications to the process as part of the proposed biodiesel facility expansion will increase the biodiesel yield to approx. 71 percent of the input volume, increase the glycerin wastestream fraction to approx. 15 percent of the input volume, and reduce the grey water wastestream fraction to approx. 15 percent of the input volume. Compared to current biodiesel facility operation, the amount of glycerin produced will increase by a factor of 53 and the grey water produced will increase by a factor of 12.

. The inorganic chemicals used for biodiesel production correspond to TDS in the grey water wastestream. The incremental TDS load to the OWTP will affect future AWPF operations and performance. The on-going source control study should include the proposed TDS load from the expanded biodiesel facility.

. The glycerin wastestream represents a supplemental OWTP anaerobic digester organic source. However, the energy content - methane generation per gallon - is less than half that of FOG. Diverting FOG as a feedstock for biodiesel production will reduce the net methane production in the OWTP digesters - even if the glycerin wastestream was brought to the OWTP.

. From an overall energy utilization standpoint, it makes more sense to use FOG to generate methane through anaerobic digestion (in the OWTP digesters.) than to generate biodiesel. Anaerobic digestion does not require supplemental inputs (e.g., methanol, inorganic chemicals) and does not generate significant wastestreams (e.g., glycerin, grey water). Methane generated through anaerobic digestion of FOG at the OWTP would be used for electric power generation to offset purchased power for OWTP operations. Any methane generated in excess of OWTP power demands could be processed further and used for vehicle fuel - or used to generate excess electricity, which could be used for electric vehicles.

Daniel R. Rydberg, P.E.
Utilities and Engineering Manager
City of Oxnard
(805) 385-8055

NBVC Biodiesel Expansion Project

	No action		Alt 1 & Alt 2		Increase
Inputs, gal/yr					
Multiple feedstocks	370,000		10,000,000		27.0
Methanol	41,000		1,500,000		36.6
Sodium methylate			500,000		
Sodium hydroxide	2,707		13,722		5.1
Phosphoric acid	450		36,500		81.1
Sulfuric acid	1,800		36,500		20.3
Potable water	74,000		2,000,000		27.0
Total	**489,957**		**14,086,722**		**28.8**
Products, gal/yr					
Biodiesel	370,000	*64%*	10,000,000	*71%*	27.0
Glycerin	38,000	*7%*	2,000,000	*14%*	52.6
Grey water	170,000	*29%*	2,000,000	*14%*	11.8
Total	**578,000**		**14,000,000**		**24.2**
Difference	*-18%*		*1%*		
Truck trips/year					
Feedstock (3,000 gal)	123		3,333		
Feedstock (1,000 gal)	370		10,000		
Biodiesel (6,500 gal)	57		1,538		
Truck trips/week					
Feedstock (low)	2.4		64		
Feedstock (high)	7.1		192		
Biodiesel	1.1		30		

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
www.ohp.parks.ca.gov

January 27, 2015

Refer to: USN_2014_0911_001

Captain L. R. Vasquez
Department of the Navy
Naval Base Ventura County
311 Main Road, Suite 1
Point Mugu, CA 93042-5033

RE: Biodiesel Expansion Project, Naval Base Ventura County, Port Hueneme, CA

Dear Captain Vasquez:

Thank you for requesting my review and comment with regard to the above-referenced undertaking. You do so in an effort to comply with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and its implementing regulation found at 36 CFR Part 800. You are requesting I concur with a Finding of No Historic Properties Affected.

The Navy plans to construct infrastructure related to the increase of production of biofuels. Project components include the installation of above-ground tanks, solar arrays, and a two foot wide by three foot deep trench to install a fire suppression system. Helical screws may be used to anchor the tanks and solar array if use of concrete blocks for this purpose is deemed unfeasible.

You define the Area of Potential Effects (APE) for this undertaking as the proposed work site at the National Environmental Technology Test Site at Naval Base Ventura County, Port Hueneme and a 50-foot buffer around area. No buildings are located within the APE. The entire APE has been previously excavated, graded, and paved. Land in the immediate vicinity is used for parking, industrial storage, and equipment testing for research and development. All trenching and grading activity will be monitored by a qualified archaeologist.

The Navy contacted the Santa Ynez Band of Chumash Indians to solicit comments on the project. Freddy Romero with the Tribal Elders Council called NBVC cultural staff to let them know that the tribe had no comments on the undertaking.

Having reviewed your submittal, I concur with your Finding of Effect. I also have no objections to your delineation of the APE. Please be reminded that in the event of an unanticipated discovery or a change in the scale or scope of the project, you may have additional responsibilities under 36 CFR Part 800.

Thank you for considering historic resources during project planning. If you have any questions or comments, please contact Tristan Tozer of my staff at (916) 445-7027 or email at Tristan.Tozer@parks.ca.gov.

Sincerely,

Carol Roland-Nawi, Ph. D.
State Historic Preservation Officer

Appendix C

Authority to Construct

Ventura County
Air Pollution
Control District

669 County Square Drive
Ventura, California 93003

tel 805/645-1400
fax 805/645-1444
www.vcapcd.org

Michael Villegas
Air Pollution Control Officer

April 18, 2011

Mr. Russel Teal
Biodiesel Industries, Inc.
435 ½ El Sueno Road
Santa Barbara, CA 93110

Subject: Authority to Construct No. 08073-100

Dear Mr. Teal:

This is Ventura County Air Pollution Control District Authority to Construct No. 08073-100, effective on the above date. You are hereby authorized to construct the following items at 1000 23 rd Ave, Port Hueneme (Port Hueneme US Naval Base), California:

Biodiesel Production Facility using restaurant cooking oils as feedstocks consisting of the following equipment and processes:

1 - Clayton Industries Sigma Fire Boiler, Model SF 75-FMB, 3.14 MBTU/Hr, with a low NOx burner, natural gas fired.

Methanol Receiving and Storage Operations that include two (2) 6,000 gallon capacity storage tanks vented to the control system (Tanks T-23 and T-27). The tank trucks are equipped with vapor recovery systems, and the tanks are vented to the control system.

Sodium Methylate Receiving and Storage Operations that include one (1) 6,000 gallon capacity storage tank vented to the control system (Tank T-24). The tank trucks are equipped with vapor recovery systems, and the tanks are vented to the control system.

Catalyst Preparation that consists of one (1) 387 gallon capacity mixing tank (T-3) vented to the control system.

Reaction Process that includes two (2) 1,829 gallon capacity reaction vessels (R-1 and R-2), vented to the control system.

One (1) methanol/glycerin separation process (flash distillation unit), vented to the control system.

One (1) molecular sieve methanol water separation process vented to the control system.

Two (2) 6,000 gallon capacity biodiesel storage and processing tanks (T-25A & 25B) vented to the control system.

Various Storage Tanks exempt from permit pursuant to VCAPCD Rule 23.F.21, and VCAPCD Rule 71.2 (less than 5,000 gallon capacity and/or less than 0.5 psia Reid vapor pressure).

The control system consists of two (2) vapor condensers connected in series. The exhaust gas stream temperature is -22 degrees Fahrenheit. The control system is expected to achieve 99.5% control efficiency.

The equipment shall be constructed and installed in such a way that it is amenable to testing by APCD, ARB, and EPA test methods.

Subject to the Following Conditions:

1. The Permitted Emissions from the stationary source following this Authority to Construct will be:

Pollutant	Tons/Year	Pounds/Hour
Reactive Organic Compounds	0.21	0.33
Oxides of Nitrogen	0.20	0.05
Particulate Matter	0.10	0.02
Oxides of Sulfur	0.01	0.00
Carbon Monoxide	1.10	0.25

2. No natural gas consumption limit applies to the 3.14 MMBTU/Hr Clayton boiler. The permitted emissions represent the theoretical maximum usage, therefore, natural gas consumption records are not required.

3. Annual biodiesel materials use and production shall not exceed the following limits:

	First Year	Second Year	Third, Fourth, and Fifth Year
Raw Material:			
Methanol (including methanol in sodium methoxide solution)	4,200 gallons	41,000 gallons	28,000 gallons
End Product:			
Biodiesel	38,000 gallons	370,000 gallons	250,000 gallons

Please note: This Authority to Construct, when implemented, will restrict operation of the biodiesel production facility to five years, and subject to the above usage and production limits.

In order to comply with this condition, the permittee shall maintain monthly records of methanol used, methylate used, and biodiesel produced. Monthly usage and production levels shall be summed for the previous 12 months. Usage and/or production levels for any of these 12 month periods in excess of the specified limits shall be considered a violation of this condition.

4. Any extension beyond the time limits or expansion beyond the production limits of Condition No. 3 above shall require a new Authority to Construct application accompanied by a new revised and approved CEQA and/or NEPA review.

5. The biodiesel production operations shall comply with all applicable requirements of 40 CFR Part 60, Subpart VVa – Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemical Manufacturing Industry (SOCMI) for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006.

6. The equipment described above as being vented to the control system shall only be operated when its emissions are captured and vented to the control system and when the control system is in operation. The capture efficiency of all emissions generated from the equipment described above as being vented to the control system shall be no less than 100%. This condition is applied pursuant the requirements of VCAPCD Rule 26.2, "New Source Review – Requirements"; and pursuant to VCAPCD Rule 51, "Nuisance".

7. All organic solvent containing materials shall be stored in closed containers which are nonabsorbent and do not leak. All containers holding organic solvent materials shall be kept closed when not in use. All mixing operations involving organic solvent materials shall be conducted in containers that are kept closed, except during filling. This condition is applied as Best Available Control Technology (BACT), and pursuant to Rule 51, "Nuisance".

8. The control system shall achieve an ROC (reactive organic compound) control efficiency of at least 99.5% by weight. In addition, the ROC emissions at the exhaust of the control system shall not exceed 0.0771 pounds per 100 gallons of product (biodiesel + glycerol). The exhaust emission stream's temperature shall not exceed minus (-) 22 degrees Fahrenheit or the temperature value determined by source testing to achieve compliance with the percentage control efficiency and emission rate above. This condition is applied pursuant to VCAPCD Rule 26.2, "New Source Review – Requirements".

9. The ROC liquids storage operations shall comply with all applicable requirements of VCAPCD Rule 71.2, "Storage of Reactive Organic Compound Liquids". The ROC transfer operations shall comply with all applicable requirements of VCAPCD Rule 71.3, "Transfer of Organic Compound Liquids".

10. The facility shall comply with all applicable requirements of VCAPCD Rule 74.7, "Fugitive Emissions of Reactive Organic Compounds (ROC) at Petroleum Refineries and Chemical Plants".

11. The temperature and flow rate of the glycol coolant system used in the control system and the emissions exhaust stream's temperature necessary to achieve compliance with the required control efficiency shall be determined during source testing. The glycol temperature and flow rate and the emissions exhaust stream's temperature determined during source testing shall be incorporated as a permit condition upon implementation of this Authority to Construct. A temperature monitoring (with an accuracy of plus or minus one (1) degree Fahrenheit) and recording device shall be installed and maintained to continuously monitor and record the temperature of the glycol coolant used in the control system..

12. A temperature monitoring (with an accuracy of plus or minus one (1) degree Fahrenheit and recording device shall installed and maintained at the condenser outlet to continuously monitor and record the temperature of the emission stream exiting the condenser.

13. All emission measurements shall be conducted with the biodiesel/glycerol production equipment operating at conditions representative of normal operations. Emissions tests or measurements shall consist of three (3) tests spanning at least three (3) one hour periods (three separate runs each lasting at least one hour). Quantities of product (biodiesel + glycerol) shall recorded during the tests.

14. Source testing to demonstrate compliance with the 99.5% by weight control efficiency and the 0.0771 pounds per 100 gallons of product (biodiesel + glycerol) emission rate from the control system shall be conducted with 60 days of initial startup and every year thereafter.

15. ROC emissions shall be determined using EPA Methods 18, 25, 25A or 25B. Emissions across the control system shall be determined simultaneously at the inlet and the outlet.

16. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any testing, and a source test plan must be submitted for approval by the District at least 15 days prior to testing.

17. The results of the source testing shall be submitted to the District within 60 days of the source testing.

18. The boiler shall be fired on Public Utilities Commission-regulated natural gas. Records shall be maintained to substantiate that this is the type of fuel used. This condition is applied as BACT (Best Available Control Technology).

19. The boiler shall be operated in compliance with APCD Rule 74.15.1, "Boilers, Steam Generators and Process Heaters".

20. Emission Limitations:

    a) Oxides of nitrogen (NOx measured as NO2) emissions from the boiler shall not exceed 12 ppmvd, corrected to 3% oxygen.
    b) Carbon monoxide (CO) emissions from the boiler shall not exceed 400 ppmvd, corrected to 3% oxygen.

    These limitations are applied for BACT (Best Available Control Technology) and Rule 74.15.1.B.1 compliance. In order to comply with this condition, the permittee shall have the unit's emissions tested within 60 days of start-up and then no less than once every 24 months thereafter.

21. Within 60 days of boiler start-up, the permittee shall conduct an emission test on the boiler. This test shall be conducted by an independent contractor to determine the oxides of nitrogen and carbon monoxide emissions. Such testing shall be conducted at the expected maximum operating load in accordance with APCD Rule 74.15.1.E, which includes California ARB Method 100 for oxides of nitrogen, carbon monoxide, and stack gas oxygen.

    Testing for purposes of compliance demonstration shall only be conducted after the Permit to Operate application is received and a temporary Permit to Operate is issued by the APCD. Prior to testing, permittee shall submit a source test protocol for APCD approval. The APCD shall be notified at least five working days prior to the emissions test and the test schedule shall be re-confirmed one working day in advance of the planned test. APCD personnel shall be allowed to observe the test.

22. Within 60 working days after the completion of the boiler tests required above, a report of the boiler test results shall be submitted to the APCD.

    The test report shall indicate the emissions of NOx and CO in parts per million by volume (corrected to 3% oxygen on a dry basis), pounds per hour and pounds per million BTU; the amount of excess oxygen in percent by volume; and the fuel and exhaust flow rates in standard cubic feet per minute.

23. The permittee shall maintain the boiler source test and the biodiesel production test records.

    This data shall be maintained at the facility for at least two years and shall be made available to APCD personnel upon request.

24. Prior to construction completion, the permittee shall submit an application for a Permit to Operate. The associated filing fee of $450.00 must accompany the application.

Your application for an Authority to Construct (dated February 17, 2010) was received by this office on February 26, 2010, and was considered complete on July 12, 2010.

The granting of this permit signifies that the above emissions have been evaluated based on the information provided with your application. Prior to construction completion, an application for an APCD Permit to Operate must be filed. Compliance of the source will be verified through inspection and review of the required data.

This Authority to Construct shall expire and shall be canceled two years from the date of issuance unless an extension has been approved in writing by the District (Rule 10).

Within 30 days after receipt of this permit, the permittee may petition the Hearing Board to review any condition on the permit (Rule 22). This permit, or a copy, shall be posted reasonably close to the installation site and shall be reasonably accessible to inspection personnel (Rule 19).

The granting of this Authority to Construct shall not be construed as an endorsement by the District or a guarantee of compliance with the rules of the District.

Contact Ali Lakhdar-Hamina of the Engineering Division at 805/645-1481 if you have any questions.

Sincerely,

Terri Thomas, Supervisor
Engineering Division

For:

Michael Villegas
Air Pollution Control Officer

Enclosure

C: Barry Mamaghany, VCAPCD Compliance Division

Ventura County
Air Pollution
Control District

669 County Square Drive
Ventura, California 93003

tel 805/645-1400
fax 805/645-1444
www.vcapcd.org

Michael Villegas
Air Pollution Control Officer

Your Opinion is Valuable

Permit Processing Survey

The Ventura County Air Pollution Control District is conducting this survey to evaluate and find ways we can improve our service. Please take a few minutes and let us know how we're doing. Your input will help us provide you with the quality of service you deserve. Please note these survey forms are sent directly to my office. This has been done to ensure I review your response and comments. Please check the most appropriate box on a scale from poor (on the left) to excellent (on the right). If the question does not apply to your application, mark the "not applicable" box.

		Poor			Excellent	N/A
1.	How understandable were the rules pertaining to this equipment?	☐	☐	☐	☐ ☐	☐
2.	How clear were the instructions accompanying the application form?	☐	☐	☐	☐ ☐	☐
3.	Were your questions answered satisfactorily?	☐	☐	☐	☐ ☐	☐
4.	How promptly were your phone calls returned?	☐	☐	☐	☐ ☐	☐
5.	Were the communications with engineering staff adequate during phone conversations?	☐	☐	☐	☐ ☐	☐
6.	Were the communications with engineering staff adequate during face-to-face conversations?	☐	☐	☐	☐ ☐	☐
7.	Was the Engineering staff's explanation of the rule requirements understandable?	☐	☐	☐	☐ ☐	☐
8.	Overall how knowledgeable was the engineering staff about the equipment and/or the process covered by your permit application?	☐	☐	☐	☐ ☐	☐
9.	Was the engineering evaluation conducted in a professional manner?	☐	☐	☐	☐ ☐	☐
10.	Are the conditions listed on your permit understandable?	☐	☐	☐	☐ ☐	☐

Would you like a manager to call? **Yes** ☐ **No** ☐

If yes, provide your name and phone number below. Your request will be handled promptly.

Name:_____ Phone:_____

Comments:

Thank you for your time in filling out this survey. Please fold, staple, and mail to the APCD.

Sincerely,

Michael Villegas
Air Pollution Control Officer

M:/Clerical/AdminForms/EngrOpinion

Engineering Manager review_____Data Input_____APCO_____Application No. 08073-100

VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT
669 County Square Drive, Ventura CA 93003 805/ 645-1401 FAX 805/ 645-1444 www.vcapcd.org

APPLICATION PACKAGE FOR PERMIT TO OPERATE AUTHORITY TO CONSTRUCT PREVIOUSLY ISSUED

Rule 10.B of the Air Pollution Control District (APCD) Rules requires that any person operating any facility that may emit air contaminants shall apply for and obtain an APCD Permit to Operate. Failure to obtain the necessary permits may result in late fees (Rule 42.F) and/or civil penalties (California Health and Safety Code Section 42402).

To obtain a Permit to Operate after construction or installation, complete the appropriate forms described below. Submit all forms and other required information with a filing fee of $450. ***Make all checks payable to the Ventura County APCD.*** If additional permit processing fees are required, you will be billed upon completion of the District's review of your application.

All information in a permit application is public information except for information entitled to confidential treatment as a trade secret. The Authority to Construct and Permit to Operate will also be public information. If you believe that any part of your application is a trade secret, please clearly label it as such. You must also submit written justification to support your claim of confidentiality. Please refer to District Regulation IX, Rules 200 - 204 when preparing your justification. In no case can emission data be considered trade secrets. In addition, the contents of the Authority to Construct or Permit to Operate are not entitled to protection as trade secrets.

Each application must contain, at a minimum, the following:

Permit Application Form (Form App002) - An application cover form summarizing the application . The number of the Authority to Construct that was previously issued for this equipment or project must be indicated on the form. If an Authority to Construct was not issued for this project, you need to complete Form App001.

Installed Equipment - If the applicant checks the box that states "All equipment was installed and will be operated in conformance with the requirements of the Authority to Construct", the District shall issue a Temporary Permit to Operate within 30 days of the receipt of a completed application. (Rule 14.B.2)

If the applicant checks the box that states "A description of all the differences between the equipment as constructed and the requirements of the Authority to Construct is attached", the District shall assess the differences to determine if the differences will affect the ability of the source to operate in compliance. Based on this assessment, the District shall issue a Temporary Permit to Operate or shall deny the application for a Permit to Operate and require an application for Authority to Construct. (Rule 14.B.2) If the application for Permit to Operate is accepted, fees shall be assessed for the time required to process the revision.

If you have any questions on what constitutes a substantial difference for your equipment, please contact the Engineering Section at 805/645-1401.

I:\ENG\Application Forms\Basic Forms\ttPTO2-Application Instructions.doc

VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT

669 County Square Drive, Ventura CA 93003 805/ 645-1401 FAX 805/ 645-1444 www.vcapcd.org

PERMIT APPLICATION FORM - AUTHORITY TO CONSTRUCT ISSUED

IMPORTANT: Include all of the following when submitting this application.

✓ **Appropriate Fee** ✓ **Signature on Application**

Failure to adhere to the instructions outlined by the District could result in the application being returned as incomplete. Knowingly submitting false information in this application is a misdemeanor punishable by a fine of up to $25,000 (Rule 12.D and H&SC 42400.2(c)).

Authority to Construct Number	*0 _ _ _ _ - _ _ 0*

Please specify the legal name and address of the person, partnership, company, corporation or agency to be named on the permit. All permits and billings will be mailed to the first address below.

Organization Type	❑ Corporation ❑ Partnership ❑ Individual Owner ❑ Government Agency		
Organization Name			
Mailing Address			
City, State Zip			
Contact Person		Title	
Phone Number		FAX Number	

Please specify the facility name, street address, and phone number where the equipment has been installed.

Facility Name			
Facility Address			
City, State Zip			
Contact Person		Title	
Phone Number		FAX Number	

Please check the appropriate box below

All equipment was installed and will be operated in conformance with the requirements of the Authority to Construct	❑ Yes
A description of all the differences between the equipment as constructed and the requirements of the Authority to Construct is attached.	❑ Yes

I hereby certify that the equipment which is the subject of this application can be expected to comply with all applicable rules. I hereby certify that all information provided on this application is true and correct. I agree to pay any and all fees required by District rules for processing this application and for issuance of the Permit to Operate. If I withdraw my application or should my application be disapproved, I agree that the obligation exists to compensate the District for time spent processing my application.

Signature of responsible official, partner, or sole proprietor (not a consultant or contractor) Original Signature Required/No Photocopies	
Print Name	
Organization or Company Name	
Date	

DISTRICT USE ONLY

Amount Paid: $_____ Date Received: _____ Receipt No.: _____

Appendix D

Minimization, Mitigation, Monitoring and Reporting Tracking Sheet

MINIMIZATION, MITIGATION, MONITORING AND REPORTING TRACKING SHEET

Biodiesel Expansion Project, Naval Base Ventura County Port Hueneme

Minimization, Mitigation, Monitoring, Reporting Measures	Environmental Driver (Doc/ Page)	Implementation Procedure or Action	Responsible Organization	Deliverable/ Report	Compliance Schedule	Verification of Compliance
To protect biological resources, and to ensure compliance with EO 13112 (*Invasive Species*), any plant or animal species proposed for use would be reviewed and approved by NBVC before being brought to the base. NBVC has already approved the use of brine shrimp and locally collected algae.	EA Page 2-20, Section 2.2.3	Submit request to NBVC for approval.	Biodico, Inc.	Letter/written request.	Ongoing/as needed.	Verified by: NBVC Environmental Quality Team: Date:
To minimize potential impacts to health and safety, safety procedures implemented as part of the proposed expansion of the previous biodiesel pilot project would be consistent with the *Hazardous Waste Management Plan*, NBVC Instruction 5090.7B *Hazardous Material Management Plan*, and the *Oil and Hazardous Substance Integrated Contingency Plan* (also known as "The Red Plan").	EA Page 2-20, Section 2.2.3; EA Page 3-20, Section 3.6.1.2; EA Page 3-22 and 3-24, Section 3.6.2.1.	Review NBVC's plans and compare to the proposed project and associated procedures.	Biodico, Inc. and NAVFAC EXWC.		Prior to commencing activities.	Verified by: NBVC/EXWC: Date:
To minimize potential exposure to subsurface soil or groundwater that may contain elevated concentrations of metals (e.g., hexavalent chromium), construction workers would wear personal protective equipment during any excavation in the northern portion of the proposed project area.	EA Page 2-20, Section 2.2.3; EA Page 3-24, Section 3.6.2.1.	Construction personnel shall wear personal protective equipment in the northern portion of the proposed project.	Construction contractor and Biodico, Inc.		During construction.	Verified by: NBVC/EXWC: Date:

Minimization, Mitigation, Monitoring, Reporting Measures	Environmental Driver (Doc/ Page)	Implementation Procedure or Action	Responsible Organization	Deliverable/ Report	Compliance Schedule	Verification of Compliance
Low Impact Development (LID) requirements to reduce impacts to water resources may apply as the total project footprint is 1.02 acres. However, the project is located on a previously paved and bermed area and the project would be consistent with LID requirements as stormwater would be managed onsite (see Section 2.2.2.6) and runoff would not be increased. Stormwater BMPs (e.g., straw wattles, sand bags) would be implemented during any ground-disturbing construction activities.	EA Page 1-7, Section 1.3; EA Page 2-2, Section 2.2.2; EA Page 2-19, Section 2.2.2.6; EA Page 2-20, Section 2.2.3; EA Page 3-15, Section 3.3.2.1.	Manage stormwater onsite and implement stormwater BMPs during any ground-disturbing construction activities.	Construction contractor and Biodico, Inc.		Ongoing and during any ground-disturbing construction activities.	Verified by: NBVC Water Program Manager: Date:
All trenching and grading activities would be monitored by a qualified archaeologist. In the event previously unknown archaeological deposits are encountered, work will stop in that area until the deposits can be evaluated.	EA Page 1-8, Section 1.3; EA Page 2-20, Section 2.2.3; EA Page 4-8, Table 4-1.	Prior to ground-disturbing activities, coordinate with NBVC Cultural Resources Program Manager to arrange for monitoring.	Construction contractor and Biodico, Inc.	Letter to the SHPO if an inadvertent discover of a cultural resource is made.	Prior to construction and during any ground-disturbing construction activities.	Verified by: NBVC Cultural Resources Program Manager: Date:
EXWC and Biodico would coordinate with NBVC Force Protection to ensure that project-related traffic does not contribute to back-ups at the Victoria Gate.	EA Page 2-21, Section 2.2.3; EA Page 3-28, Section 3.7.2.1; EA Page 4-6, Section 4.3.7.	Prior to construction and during operation, coordinate with NBVC Force Protection and CPLO regarding schedule for project-related traffic.	EXWC and Biodico, Inc.		Prior to construction and during operation.	Verified by: NBVC Community Plans and Liaison Officer: Date: