INEOS New Planet BioEnergy, LLC

Commercial Scale Integrated Demonstration BioEnergy Center

Vero Beach, Florida

Final Environmental Assessment

September 2010

DOE/EA 1773

U.S Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401

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Abbreviations and Acronyms

BMPs	Best Management Practices
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO_2e	Carbon Dioxide equivalent
CUP	Consumptive Use Permit
dBA	A-weighted Decibel
DOE	Department of Energy
EA	Environmental Assessment
EISA	Energy Independence and Security Act of 2007
EPA	United States Environmental Protection Agency
EPAct 2005	Energy Policy Act of 2005
ERP	Environmental Resource Permit
^oF	degrees Fahrenheit
FAAQS	Florida Ambient Air Quality Standards
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FNAI	Florida Natural Areas Inventory
GHG	Greenhouse Gas
H_2S	Hydrogen Sulfide
HSSE	Health, Safety, Security and Environmental
INP BioEnergy	INEOS New Planet BioEnergy

IRC	Indian River County
IRFWCD	Indian River Farms Water Control District
mgd	Million Gallons per Day
mgy	Million Gallons per Year
MSW	Municipal Solid Waste
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act of 1966
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
O_3	Ozone
OSHA	Occupational Safety and Health Administration
Pb	Lead
PM	Particulate Matter
$PM_{2.5}$	Fine Particulate Matter
PM_{10}	Inhalable Particulate Matter
PPM	Parts Per Million
PSD	Prevention of Significant Deterioration
sf	Square feet
SHPO	State Historic Preservation Officer
SJRWMD	St. Johns River Water Management District
SO_2	Sulfur Dioxide

SWDD	Solid Waste Disposal District
SWPPP	Storm Water Pollution Prevention Plan
TKN	Tkjeldahl Nitrogen
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compounds

Section 1
Introduction

1.1 Overview of the Proposed Action

The U.S. Department of Energy (DOE) is proposing to provide up to $50 million in cost share funds to INEOS New Planet BioEnergy, LLC (INP BioEnergy) (Proposed Action) for the construction and operation of a commercial scale integrated demonstration bioenergy center (proposed project) in Vero Beach, Florida having an estimated total capital cost of $121 million. A site location map is presented in **Figure 1-1**. Construction would take place entirely within the property formerly used by Ocean Spray Cranberries, Inc. as a citrus processing facility.

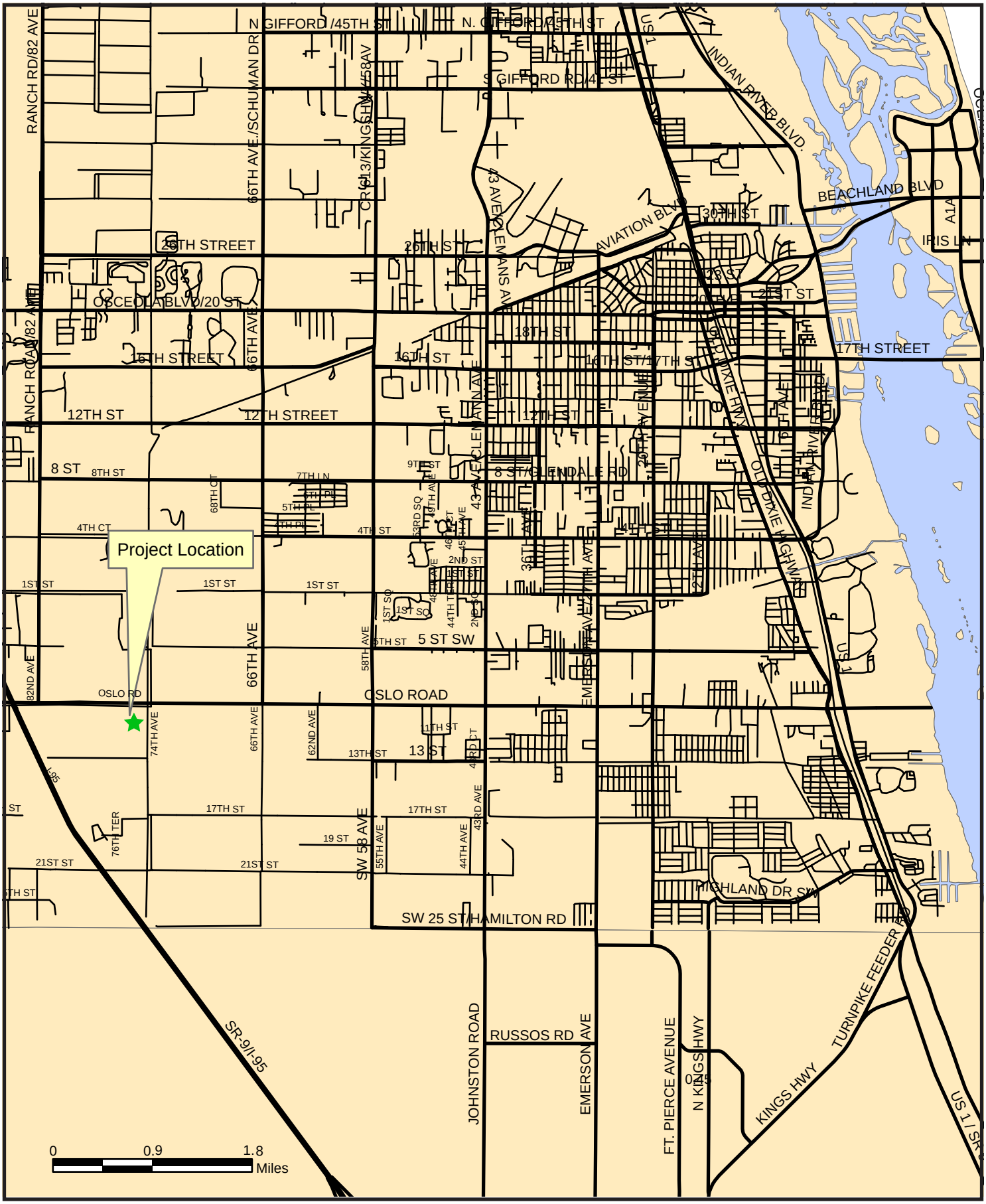
1.2 National Environmental Policy Act

The Proposed Action, to use federal funds for development of the proposed project, constitutes a federal action subject to the procedural requirements of the *National Environmental Policy Act of 1969*, as amended (NEPA; 42 U.S. Code 4321 et seq.). The Council on Environmental Quality (CEQ) regulations for implementing procedural provisions of NEPA (40 *Code of Federal Regulations* (CFR) Parts 1500-1508) and DOE's implementing procedures for compliance with NEPA (10 CFR Part 1021.330 et seq.) require that DOE, as a federal agency:

- Assess the environmental impacts of its Proposed Action;
- Identify any adverse environmental effects that cannot be avoided should the Proposed Action be implemented;
- Evaluate alternatives to the Proposed Action, including a No Action Alternative;
- Describe the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity; and
- Characterize irreversible and irretrievable commitments of resources that would be involved should the Proposed Action be implemented.

These requirements must be met before a final decision is made to proceed with any proposed federal action that could cause significant impacts to human health or the environment. This environmental assessment (EA) meets DOE's regulatory requirements under NEPA and provides the necessary information for DOE and other federal and state agencies to make informed decisions regarding the construction and operations of the proposed project.

This EA evaluates the potential direct, indirect, and cumulative effects of the proposed project. For purposes of comparison, this EA also evaluates the impacts that would occur if DOE did not provide funding and the proposed project is not constructed (the No Action Alternative). There are no other alternatives analyzed in detail. This EA will be available to interested members of the public and to federal,



Indian River County, Florida
INEOS New Planet BioEnergy - Indian River County BioEnergy Center

Figure 1-1
Location Map

state, and local agencies for review and comment prior to DOE's final decision on the Proposed Action.

1.3 Purpose and Need

The *Energy Policy Act of 2005* (EPAct 2005), Section 932, directed the Secretary of Energy to conduct a program of research, development, demonstration, and commercial application for bioenergy, including integrated biorefineries that could produce biopower, biofuels, and bioproducts. In carrying out a program to demonstrate the commercial application of integrated biorefineries, EPAct 2005 authorized the Secretary to provide funds to biorefinery demonstration projects proposed by industry and encouraged the use of such funds to demonstrate the efficacy of producing biofuels from a wide variety of lignocellulosic feedstocks; the commercial application of biomass technologies for a variety of uses, including the development of biofuels, bio-based chemicals, substitutes for petroleum-based feedstocks and products, and electricity or useful heat; and the collection and treatment of a variety of biomass feedstocks.

The *Energy Independence and Security Act of 2007* (EISA) amended the EPAct 2005 to increase the authorization of appropriations for renewable energy research and development, included a Renewable Fuel Standard that requires the production of 36 billion gallons (136 billion liters) per year of biofuels by 2022, and included specific provisions for 16 billion gallons of advanced biofuels, such as cellulosic ethanol and biomass-based diesel fuels.

The *American Recovery and Reinvestment Act of 2009* (Recovery Act) awarded DOE's Office of Energy Efficiency and Renewable Energy up to $564 million in funds to accelerate the construction and operation of pilot, demonstration, and commercial scale integrated biorefinery facilities. The projects would be designed to validate refining technologies and help lay the foundation for full commercial scale development of the biomass industry in the United States. The projects would produce advanced biofuels, biopower, and bioproducts using biomass feedstocks. Accordingly, DOE is implementing Section 932 of EPAct 2005 and Section 231 of EISA and is supporting biofuel production pursuant to the Renewable Fuel Standard established by EISA.

In December 2009, the Secretary of DOE announced the selection of 19 integrated biorefinery projects to receive funds from the Funding Opportunity Announcement and Recovery Act. The projects selected were part of an ongoing effort to reduce U.S. dependence on foreign oil, spur the creation of the domestic bio-industry, and provide new jobs in many rural areas of the country. The biofuels and bioproducts produced through these projects would displace petroleum products and accelerate the industry's ability to achieve production targets mandated by the federal

Renewable Fuel Standard. The INP BioEnergy proposed project was one of the 19 projects selected to receive funds from the Recovery Act.

The purpose of the DOE Proposed Action is to support the objectives of the EPAct 2005, EISA, and the Recovery Act. Providing funding as part of the Recovery Act would advance the goals of the program to accelerate the construction and operation of pilot biorefinery facilities. The proposed project would help to attain the Recovery Act's goals to:

- Validate refining technologies and help lay the foundation for full commercial-scale development of the biomass industry in the U.S.;
- Reduce U.S. dependence on foreign oil; and
- Provide new jobs in rural areas of the county.

1.4 Public Scoping and Agency Consultation

The public scoping process allows for the identification of alternatives to the Proposed Action as well as the determination of environmental issues to be addressed in the EA. The DOE sent out a scoping notice on April 20, 2010 to federal, state, and local agencies; tribal governments; elected officials; businesses; organizations and special interest groups; and members of the general public. The scoping notice and list of recipients are provided in the appendix. The scoping notice describes the proposed location for the proposed project as well as details of its operations.

DOE received four responses to the scoping notice (included in the appendix) – U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), the Florida Department of State Division of Historical Resources, and the Florida Department of Environmental Protection (FDEP). This EA includes consideration of all responses received to the scoping notice. DOE also sent consultation letters to the Florida State Historic Preservation Officer and USFWS.

INP BioEnergy is also implementing a comprehensive public outreach program that includes numerous meetings with local officials, businesses, community organizations and local residents.

1.5 Document Organization

The remainder of this document is organized as follows:

- Section 2.0 - Description of the Proposed Action and the No Action Alternative analyzed in this EA;
- Section 3.0 – Description of the affected environment and environmental consequences of the alternatives under NEPA;
- Section 4.0 – Description of potential cumulative impacts;

- Section 5.0 – Description of the irreversible commitment of resources and short-term uses; and
- Section 6.0 – References.

Section 2
DOE Proposed Action and Alternatives

This section describes DOE's Proposed Action and INP BioEnergy's associated proposed project (Section 2.1), required approvals (Section 2.2), and the No Action Alternative (Section 2.3).

2.1 Proposed Action

Under the Proposed Action, DOE would provide up to $50 million in cost share funds to INP BioEnergy for the construction and initial operations of the proposed project in Indian River County. Specifically, INP BioEnergy would construct a $121 million commercial scale integrated demonstration bioenergy center that would operate up to 330 days per year and produce 8 million gallons per year (mgy) of cellulosic ethanol and 6 megawatts of electric power, making the facility self-sufficient with the potential to export power to the local grid. The cellulosic ethanol would be denatured for transportation to produce up to 8.4 mgy of final product. Feedstock, estimated at 150,000 tons per year, would primarily consist of locally-available renewable biomass including vegetative waste and the biogenic fraction[1] of post-recycling municipal solid waste (MSW). The proposed project would be adjacent to the Indian River County (IRC) Solid Waste Disposal District (SWDD) Sanitary Landfill, thus easing the transport of debris and waste to the facility.

2.1.1 Proposed Project Construction

The proposed project site was developed in 1973 as a citrus processing facility by Ocean Spray Cranberries, Inc. and was in active industrial use up until early 2005. The site still contains the former citrus processing facility structures, which have been only minimally maintained since 2005. The existing structures include:

- Former citrus processing plant;
- Parking areas;
- Groundwater wells;
- Administrative offices;
- Freezer rooms;
- Trash receptacle areas;

[1] "Biogenic fraction" means the portion of the material that comes from biomass. Biomass means non-fossilized and biodegradable organic material originating from plants, animals or micro-organisms, including products, by-products, residues and waste from agriculture, forestry and related industries as well as the non-fossilized and biodegradable organic fractions of industrial and municipal wastes, including gases and liquids recovered from the decomposition of non-fossilized and biodegradable organic material (40 CFR 98 Mandatory Greenhouse (GHG) Gas Reporting, and 40 CFR 90 Subpart M Renewable Fuel Standard). "Biogenic fraction" and "non-biogenic fraction" are used to refer to portions of waste materials that come from biological or manmade/fossil fuel origins, respectively. The distinction is important in greenhouse gas regulations, because biogenic sources of GHG emissions are part of the natural carbon cycle and thus carbon-neutral, while non-biogenic sources produce a net addition of carbon to the atmosphere from previously sequestered underground carbon.

- Water softening and treatment plant;
- Power substations;
- Loading docks;
- Guard shack;
- Storage buildings;
- Concrete slabs that were the location of a former tank farm and a former building; and
- Injection well pad and associated equipment.

Of the 69.7-acre site, approximately 29 acres are currently occupied by the existing citrus facility. The proposed project would occupy a total footprint of 22.4 acres. Approximately 5.9 acres of this proposed development would occur on currently undeveloped land. The majority of the excavation and grading would take place in the area of the previously developed citrus processing facilities, where the soil has already been disturbed from previous land clearing and development activities.

Existing buildings/structures/features slated for demolition include:

- Approximately 380,000 square feet (sf) of asphalt pavement;
- Three electrical substations (to be replaced with new);
- Truck scale supports (scale to be relocated on-site);
- Building and structural foundations and subsurface piping and conduits would be removed in their entirety within new construction limits; and
- All onsite buildings and structures except for those specifically listed below.

Existing buildings/structures/features proposed to be retained include:

- Existing administration building, approximately 3,900 sf (to remain as administration/office building);
- Existing feedmill building, approximately 20,450 sf (to become feedstock handling building pending structural evaluation and code review);
- Existing control room/warehouse building, approximately 14,428 sf (to become new control room, break room, locker room, storage, etc.);
- Existing guard house, approximately 250 sf;
- Existing analyzer shelters (2), approximately 100 and 150 sf;
- Existing remote instrumentation building, approximately 420 sf;
- Truck scale (to be relocated on-site);
- Fire water pump house and fire water loop, approximately 600 sf;

- Maintenance shelter north of fire water pump house, approximately 2,550 sf;
- Emergency diesel generator;
- All groundwater supply wells and wellheads, which would be refurbished and upgraded; and
- Deep injection well, monitoring wells, and concrete pad surrounding the wells. The injection well has historically been used for disposal of stormwater and process wastewater from the former citrus processing facility. It would be refurbished and upgraded and continue to be used for process wastewater disposal from the proposed project.

Construction of the facility would take approximately 18 months (including demolition of existing citrus processing facilities) and would employ approximately 200-250 construction workers at the peak of construction. INEOS Bio would attempt to maximize recruitment from the local work force to fill these positions.

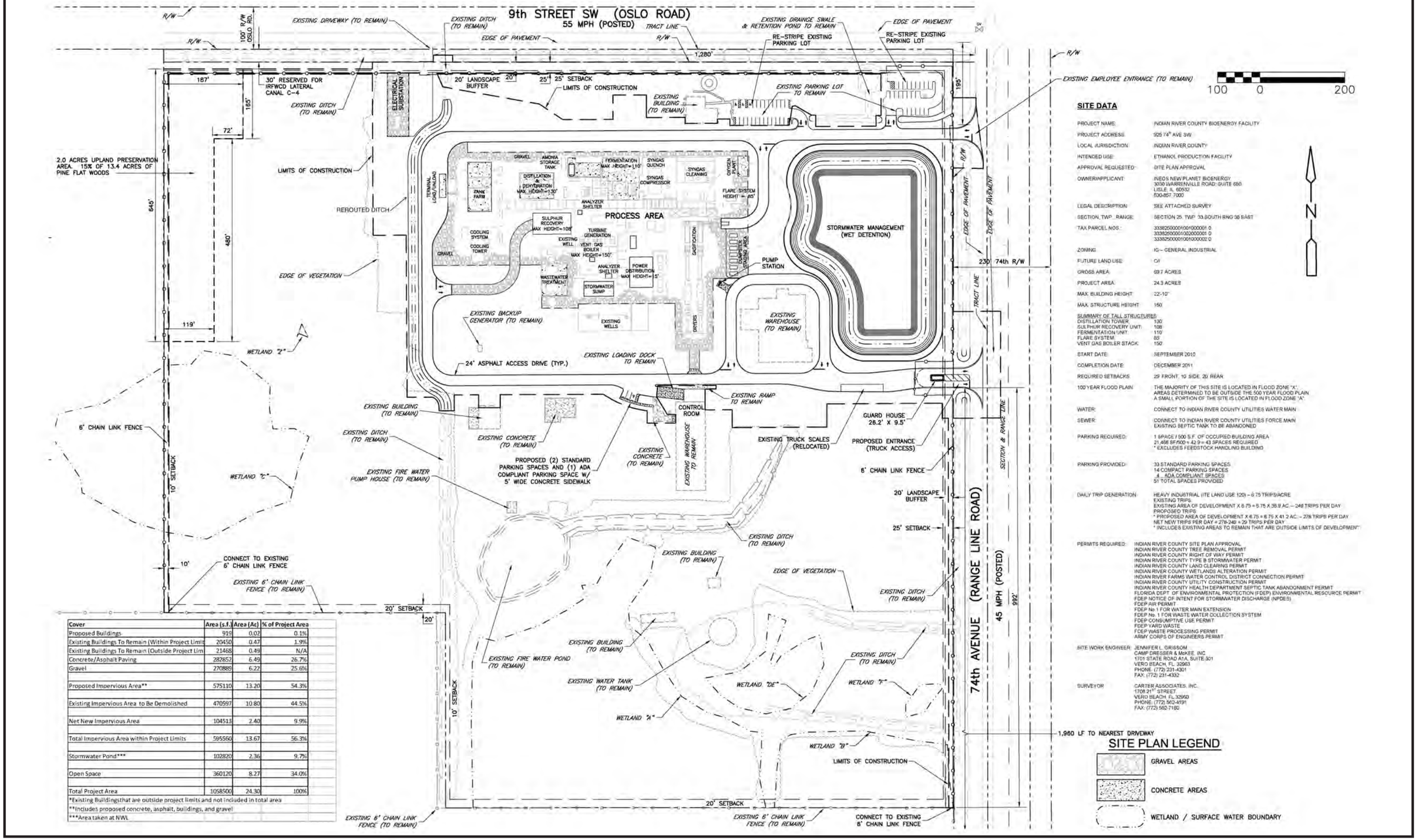
2.1.2 Proposed Project Operations

2.1.2.1 Overview

The proposed project would operate 24 hours a day 7 days a week for an estimated 330 days per year. The layout of the proposed project is shown in **Figure 2-1**. The proposed project would (1) gasify feedstock to produce syngas (composed of primarily carbon monoxide and hydrogen); (2) clean and recover energy from the hot syngas; after which the cooled syngas would be (3) fed to a fermentor where a proprietary naturally-occurring microorganism would convert the syngas to ethanol in an anaerobic, aqueous process; ethanol would then be (4) recovered by means of distillation and dehydration and blended with denaturant to produce motor grade fuel; and (5) waste heat and vent gas streams would be used to generate steam and electric power in sufficient quantities that the proposed project would be energy self-sufficient during stable operation with any excess renewable electricity available for export to the electric power grid. The proposed project would employ approximately 50 full-time permanent workers. Efforts would be made to recruit from the local work force for permanent positions. Some specialized positions may require out-of-region hiring.

The proposed process includes the following major components, each of which is summarized below and shown on **Figure 2-2**:

- Feedstock system;
- Gasification system;
- Fermentation system;
- Vent gas scrubbing, desulfurization, distillation and dehydration system;
- Vent gas boiler;
- Tank farm; and



Cover	Area (s.f.)	Area (Ac)	% of Project Area
Proposed Buildings	919	0.02	0.1%
Existing Buildings To Remain (Within Project Limit	20450	0.47	1.9%
Existing Buildings To Remain (Outside Project Lim	21468	0.49	N/A
Concrete/Asphalt Paving	282852	6.49	26.7%
Gravel	270889	6.22	25.6%
Proposed Impervious Area**	575110	13.20	54.3%
Existing Impervious Area to Be Demolished	470597	10.80	44.5%
Net New Impervious Area	104513	2.40	9.9%
Total Impervious Area within Project Limits	595560	13.67	56.3%
Stormwater Pond***	102820	2.36	9.7%
Open Space	360120	8.27	34.0%
Total Project Area	1058500	24.30	100%

*Existing Buildingsthat are outside project limits and not included in total area
**Includes proposed concrete, asphalt, buildings, and gravel
***Area taken at NWL

SITE DATA

PROJECT NAME:	INDIAN RIVER COUNTY BIOENERGY FACILITY
PROJECT ADDRESS:	9257 74th AVE SW
LOCAL JURISDICTION:	INDIAN RIVER COUNTY
INTENDED USE:	ETHANOL PRODUCTION FACILITY
APPROVAL REQUESTED:	SITE PLAN APPROVAL
OWNER/APPLICANT:	INEOS NEW PLANET BIOENERGY 3050 WARRENVILLE ROAD; SUITE 650 LISLE, IL 60532 630-857-7000
LEGAL DESCRIPTION:	SEE ATTACHED SURVEY
SECTION, TWP., RANGE:	SECTION 25, TWP. 33 SOUTH RNG 38 EAST
TAX PARCEL NOS.:	3338250000100010000010 3338250000100020000010 3338250000100010000020
ZONING:	IG – GENERAL INDUSTRIAL
FUTURE LAND USE:	CI
GROSS AREA:	69.7 ACRES
PROJECT AREA:	24.3 ACRES
MAX. BUILDING HEIGHT:	22-10"
MAX. STRUCTURE HEIGHT:	150
SUMMARY OF TALL STRUCTURES: DISTILLATION TOWER: SULPHUR RECOVERY UNIT: FERMENTATION UNIT: FLARE SYSTEM: VENT GAS BOILER STACK:	 130 108' 110' 85 150
START DATE:	SEPTEMBER 2010
COMPLETION DATE:	DECEMBER 2011
REQUIRED SETBACKS:	25' FRONT, 10' SIDE, 20' REAR
100 YEAR FLOOD PLAIN:	THE MAJORITY OF THIS SITE IS LOCATED IN FLOOD ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 500 YEAR FLOOD PLAIN. A SMALL PORTION OF THE SITE IS LOCATED IN FLOOD ZONE "A"
WATER:	CONNECT TO INDIAN RIVER COUNTY UTILITIES WATER MAIN
SEWER:	CONNECT TO INDIAN RIVER COUNTY UTILITIES FORCE MAIN EXISTING SEPTIC TANK TO BE ABANDONED
PARKING REQUIRED:	1 SPACE / 500 S.F. OF OCCUPIED BUILDING AREA 21,486 SF/500 = 42.9 = 43 SPACES REQUIRED * EXCLUDES FEEDSTOCK HANDLING BUILDING
PARKING PROVIDED:	33 STANDARD PARKING SPACES 14 COMPACT PARKING SPACES 4 ADA COMPLIANT SPACES 51 TOTAL SPACES PROVIDED
DAILY TRIP GENERATION:	HEAVY INDUSTRIAL (ITE LAND USE 120) – 6.75 TRIPS/ACRE EXISTING TRIPS: EXISTING AREA OF DEVELOPMENT X 6.75 = 5.75 X 36.9 AC. – 249 TRIPS PER DAY PROPOSED TRIPS: * PROPOSED AREA OF DEVELOPMENT X 6.75 = 6.75 X 41.2 AC. – 278 TRIPS PER DAY NET NEW TRIPS PER DAY = 278-249 = 29 TRIPS PER DAY * INCLUDES EXISTING AREAS TO REMAIN THAT ARE OUTSIDE LIMITS OF DEVELOPMENT
PERMITS REQUIRED:	INDIAN RIVER COUNTY SITE PLAN APPROVAL INDIAN RIVER COUNTY TREE REMOVAL PERMIT INDIAN RIVER COUNTY RIGHT OF WAY PERMIT INDIAN RIVER COUNTY TYPE B STORMWATER PERMIT INDIAN RIVER COUNTY LAND CLEARING PERMIT INDIAN RIVER COUNTY WETLANDS ALTERATION PERMIT INDIAN RIVER FARMS WATER CONTROL DISTRICT CONNECTION PERMIT INDIAN RIVER COUNTY UTILITY CONSTRUCTION PERMIT INDIAN RIVER COUNTY HEALTH DEPARTMENT SEPTIC TANK ABANDONMENT PERMIT FLORIDA DEPT. OF ENVIRONMENTAL PROTECTION (FDEP) ENVIRONMENTAL RESOURCE PERMIT FDEP NOTICE OF INTENT FOR STORMWATER DISCHARGE (NPDES) FDEP AIR PERMIT FDEP No. 1 FOR WATER MAIN EXTENSION FDEP No. 1 FOR WASTE WATER COLLECTION SYSTEM FDEP CONSUMPTIVE USE PERMIT FDEP YARD WASTE FDEP WASTE PROCESSING PERMIT ARMY CORPS OF ENGINEERS PERMIT
SITE WORK ENGINEER:	JENNIFER L. GRIESOM CAMP DRESSER & McKEE INC. 1701 STATE ROAD A1A, SUITE 301 VERO BEACH, FL 32963 PHONE: (772) 231-4301 FAX: (772) 231-4332
SURVEYOR	CARTER ASSOCIATES, INC. 1708 21ST STREET VERO BEACH, FL 32960 PHONE: (772) 562-4191 FAX: (772) 562-7180

SITE PLAN LEGEND

- GRAVEL AREAS
- CONCRETE AREAS
- WETLAND / SURFACE WATER BOUNDARY

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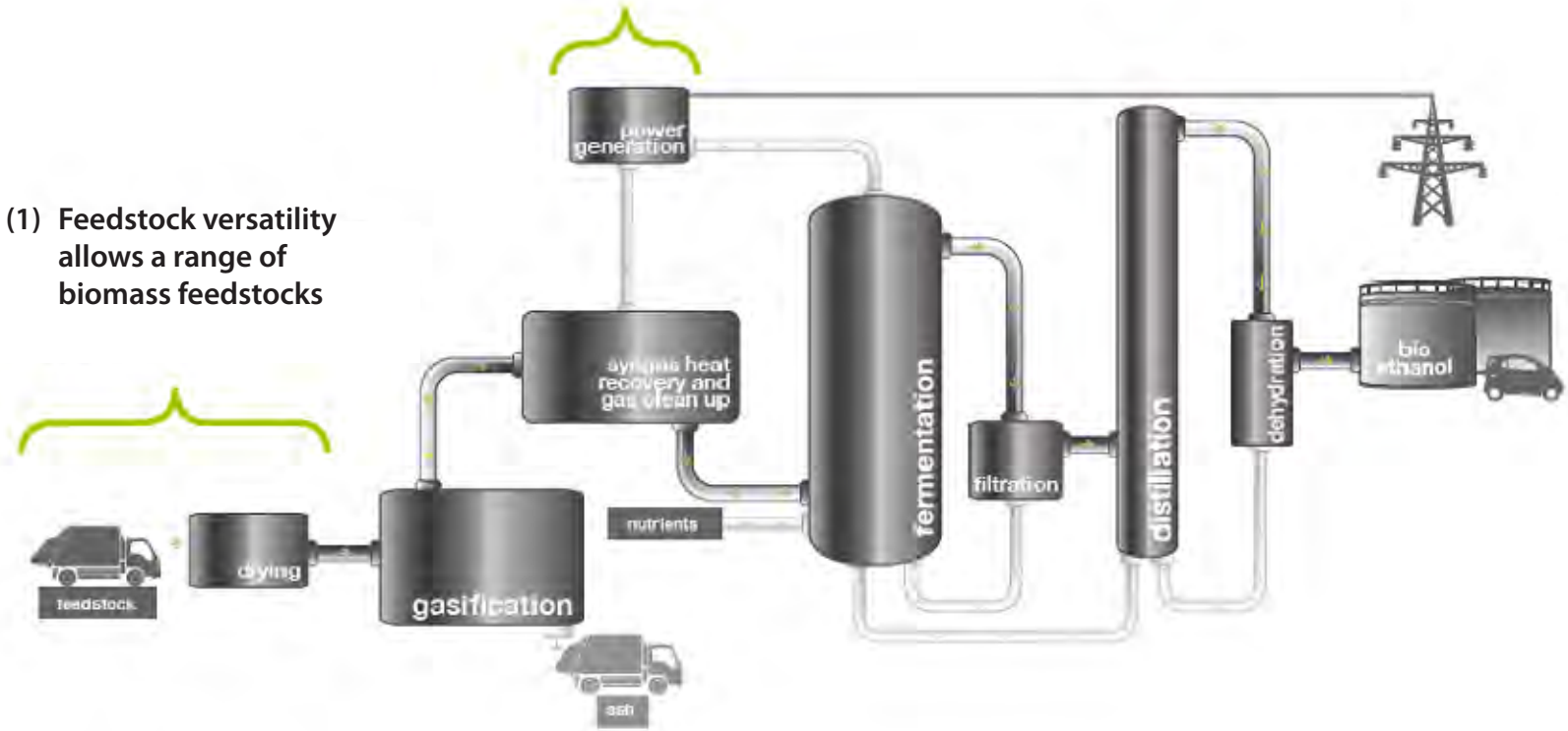
Figure 2-1
Site Plan

(3) Waste heat and offgas recovery for renewable power

(1) Feedstock versatility allows a range of biomass feedstocks



(2) Two stage gasification to produce syngas without signifcant by-products

(4) Syngas converted into bioethanol via fermentation using proprietary biocatalyst then distillation

Indian River County, Florida
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Figure 2-2
Process Flow Diagram

- Power generation and utilities.

2.1.2.2 Feedstock System

The feedstock used for this system would be primarily vegetative yard waste mixed with some of biogenic fraction of post-recycling MSW. The feedstock would be used on an as-received basis. The materials may be blended together in varying ratios, depending upon availability. On an annual average basis, the feedstock would be a combination of approximately 92 percent vegetative waste and 8 percent biogenic fraction of post-recycling MSW. Yard waste would be collected by SWDD. The biogenic fraction of post-recycling MSW would be pre-sorted off-site (at the SWDD landfill) or on-site and then ground or shredded on-site into a size that could be used in the process. The proposed project would process approximately 425 wet tons per day of raw feedstock.

Trucks would enter the site past a guard house at the entrance gate and would deliver feedstock to the tipping floor between 7 a.m. and 6 p.m. seven days per week. The tipping floor would hold two days (48 hours) capacity of operation. An area for an additional two days of feedstock storage could be available on hard-packed gravel. In addition, a feedstock handling building would be available both for covered feedstock storage as well as for housing feedstock processing equipment. Design details for the materials handling area have not been finalized. Front end loaders would manage the feedstock. Feedstock processing would be accomplished during daylight operations.

Front end loaders or mechanical conveyors would convey the storage piles to the feedstock dryers to reduce the moisture content to approximately 15 percent. The dryers would operate 24 hours per day, 7 days per week and would use low-pressure steam as the heat source. Exhaust from the dryers would be vented to the atmosphere via a dust control system. The dried feedstock would then be fed by a conveyor system to the two gasifier feed systems. Locations of the dryers and gasifiers are shown on the site plan on Figure 2-1.

2.1.2.3 Gasification System

Two gasifiers would be used to meet the required facility capacity of 300 dry tons per day (150 dry tons per day per gasifier). The gasification system would consist of the following subcomponents:

- Gasifiers;
- Heat recovery;
- Dry gas cleanup (combined from both gasifiers);
- Gas quench and compression; and
- Ash handling.

The gasifiers would heat the feedstock to approximately 1400 to 1600 degrees Fahrenheit (^{o}F), and convert all carbon-based combustibles into a synthesis gas

(syngas). The conversion would occur in a controlled partial oxygen atmosphere within the gasifier to increase production of carbon monoxide and decrease the production of carbon dioxide. The carbon monoxide rich syngas would be cooled, cleaned and compressed. This processed syngas is considered conditioned.

2.1.2.4 Fermentation System

The fermentation process uses a bacterial culture that is naturally-occurring and anaerobic, meaning that it dies when exposed to the atmosphere. It is harmless to humans and the natural environment. The conditioned syngas would be fed into a single production fermentor and converted to ethanol via proprietary bacterial metabolic action. Seed and growth fermentors would support the bacterial population. All of the fermentors would be supported by nutrient feeds. The nutrient feed tanks would contain nutrients and alkali for pH control. Hydrogen gas and carbon monoxide (CO) cylinders would be kept on site to maintain the seed fermentor in the case of gasifier failure. INP BioEnergy would store only the minimum number of cylinders determined to be necessary for gasifier repairs.

The ethanol would be removed from the production fermentor via membrane package systems. The ethanol collected (filtered fermentation broth) from the production fermentor would be sent to the distillation feed tank.

2.1.2.5 Vent Gas Scrubbing and Desulfurization

The off-gas from fermentors would undergo two stages of cleanup. First, the off-gas would be sent to the vent scrubber column to have residual ethanol removed. The vent gas column is a wet scrubber where the vent gas is allowed ample contact with flow from the distillation system to capture the residual ethanol in the vent gas. The off-gas leaving the scrubber column would then be routed to the desulfurization unit to remove hydrogen sulfide (H_2S) from the vent gas prior to combustion to reduce sulfur dioxide (SO_2) emissions. Finally, the desulfurized gas would be routed to the vent gas boiler or, alternatively, to the emergency syngas flare.

The liquid waste stream from the fermentors would have a gas stripper which would also be vented to the vent gas scrubber.

2.1.2.6 Vent Gas Boiler

The vent gases collected from fermentation, distillation, and dehydration that have been scrubbed and desulfurized would be combusted in the vent gas boiler. During start-up, the vent gas boiler would be supplied with landfill gas supplemented with natural gas. The landfill gas would be supplied from the SWDD landfill to the south of the site. During normal operations the vent gases would be supplemented with landfill gas as well.

2.1.2.7 Tank Farm

The following floating roof tanks would be installed, illustrated on Figure 2-1, in the northwest corner of the site:

- Ethanol shift tanks;
- Ethanol re-run tank;
- Product storage tank; and
- Denaturant storage tank.

The final product leaving the site would be prepared for transportation by adding 2 to 5 percent of denaturant (gasoline). Pumps would be used for transferring the product, loading the product transport trucks and dosing the denaturant through a product loading and metering station. A standard industry enclosed load-out flare would control vent gases from truck loading.

2.1.2.8 Power Generation and Utilities

Steam Generation and Distribution

Steam would be generated in the gasifier waste heat boiler and vent gas boiler. Process steam would be extracted from the steam turbine and would flow to a low-pressure steam header for distribution for on-site use. Excess steam from the turbine would flow to the condensing section of the steam turbine.

Power Generation and Distribution

Power would be generated by a steam turbine generator utilizing steam generated by the gasifier waste heat boiler and the vent gas boiler.

Utilities

Ancillary utilities systems that would be part of the proposed project include:

- Continuous plant and instrument air would be supplied by an air compressor and surge tank.
- Nitrogen for the fermentors would be delivered by truck by an offsite bulk gas supplier to a nitrogen storage tank.
- Oxygen would be supplied by a utility powered package unit.
- All specialty gases would be provided in portable cylinders. Portable cylinders would be stored in an open chained area. Gas standards for production would be stored in a locked inventory area.
- Cooling water would be supplied to a closed loop cooling system using a cooling water tower and pumps. The make-up water for the tower would be from re-use water, well water, potable water, or a combination thereof.

Emergency Syngas Flare

In the event of a system malfunction, emergency vent valves would direct all gases to the emergency syngas flare. Compressed syngas may also be diverted to the emergency syngas flare via the desulfurization unit if there is a fermentor malfunction when the vent gas boiler is unavailable.

2.2 Required Approvals

The permits and approvals listed in **Table 2-1** would be required for either construction and/or operations of the proposed project. The table provides a summary of mitigation measures associated with each permit/approval. In cases where the permit/approval has been issued, the referenced conditions are actual (i.e., from the permit/approval itself). In cases where the permit/approval has not been issued, the referenced conditions are anticipated, based on regulatory requirements.

2.3 No Action Alternative

The No Action Alternative is considered in this EA in order to provide a benchmark for decision makers to compare the magnitude of environmental effects of the alternatives (including the Proposed Action). Under the No Action Alternative, DOE would not provide funding and the proposed project would not be constructed on the former citrus processing facility site.

While it is possible that the proposed project could be built and operated without DOE financial assistance, that scenario is not analyzed because it would not provide for a meaningful No Action Alternative, as it would be identical to the Proposed Action. For the analysis of environmental impacts under this EA, the No Action Alternative is evaluated as if the proposed project were not built and operated.

Table 2-1 Required Permits and Approvals

Permit/Approval	Approval Authority	Submittal Date/Application Number	Permit/Approval Issue Date	Permit/Approval Conditions (actual or anticipated)
USACE Joint ERP for impacts to surface waters	USACE	ERP submitted 12/7/09; Application No. SAJ-2009-04326	NWP issued 6/16/10	As authorized under NWP 39. All General Conditions pursuant to 33 CFR Part 320-330 apply. Project-specific conditions include: - Submittal of project completion notification - Avoidance of cultural resources - Erosion controls - Standard Protection Measures for Eastern Indigo Snake USACE determined that re-routing of north-south ditch would create 0.42 acre of surface waters to offset surface water impacts.
FDEP ERP for impacts to surface waters and stormwater management	FDEP	Submitted 12/7/09	Draft permit expected August 2010	FDEP determined surface water impacts to be minimal and allowed for onsite mitigation – no mitigation credits required. Permit also addresses construction of proposed stormwater pond. Proper erosion control measures should be implemented and all construction must be in accordance with the permitted plans. Notice of construction commencement and construction completion along with as-built drawings must be submitted to FDEP once the project is complete. In addition, bi-annual inspection reports may be required for the wet detention pond. Turbidity monitoring may also be required.

Acronyms: USACE = U.S. Army Corps of Engineers; ERP = Environmental Resource Permit; NWP = USACE Clean Water Act Section 404 Nationwide Permit; FDEP = Florida Department of Environmental Protection; SJRWMD = St. John's River Water Management District; CUP = Consumptive Use Permit; IRFWCD = Indian River Farms Water Control District; IRC = Indian River County; BMP = Best Management Practice; mgy = million gallons per year; SWPPP = Storm Water Pollution Prevention Plan; mgd = million gallons per day; UIC = underground injection control; FAC = Florida Administrative Code

Table 2-1 Required Permits and Approvals

FDEP Minor Source Pre-Construction Air Permit for air emissions	FDEP	Submitted 2/9/10; Application No. 2442-2	Draft Permit issued 8/2/10; Permit No. 0610096-001-AC;Final Permit anticipated 3rd quarter 2010	Compliance with applicable standards and regulations for each emission unit, including performance restrictions, testing and monitoring requirements, and required records and reports; the permit also specifies general conditions, common conditions, common testing requirements, best management practices, and a preliminary leak detection and repair program. Other conditions include reasonable precautions to prevent emissions of unconfined particulate matter. Specific limitations include: Grinder engine: annual fuel usage limit, and 40 CFR 60 Subpart IIII emissions limits. Feedstock dryers: fabric filter for particulate matter control; compliance testing to determine need for volatile organic carbon control device. Gasification system: limits on MSW use. Vent gas boiler: 40 CFR 60 Subpart AAAA emissions limits. Emergency flares: limits on annual hours of operation; 98% volatile organic carbon destruction efficiency.

Acronyms: USACE = U.S. Army Corps of Engineers; ERP = Environmental Resource Permit; NWP = USACE Clean Water Act Section 404 Nationwide Permit; FDEP = Florida Department of Environmental Protection; SJRWMD = St. John's River Water Management District; CUP = Consumptive Use Permit; IRFWCD = Indian River Farms Water Control District; IRC = Indian River County; BMP = Best Management Practice; mgy = million gallons per year; SWPPP = Storm Water Pollution Prevention Plan; mgd = million gallons per day; UIC = underground injection control; FAC = Florida Administrative Code

Table 2-1 Required Permits and Approvals

				Fermentation and Distillation processes: fugitive emissions of VOC from pumps, valves, flanges, vents and connectors required to be collected and controlled in accordance with 40 CFR 60 Subpart VVa. Other conditions include reasonable precautions to prevent emissions of unconfined particulate matter, and BMPs for feedstock screening and management. The FDEP has found that with these limits and controls, the project would result in PSD-insignificant emissions increases, and would not cause or contribute to a violation of an AAQS.
FDEP Yard Waste Registration	FDEP	Submittal anticipated 3rd quarter 2010	Anticipate issuance 4th quarter 2010 or 1st quarter 2011	All operations shall be conducted in accordance with the approved permit. Any modifications to the proposed feedstock handling or feedstock material would require a permit modification.
FDEP Industrial Wastewater Treatment and Disposal System Permit	FDEP	Request to transfer permit anticipated 3rd quarter 2010	Transfer of permit anticipated 3rd or 4th quarter 2010	Deep injection well permit allows up to 0.94 mgd to be injected into the well. Monthly monitoring and reporting required by the permit. Mechanical integrity testing to be conducted every 5 years, in compliance with the permit.
FDEP Domestic Wastewater Collection System Permit	FDEP	Submittal anticipated 3rd quarter 2010	Anticipate issuance 3rd quarter 2010	No reporting/monitoring required. Construction, Operations and Maintenance must be in accordance with FAC 62-604.

Acronyms: USACE = U.S. Army Corps of Engineers; ERP = Environmental Resource Permit; NWP = USACE Clean Water Act Section 404 Nationwide Permit; FDEP = Florida Department of Environmental Protection; SJRWMD = St. John's River Water Management District; CUP = Consumptive Use Permit; IRFWCD = Indian River Farms Water Control District; IRC = Indian River County; BMP = Best Management Practice; mgy = million gallons per year; SWPPP = Storm Water Pollution Prevention Plan; mgd = million gallons per day; UIC = underground injection control; FAC = Florida Administrative Code

Table 2-1 Required Permits and Approvals

FDEP Drinking Water Distribution System Permit	FDEP	Submittal anticipated 3rd quarter 2010	Anticipate issuance 3rd quarter 2010	Construction, operations, and maintenance shall be in accordance with FAC 62-555. Certification and testing shall be in accordance with FAC 62-555.345.
SJRWMD CUP for water usage	SJRWMD	Submitted 6/7/10	Anticipate issuance 3rd quarter 2010	Monthly and annual usage reporting required.
IRFWCD Drainage Permit	IRFWCD	Submittal anticipated 3rd quarter 2010	Anticipate issuance 4th quarter 2010	Stormwater pond and outfall must be constructed as shown on the approved drawings. Best Management Practices should be implemented during construction to control erosion.
IRC Site Plan Approval and Associated Permits*	IRC	Submitted 2/24/10; Revised and resubmitted 6/9/10	Anticipate issuance 3rd quarter 2010	All construction must be in accordance with the approved plans. Engineer's certification required for project closeout.

*Associated permits include the IRC Right-of-Way, IRC Concurrency Determination, IRC Land Clearing, IRC Tree Removal, IRC Type A Storm Water, and IRC Utilities Permits

Acronyms: USACE = U.S. Army Corps of Engineers; ERP = Environmental Resource Permit; NWP = USACE Clean Water Act Section 404 Nationwide Permit; FDEP = Florida Department of Environmental Protection; SJRWMD = St. John's River Water Management District; CUP = Consumptive Use Permit; IRFWCD = Indian River Farms Water Control District; IRC = Indian River County; BMP = Best Management Practice; mgy = million gallons per year; SWPPP = Storm Water Pollution Prevention Plan; mgd = million gallons per day; UIC = underground injection control; FAC = Florida Administrative Code

Section 3
Affected Environment and Environmental Consequences

3.1 Land Use

3.1.1 Existing Environment

The proposed project site is located at 925 74th Avenue in Vero Beach, at the southwest corner of 74th Avenue SW and Oslo Road. The site is comprised of three parcels - the main parcel, central parcel, and west parcel. The majority of the previous development is located on the northern portion of the main parcel and the central parcel, while the southern portion of the main parcel and the west parcel are largely undeveloped. Of the approximately 69.7- acre site, currently approximately 29 acres are developed with former citrus processing facilities.

Figure 3-1 depicts land use on the project site and in the site vicinity. Land use surrounding the project area is a mixture of light industrial, agricultural, and County landfill operations. The property is bordered to the north by cattle pasture and drainage canals. To the east are the Indian River Exchange Packers and citrus groves, to the south and southwest is IRC SWDD land that is partially undeveloped and partially used for landfill operations, and to the west is a strip of undeveloped land and a pump facility (constructed in 1989).

The project site is zoned General Industrial and surrounding parcels are zoned Light Industrial, Agricultural (Ag-1, allowing up to one dwelling unit per 5 acres), and General Commercial. Land on the western side of Interstate 95 is zoned Ag-2, allowing up to one dwelling unit per 10 acres (IRC 2009). The proposed project falls within the General Industrial zoning designation. There are no land use areas with special designations in the vicinity of the project site.

Agricultural land is rated according to soil quality and irrigation status. The best quality land is called "prime farmland." The United States Department of Agriculture defines prime farmland as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, oilseed and other crops with minimum inputs of fuel fertilizer, pesticides, and labor and without intolerable soil erosion (7 U.S.C. 4201 (c)(1)(A)). Lands included in this definition could consist of cropland, pastureland, rangeland or forest land. This definition also includes a description of soil qualities that should be present on land that is prime farmland. The Department of Agriculture also defines "unique farmland" as "land other than prime farmland that is used for the production of specific high value food and fiber crops" (7 U.S.C. 4201 (c)(1)(B)). Agricultural land is defined in the IRC *2020 Comprehensive Plan* as land used for the production of food, crops and supportive uses; land used for agricultural sales, range land and pasture land; as well as land lying fallow (IRC 1998).

North

0 0.125 0.25
Mile

1 Inch= 0.25 Mile

Legend

- Project Limits
- 1/2 Mile Radius
- 1 Mile Radius
- Location of Residence
- Indian River County Parcels
- 1180: Rural residential
- 1200: Residential, medium density - 2-5 dwelling units/acre
- 1400: Commercial and services
- 1510: Food processing
- 1700: Institutional
- 1900: Open land
- 2110: Improved pastures
- 2130: Woodland pastures
- 2140: Row crops
- 2210: Citrus groves
- 2600: Other open lands - rural
- 3100: Herbaceous upland nonforested
- 3200: Shrub and brushland
- 4110: Pine flatwoods
- 4200: Upland hardwood forests
- 4340: Upland mixed coniferous/hardwood
- 5200: Lakes
- 5300: Reservoirs - pits, retention ponds, dams
- 6410: Freshwater marshes
- 6430: Wet prairies
- 6440: Emergent aquatic vegetation
- 6460: Mixed scrub-shrub wetland
- 7400: Disturbed land
- 7410: Rural land in transition
- 8140: Roads and highways (divided 4-lanes with medians)
- 8340: Sewage treatment
- 8350: Solid waste disposal

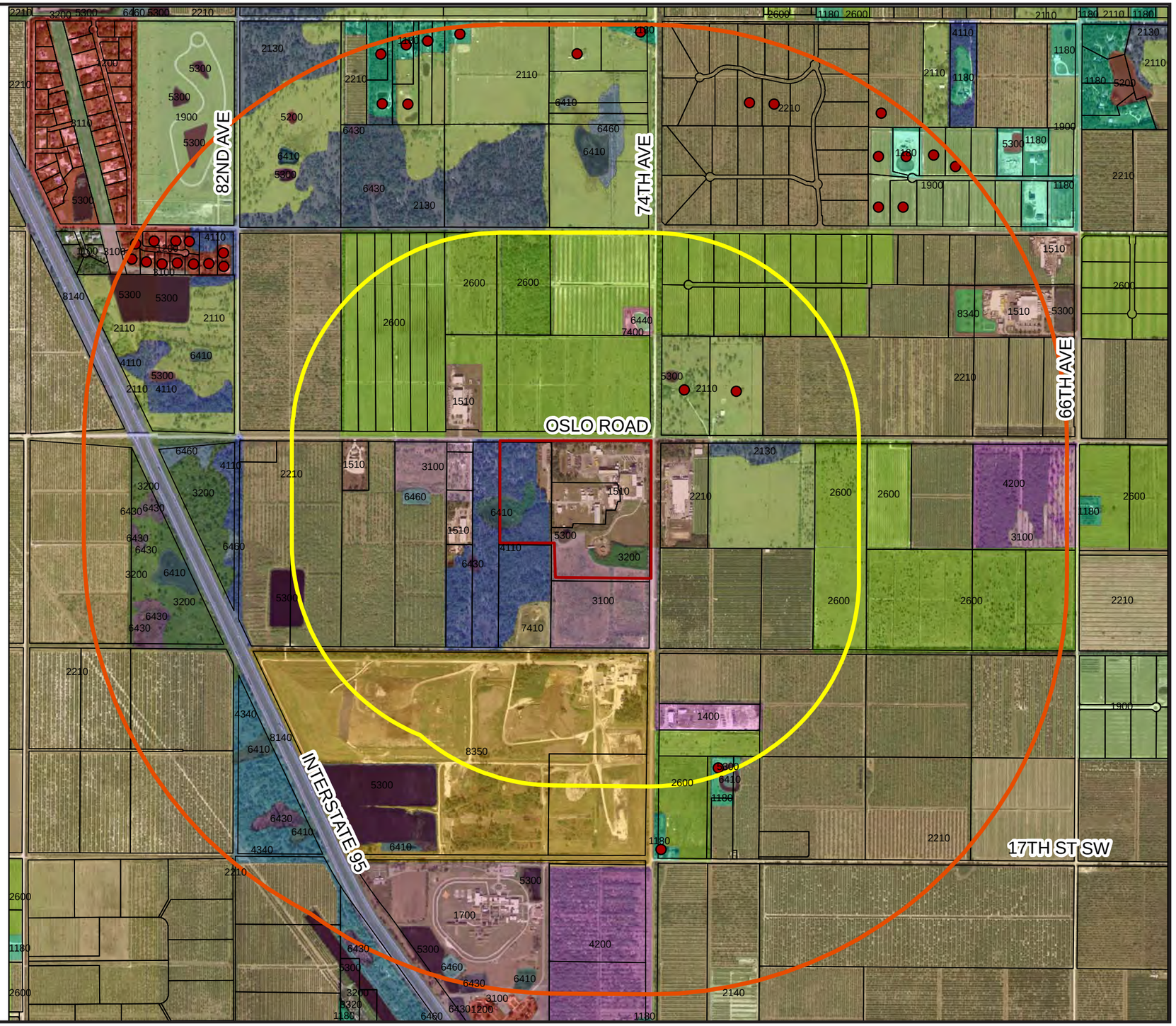

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Figure 3-1
Adjacent Land Uses

While land surrounding the project site is agricultural and zoned Ag-1, according to the Natural Resources Conservation Service prime farmland mapping, there is no prime farmland in the area of the project site (Natural Resources Inventory 2000). Likewise, there is no unique farmland in the area of the project site.

Figure 3-1 shows the location of sensitive receptors within a ½-mile radius and a 1-mile radius of the project site. Within the ½-mile radius, there are two residences located northeast of the project site on land zoned Ag-1. While Ag-1 is an agricultural zoning designation as opposed to a residential zoning designation, it allows residential dwelling units at densities of up to one dwelling unit per 5 acres. A correctional facility and other residences are located within the 1-mile radius extending from the project site.

3.1.2 Impacts of Proposed Action

3.1.2.1 Construction

Construction of the proposed project would take place entirely on the former Ocean Spray property, primarily within the footprint of the existing citrus processing facility. The proposed project would not result in any permanent changes to land use, planning, and zoning in the county. INP BioEnergy would demolish most of the existing industrial buildings and infrastructure currently on the project site, with some exceptions as noted in Section 2.

While nearly all of the new construction would take place on land that was previously developed with citrus processing facilities; approximately 5.9 acres of undeveloped land (including 0.39 acre of surface waters) would be developed for the proposed project. Development of this 5.9-acre area would include a combination of process areas, storage tankage, ethanol offloading, feedstock receiving/handling/processing areas and roadways. Construction of the proposed project would not impact agricultural land in the area of the project site. Further, given that there is no prime or unique farmland in the vicinity of the project site, construction of the proposed project would not impact these lands.

3.1.2.2 Operations

Due to the fact that the existing site was used for industrial purposes and still contains industrial facilities, there would be no change in land use as a result of the proposed project.

3.1.3 Impacts of No Action

Under the No Action Alternative, there would be no construction or operations associated with the proposed project. The property, and abandoned citrus processing facility, would remain as they currently exist. The deep injection well would continue to operate, as it is the primary means of stormwater disposal.

The No Action Alternative would not cause any impacts on agricultural land or on prime and unique farmland.

3.2 Geological Resources, Seismic Hazards, and Soils

3.2.1 Existing Environment

3.2.1.1 Geology

A topographic survey map dated 1983 shows the ground surface area in the project vicinity is generally level (**Figure 3-2**). The natural ground surface elevation is approximately +29 feet (above) the National Geodetic Vertical Datum of 1927 (NGVD).

IRC is underlain by a thick sequence of marine limestone, dolomite, shale, sand and anhydrite, ranging in total thickness from about 5,000 to 12,000 feet. The youngest formation present is the Anastasia Formation. It is present along the coast and grades inland into the Fort Thompson Formation. The Anastasia Formation consists primarily of tan to buff consolidated beds of calcium carbonate-cemented limestone and coquina. It varies in thickness from 100 to 500 feet. Below the Anastasia Formation are undifferentiated deposits of Miocene age comprised of shell and sandy clay, and generally 50 to 125 feet in thickness. Below these deposits is the Hawthorn Formation, which contains distinctive green and brown clay and is up to 200 feet thick. Below the Hawthorne Formation is a sequence of Oligocene and Eocene Limestone. The surficial deposits in IRC consist of mixed sands, shell beds, and clays (FES Group 2008a).

3.2.1.2 Seismology

Based on a review of the International Building Code, dated 2006, the site of the proposed project is considered to be Site Class D, which corresponds with a stiff soil profile. The classification is based on the subsurface exploration of FES Group and their experience in the area (FES Group 2009).

3.2.1.3 Soils

The Natural Resources Conservation Service Soil Survey of IRC identifies several primary soil map units at the property, including EauGallie fine sand, Pepper sand, Wabasso fine sand, Pineda fine sand, Urban land, and Manatee mucky loamy fine sand, depressional. EauGallie fine sand, Pineda fine sand, and Urban land cover the majority of the property. **Figure 3-3** shows the soils that underlie the project site.

Based on soil test borings, the subsurface soils on the project site generally consist of loose to medium dense slightly silty sand extending to maximum boring termination depths of 50 feet below the existing ground surface elevations (FES Group 2009).

3.2.2 Impacts of Proposed Action

3.2.2.1 Construction

Disturbance of the soil would occur during construction from the use of heavy equipment for clearing and grading required for the construction of the new facility. The finished grades of the proposed project would be expected to be within 2 to 3 feet of the existing grade levels (FES Group 2009). According to evaluations of soil test

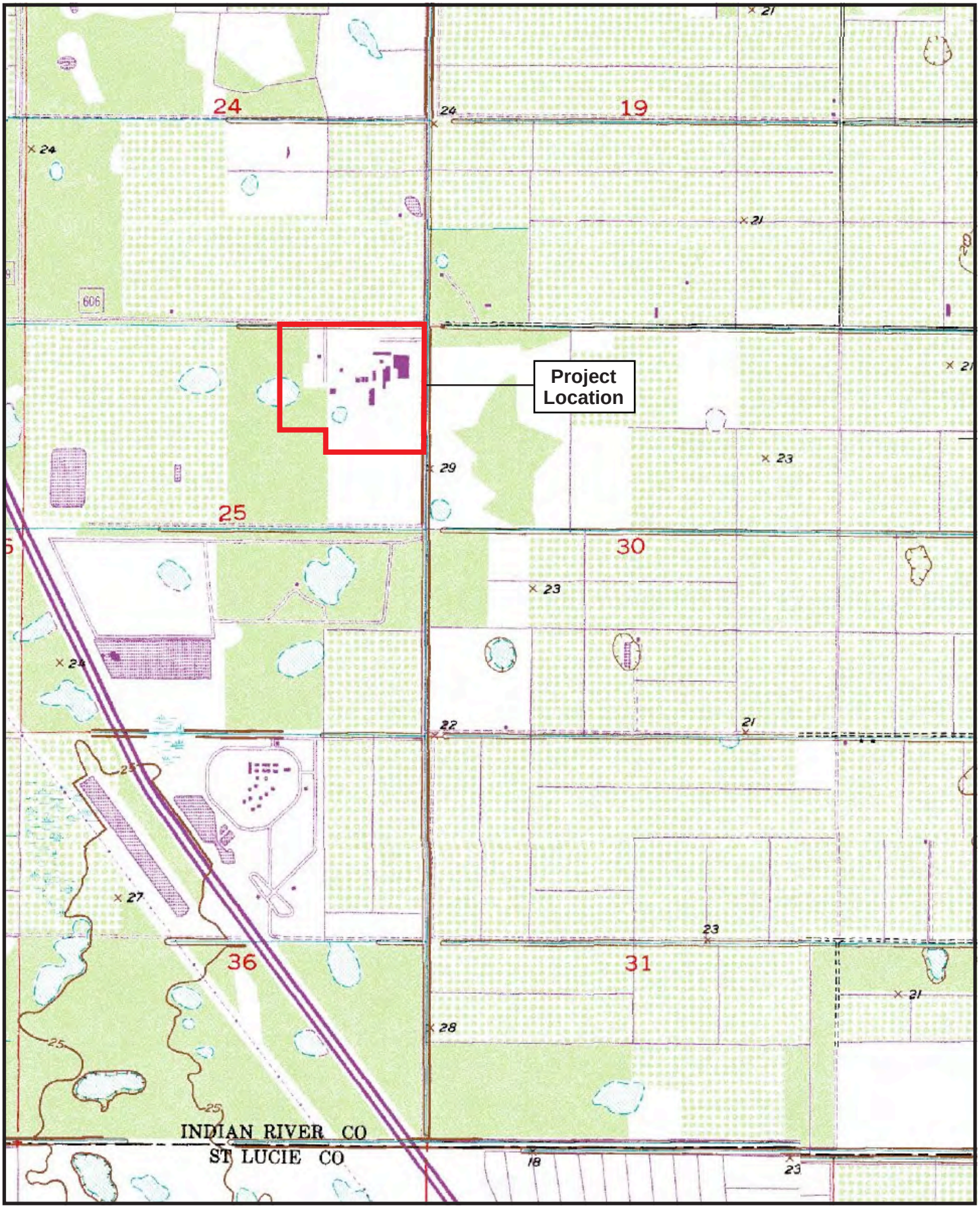

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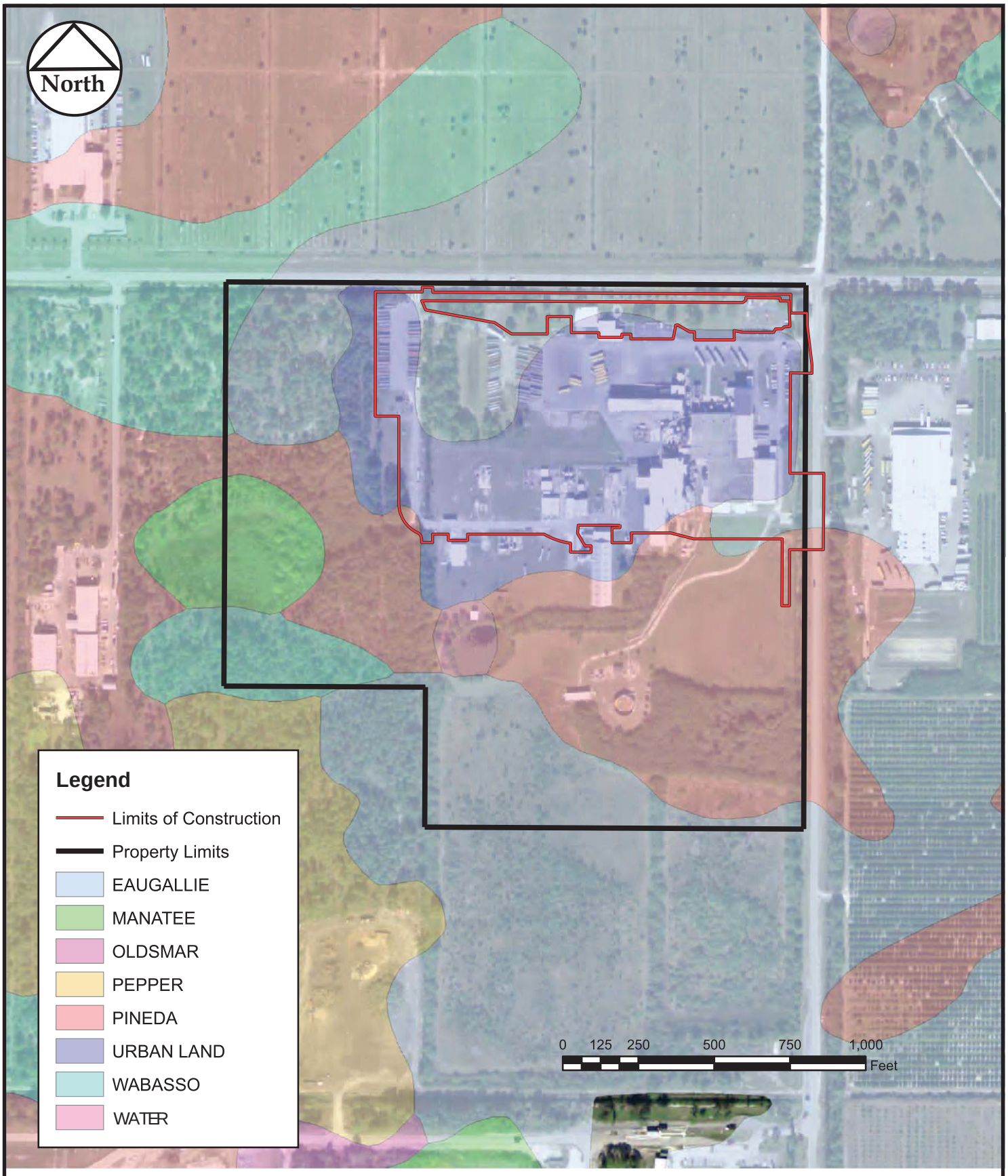
Figure 3-2
USGS Topographic Survey Map



Source: Aerial- SJRWMD, 2004; Indian River County Soil Survey- NRCS, 1987.

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Figure 3-3
NCRS Soils Map

borings, excavation of the soils encountered would be accomplished with conventional construction equipment. Subsurface formations requiring rock-type excavation operations (such as blasting and/or percussion hammers) were not encountered during the subsurface exploration (FES Group 2009).

For surface soil preparation, the existing structures and topsoil would first be removed, including underground structures such as foundations and utilities, prior to grading operations. Following clearing and grading, the underlying material would be proofrolled with a large vibratory drum roller (having a static drum weight on the order of 6 tons) to confirm the ability of the soils to properly support the expected facilities. Ground surface areas indicated as unstable for building purposes would be remediated to ensure stability (FES Group 2009).

The soils underlying the project site are capable of supporting the expected lightly loaded structures on shallow foundations with proper subgrade preparation. Additionally, the subsurface conditions encountered should be acceptable for construction and support of the preferred rigid flexible pavement structure (FES Group 2009). Construction-related impacts to geology, soils, and seismicity would be negligible.

Construction activities would have the potential to increase soil erosion on the project site. During the rainy season, stormwater runoff from the areas that have been cleared and graded may contain high levels of suspended sediments. Implementation of a Stormwater Pollution Prevention Plan (SWPPP) and best management practices (BMPs) in compliance with the National Pollutant Discharge Elimination System (NPDES) construction permit issued by FDEP would minimize impacts from soil erosion during construction.

Specifically, the NPDES permit required for this project is the "Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities" (Rule 62-621.300 (4), F.A.C.), referred to as the NPDES permit throughout this document.

3.2.2.2 Operations

After construction, there would be no further disturbance of the soils underlying the proposed project. Therefore, there would be no impact to geology, soils, or seismicity from long-term operations of the proposed project.

3.2.3 Impacts of No Action

Under the No Action Alternative, there would be no demolition of existing buildings and no construction of new buildings and related infrastructure required for the proposed project. The project site would remain in its current geologic state and there would be no impacts to geology, soils, or seismicity.

3.3 Air Quality

3.3.1 Existing Environment

The EPA is responsible for implementation of the Federal Clean Air Act (CAA), the primary statute that establishes ambient air quality standards. Under the authority granted by the CAA, the EPA established National Ambient Air Quality Standards (NAAQS) for the following criteria pollutants: CO, lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and sulfur dioxide (SO_2). O_3 is a secondary pollutant, meaning that it is formed in the atmosphere from reactions of precursor compounds, namely nitrogen oxides (NOx) and volatile organic compounds (VOCs), under certain conditions. The NAAQS set the maximum allowable concentration of criteria pollutants that may be reached but not exceeded in a given time period.

NAAQS include two standards to protect public health and the environment from harmful pollutants. The primary standard is set to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. A secondary standard is included to protect the public welfare, including protection against decreased visibility, and damage to animals, crops, vegetation, and buildings. The standards under NAAQS are listed in **Table 3-1** (40 CFR 50).

In addition to the NAAQS, the state of Florida has promulgated its own ambient air quality standards (FAAQS) that are at least as stringent as the NAAQS. The FAAQS are also summarized in Table 3-1 for reference purposes only.

Air quality status of a particular area is determined by comparing ambient levels to the upper thresholds of NAAQS. The area is designated as being in attainment if all thresholds are met, or else it is designated as non-attainment for a particular standard if a threshold is exceeded. IRC is currently designated as in attainment for all criteria pollutants under NAAQS.

Section 176(c) of the CAA (42 U.S.C. 7506(c)) requires any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan required under Section 110(a) of the CAA (42 U.S.C. 7410(a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a State Implementation Plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements will, in fact, conform to the applicable State Implementation Plan before the action is taken. The proposed project is sponsored and financially supported by DOE and must therefore be reviewed for general conformity.

On November 30, 1993[1], the EPA promulgated final general conformity regulations at 40 CFR 51 Subpart W for all federal activities except those covered under transportation conformity. On September 1, 1998, FDEP adopted Rule 62.204.500 of the Florida Administrative Code (F.A.C.), which incorporates the EPA general conformity regulations. The general conformity regulations apply to a proposed federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutants caused by the proposed action equal or exceed certain de minimis amounts. The proposed project is located in an area that is in attainment for all criteria pollutants; therefore, general conformity is not applicable.

The EPA developed emission levels that identify major stationary sources in attainment areas (40 CFR 51.166) in the Prevention of Significant Deterioration (PSD) regulations. A source is classified as a major stationary source if it has the potential to emit 100 tons per year of any regulated pollutant and is one of 28 listed source categories in the PSD regulation. If a source category is not listed in the PSD regulation but has the potential to emit 250 tons per year of any regulated pollutant, then it would also be subject to the PSD regulation. The proposed project is classified as a chemical process plant, which is listed as one of the 28 specific source categories in the regulation; therefore, it is subject to the lower threshold of 100 tons per year.

On February 18, 2010, CEQ released a memorandum to heads of federal departments and agencies entitled *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions* (CEQ 2010). The guidance document affirms the applicability of NEPA to greenhouse gas (GHG) emissions[2] and climate change impacts and recommends that Federal agencies consider opportunities to reduce GHG emissions caused by Federal actions. The guidance document specifically indicates that if a proposed action would cause direct[3] emissions of 25,000 metric tons or more of carbon dioxide-equivalent (CO_2e) emissions on an annual basis, then agencies should prepare a quantitative and qualitative assessment of emissions. This limit is not to be taken as a threshold of significance, but rather as level that would require analysis under NEPA. Although the emissions level specifically applies to direct emissions of GHG, the guidance document recommends that both direct and indirect[4] GHG emissions be analyzed. The public comment period for the guidance

[1] On April 5, 2010, a final rule for revisions to the general conformity regulations was published in the Federal Register (75 FR 17254). The revisions are effective on July 6, 2010.
[2] CEQ defines GHGs in accordance with Section 19(i) of Executive Order 13514, which requires the reduction of GHG emissions for Federal agencies (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride).
[3] Although the draft NEPA Guidance does not define "direct emissions," it is assumed to be consistent with the commonly accepted definition in other reporting regulations and guidance (e.g., the Climate Registry's General Reporting Protocol); namely, that direct emissions are those that a party controls and operates (i.e., company-owned mobile sources, stationary combustion sources, etc.).
[4] Although the draft NEPA Guidance does not define "indirect emissions," it is assumed to be consistent with the commonly accepted definition in other voluntary and mandatory reporting regulations and guidance (e.g., the Climate Registry's General Reporting Protocol); namely, that it includes emissions that a party has control over, but does not own (i.e., purchased steam or electricity).

document closed on May 24, 2010; however, the final guidance document has not yet been issued.

3.3.1.1 Meteorology

IRC experiences long, warm, humid summers and mild winters. The climate is considered to be humid and subtropical due to the influence of the Atlantic Ocean and the Gulf Stream in moderating the maximum and minimum temperatures. This effect is stronger along the coast and diminishes inland (IRC 1998b). The average year-round temperature is 73.4 °F while daily temperatures range from 46°F to 70°F in January and from 72°F to 91°F in August.

Average annual rainfall ranges from 50 to 55 inches. September usually has the most rain followed by June, October, and August. The period of lowest rainfall typically occurs from November to April (IRC 1998b).

Parts of IRC are subject to flooding, sometimes caused by intense rain storms, tropical storms, and hurricanes. The project site is not located in an area that is vulnerable to storm surges and flooding associated with hurricanes and tropical storms (*IRC Storm Surge Zones Map,* no date; *IRC Unified Local Mitigation Strategy,* February, 2010).

3.3.2 Impacts of Proposed Action

3.3.2.1 Construction

During construction, short-term impacts from emissions of criteria pollutants such as CO and NOx, as well as GHG emissions, would be expected to occur from the operation of heavy machinery for demolition, clearing, excavation, and grading. The emission of fugitive dust would also occur from grading of soil and the movement of heavy vehicles around the site during construction.

The primary risks from blowing dust particles relate to human health and human nuisance values. Fugitive dust can contribute to respiratory health problems and create an inhospitable working environment. Deposition on surfaces can be a nuisance to those living or working downwind. To control and reduce construction-related air quality emissions, mitigation measures would include:

- Requiring use of ultra-low sulfur diesel fuel;
- Spraying water on exposed areas to suppress dust;
- Covering trucks that haul dust generating materials to and from the site;

Table 3-1 State and National Ambient Air Quality Standards

Pollutant	Averaging Time	FAAQS	NAAQS Primary	NAAQS Secondary
O_3 [1]	1-Hour	0.12 ppm (235 µg/m^3)	NS	NS
	8-Hour	NS	0.075 ppm (137 µg/m^3)	Same as primary
Inhalable PM_{10}	24-Hour	150 µg/m^3	150 µg/m^3	Same as primary
	Annual	50 µg/m^3	NS	NS
Fine $PM_{2.5}$	24-Hour	NS	35 µg/m^3	Same as primary
	Annual	NS	15.0 µg/m^3	Same as primary
CO	1-Hour	35 ppm (40 mg/m^3)	35 ppm (40 mg/m^3)	NS
	8-Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	NS
NO_2 [2]	1-Hour	NS	0.100 ppm (189 µg/m^3)	NS
	Annual	0.05 ppm (100 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as primary
SO_2 [3]	3-Hour	0.5 ppm (1,300 µg/m^3)	NS	0.5 ppm (1,300 µg/m^3)
	24-Hour	0.1 ppm (260 µg/m^3)	0.14 ppm (365 µg/m^3)	NS
	Annual	0.02 ppm (60 µg/m^3)	0.030 ppm (80 µg/m^3)	NS
Pb [4]	Calendar Quarter	1.5 µg/m^3	1.5 µg/m^3	Same as primary
	Rolling 3-Month Average	NS	0.15 µg/m^3	Same as primary

Source: 62-204.240, F.A.C.; 40 CFR 50
Notes:
[1] On January 19, 2010, the EPA released a proposed rule to strengthen the 8-hour primary O_3 NAAQS to a level within the range of 0.060 to 0.070 parts per million by volume (ppmv). The EPA also proposed to establish a cumulative, seasonal secondary O_3 NAAQS within the range of 7 to 15 ppm-hours. (75 FR 2938)
[2] On February 9, 2010, the EPA finalized rule to supplement the current annual NO_2 standard by establishing a new 1-hour NO_2 standard at the level of 100 parts per billion (ppb), based on the 3-year average of the 98th percentile of the yearly distribution of the 1-hour daily maximum concentrations. (75 FR 6474)
[3] On June 2, 2010, the EPA finalized a new one-hour primary SO_2 NAAQS of 75 parts per billion by volume (ppbv), based on the 3-year average of the annual 99th percentile of the one-hour daily maximum concentrations. The EPA is also revoking the existing 24-hour and annual primary SO_2 NAAQS. The final rule is effective 60 days after the date of publication in the Federal Register. (EPA-HQ-OAR-2007-0352)The rule has not been published in the Federal Register as of June 3, 2010.
[4] On November 12, 2008, the EPA revised the lead standard to 0.15 µg/m^3 and revised the averaging period to a rolling 3-month period with a not-to-be-exceeded form, evaluated over a 3-year period. (73 FR 66964)
Key:
µg/m^3 = micrograms per cubic meter
FAAQS = Florida Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard
NS = no standard
ppm = parts per million

- Washing wheels and underbodies of construction vehicles prior to departure from the site;
- Reducing vehicle travel over non-paved areas; and
- Routinely cleaning paved areas to lessen the amount of dust available to be re-suspended.

3.3.2.2 Operations

The operation of the proposed project would result in emission of criteria air pollutants including CO, NOx, PM, SO_2, and VOCs from the exhaust of the vent gas boiler, feedstock dryer, and emergency flares. In addition, fugitive VOC emissions may occur from ethanol mixing, distillation, storage, and loading operations. A summary of the possible types of air emissions expected from the proposed project is listed in Section 3 of the Pre-Construction Air Permit Application. A copy of the permit application can be found at http://www.dep.state.fl.us/air/emission/apds/listpermits.asp.

Table 3-2 shows that emissions of regulated pollutants and criteria pollutants are anticipated to be less than the major stationary source threshold of 100 tons per year for any criteria pollutant (40 CFR 52.21(b)(1)(i)). INP BioEnergy would operate a boiler subject to 40 CFR Part 60, Subpart AAAA for small (less than 250 tons per day) MSW combustion units. This unit is included in the pre-construction permit application to the FDEP and would be constructed and operated to be in compliance with this performance standard. In addition, construction and operation of a flare, distillation towers, storage tanks, and cooling towers would be completed in compliance with other respective new source performance standards (NSPS) as established in 40 CFR Part 60. The summary of potential emissions and the calculation of the total maximum potential air pollutant emission rates and major source thresholds are listed in Table 3-2. If the model underestimates the emissions of regulated pollutants and the stationary source threshold is exceeded, an application for a Title V permit would be submitted.

The proposed project would comply with applicable requirements in the EPA NSPS (40 CFR 60, Subparts A, AAAA, Kb, and VVa), and with Florida air regulations for permits and certificates (Chapters 62-210, 62-212, and 62-213, F.A.C.), and Florida general emissions limiting standards (Chapter 62-296, F.A.C.). Hazardous air pollutants are anticipated to be less than 10 tons per year individually or less than 25 tons per year combined.

Dispersion modeling conducted for the proposed project demonstrated that maximum predicted offsite air pollutant concentrations due to the project would all be well below NAAQS. These results are shown in **Table 3-3** and discussed in detail in the INP BioEnergy Plant Project Dispersion Modeling Report (June, 2010).

The air permit application shows that the vent gas boiler, the largest stationary combustion source associated with the proposed project, would have a maximum

Table 3-2 Facility Total Maximum Potential Air Pollutant Emissions Rates and Major Source Thresholds

Facility Emission Units	Annual Emission Rates (tons/year)[1]							
	Nitrogen Oxides (NOx)	Carbon Monoxide (CO)	Sulfur Oxides (SOx)	Volatile Organic Compounds (VOC)	Particulate Matter ≤10 Microns (PM10)	Particulate Matter ≤2.5 Microns (PM2.5)	Lead (Pb)	Hazardous Air Pollutants
Feedstock Handling Area	---	---	---	---	32.84	32.08	---	---
Grinder Engine	8.00	0.58	6.26×10^{-3}	0.07	0.11	0.11	---	---
Feedstock Dryers	---	---	---	33.38	6.72	6.72	---	5.45
Vent Gas Boiler	87.32	14.77	68.89	7.53	6.09	6.09	0.05	9.68
Desulfurization Unit Oxidation Tank	---	---	---	33.90	---	---		---
Distillation	---	---	---	0.46	---	---	---	0.18
Gasifier Flare	0.62	11.57	5.16	0.36	0.26	0.26	---	0.05
Syngas Flare	3.01	16.36	15.48	0.12	---	---	---	0.16
Tank Farm	---	---	---	1.85	---	---	---	0.06
Activated Carbon Silo	---	---	---	---	7.82×10^{-7}	7.82×10^{-7}	---	---
Lime Silo	---	---	---	---	3.58×10^{-5}	3.58×10^{-5}	---	---
Cooling Tower	---	---	---	---	3.29×10^{-2}	3.29×10^{-2}	---	---
Loading Area Flare	0.38	7.13	---	0.65	0.16	0.16	---	4.34×10^{-3}
Miscellaneous Tanks	---	---	---	0.25	---	---	---	4.31×10^{-3}
TOTAL	99.33	50.41	89.54	78.58	46.20	45.44	0.05	15.59
Major Source Threshold[2,3]	100	100	100	100	100	100	100	25

Notes:

[1] Supporting calculations are provided in Appendix E of the INP BioEnergy Air Permit Application and subsequent responses to the Request for Additional Information.

[2] For all of the criteria pollutants (non-hazardous air pollutants), the PSD "Major Stationary Source" thresholds are from Rule 62-210.200(195), F.A.C. and applied in the PSD requirements in Rule 62-212.400, F.A.C.

[3] For the hazardous air pollutants, the "Major Source of Air Pollution" thresholds are from Rule 62-210.200(194(a)), F.A.C. and applied in the Title V requirements in Rule 62-213, F.A.C.

Table 3-3 Maximum AERMOD Predicted Emissions

Pollutant (units)	**Averaging Time**	**Project Emissions**	**Project Emissions + Background**	**NAAQS/ FAAQS**	**Exceed Standard?**
Carbon monoxide (CO) (ppm)	1-Hour	0.4	2.5	35[1] / 35	No
	8-Hour	0.2	1.8	9[1] / 9	No
Nitrogen dioxide (NO_2) (ppm)	1-Hour	0.047	0.081	0.100[1] / NS	No
	Annual	0.002	0.0078	0.053[2] / 0.05	No
Sulfur dioxide (SO_2) (ppm)	3-Hour	0.019	0.023	0.5[3] / 0.5	No
	24-Hour	0.008	0.009	0.14[1] / 0.1	No
	Annual	0.002	0.003	0.030[1] / 0.02	No
Inhalable particulate matter (PM_{10}) ($\mu g/m^3$)	24-Hour	31.8	75.8	150[1] / 150	No
	Annual	4.0	18.7	NS / 50	No
Fine particulate matter ($PM_{2.5}$) ($\mu g/m^3$)	24-Hour	13.7	31.4	35[2] / NS	No
	Annual	2.6	10.1	15.0[2] / NS	No

Notes:
NS = no standard
[1] Primary NAAQS only. No secondary standard.
[2] Primary & secondary NAAQS.
[3] Secondary NAAQS only. No primary standard.

potential GHG emission rate of about 93,000 metric tons of CO_2e per year. There would be some additional emissions from fuel burning equipment in the feedstock materials handling area (front end loaders and grinder), from the emergency and loading area flares, and from the gasifier start-up burners. All of the emissions from the vent gas boiler, flares, and gasifier start-up burners would be biogenic, meaningthat they would originate from biodegradable organic material, rather than from fossil fuels. The combustion of landfill gas in the vent gas boiler would destroy methane, and convert it to CO_2. Methane is 21 times as powerful a GHG as CO_2. The flare at the IRC SWDD Landfill currently destroys the landfill gas methane, but use of the landfill gas in the proposed project would have the added indirect benefit of putting the energy in the landfill gas to beneficial use, and displacing the possible use of fossil fuels in the vent gas boiler and in the gasifier start-up burners.

3.3.2.3 Meteorological Impacts on the Proposed Project

Severe weather, such as thunderstorms or hurricanes, may temporarily impact operations by limiting delivery of supplies, impeding shipments of ethanol, or causing disruption of electrical or water service. These types of impacts would be expected to last for less than 24 hours but could extend for up to several days. Although these impacts may occur in any given year, operational planning would allow for normal operations to resume with minimal impacts. INP BioEnergy's emergency response plan would define procedures to protect its employees and the public in the event of severe weather.

3.3.3 Impacts of No Action

Under the No Action Alternative, there would be no construction or operations of the proposed project, resulting in no project-related emissions of criteria pollutants and no change in air quality conditions.

The No Action Alternative would not impact air quality in IRC.

3.4 Water Resources

This section addresses surface water and groundwater hydrology, water quality, floodplains, wetlands, and wild and scenic rivers.

3.4.1 Existing Environment

3.4.1.1 Hydrology

Surface Water and Drainage

Three main surface water systems in IRC are the Upper St. Johns River Basin, which includes Blue Cypress Lake and the St. Johns Marsh; the Indian River Lagoon system and associated estuarine wetlands; and the St. Sebastian River, a tributary draining into the lagoon. The project site is located in the Upper St. Johns River Basin (IRC 1998a).

Blue Cypress Lake is located in the western part of the county, approximately 20 miles northwest of the project site. The St. Johns Marsh, located on the eastern side of Blue Cypress Lake, is the headwaters of the north flowing St. Johns River. The part of the county west of Interstate 95 is the natural drainage basin for the St. Johns River. However, manmade drainage canals have extended the natural basin borders to include areas east of Interstate 95. The marsh receives most of its water from rainfall as well as several small streams that flow into the Blue Cypress Lake system (IRC 1998a).

The Upper St. Johns River Basin extends 80 miles from its headwaters to the southern end of Volusia County. It is one of the watersheds under the management of the St. Johns River Water Management District (SJRWMD) and contains the SJRWMD's two surface water sources for potable water, Lake Washington and Taylor Creek (SJRWMD 2005). The St. Johns River runs approximately 15 miles to the west of the project site; at this point the river has been channelized into irrigation channels for surrounding agricultural land.

Surface water resources within FDEP jurisdiction exist on and surrounding the project site. Several of these are also United States Army Corps of Engineers (USACE) jurisdictional waters. The surface waters include:

- **Indian River Farms Water Control District (IRFWCD) C-4 canal –** This canal runs parallel to Oslo Road on the north side of the project site. The canal is the ultimate drainage for the site and flows into the Indian River Lagoon.

- **The 74th Avenue ditch** - Located on the west side of 74th Avenue, this ditch has dense vegetation including cattail and water primrose. It is connected to the C-4 canal and is a USACE jurisdictional surface water.
- **The fire water pond –** This pond was excavated to supply hydrant water to the site for use by the citrus processing facility. The pond provides little wildlife habitat due to steep slopes. There is also an upland-cut ditch that drains into the pond from the northeast (fire water pond ditch). A culvert connects the pond to the north-south ditch during high water situations. The fire water pond and fire water pond ditch both have significant nexus to waters of the U.S. and are USACE jurisdictional surface waters.
- **Ditches 1 and 2 –** Located on the eastern side of the site, these ditches discharge into the 74th Avenue ditch during high water situations. The ditches are USACE jurisdictional waters.
- **Ditch G –** This ditch runs between wetlands A and B (wetlands are described in more detail in Section 3.4.1.4) and is bermed on all sides. Due to the berm, the ditch is not connected to any wetlands or waters of the U.S. Therefore, it is not a USACE jurisdictional surface water.
- **North-South Ditch –** This ditch is approximately 15 feet wide and transects the project site. It is connected to the C-4 canal through a culvert; therefore, it is a USACE jurisdictional surface water. On-site runoff that flows through these surface water ditches and canals eventually discharges into Indian River Lagoon.

The functional value of all surface water ditches on the project site is minimal due to the presence of numerous non-indigenous species. The dense coverage of Brazilian pepper tree in addition to feral hog rooting has prevented the establishment of groundcover in most areas. Therefore, there is limited vegetation in the ditches to provide habitat. **Figure 3-4** illustrates the location and extent of these local surface waters on the project site.

Groundwater

Three aquifers are present in IRC and include in descending order, the surficial aquifer system, the intermediate confining unit, and the Floridan aquifer system. The Floridan aquifer system is the principal artesian aquifer in the region and provides potable water supplies.

The Oslo, Florida U.S. Geological Survey 7.5 Minute Topographic Map shows the local groundwater flow direction as from west to east, upgradient to downgradient. The topographic map identifies two surface water features on the property and adjacent property to the west. The depth to the surficial table level is estimated to be within 40 inches below land surface (FES Group 2008a).

The Upper St. Johns Groundwater Basin underlies IRC and the immediate project area. Groundwater in the basin comes from the Floridan aquifer, the intermediate aquifer, and the surficial aquifer. Groundwater recharge occurs mainly in the western

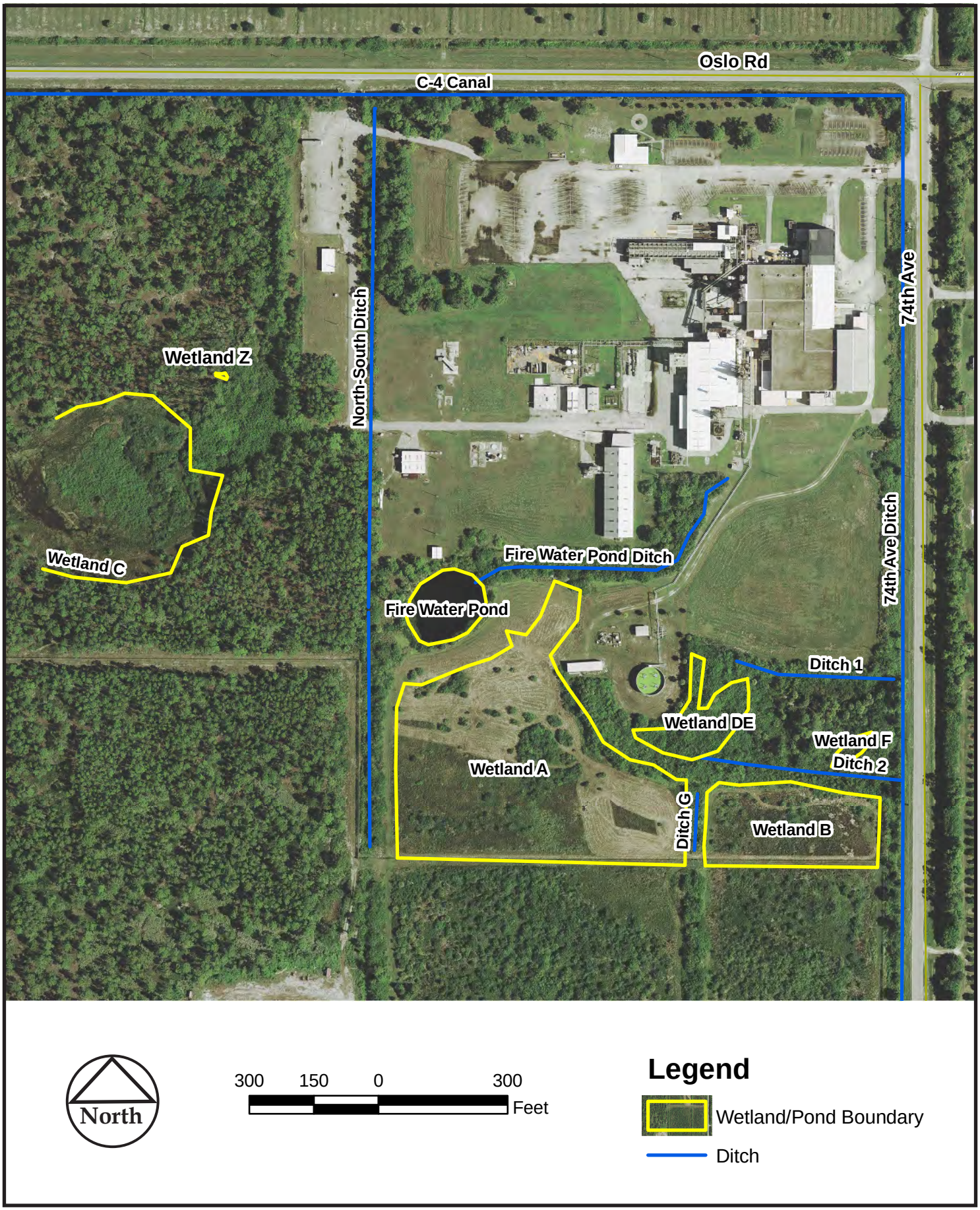

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Figure 3-4
Wetands and Surface Water

part of the basin including parts of Orange, Osceola, and Okeechobee counties. Discharge mainly occurs in the coastal parts of the Kissimmee River Basin (SJRWMD 2005). Sole source aquifers in Florida include the Biscayne Aquifer in the southern part of the state and the Volusia-Floridan Aquifer in east-central Florida. The northern portion of the Biscayne Aquifer and recharge zones lay along the western edge of IRC (USEPA, 2009). The Biscayne Aquifer supplies all municipal water supply systems from south Palm Beach County southward; this does not include IRC (U.S. Geologic Survey, 1978).

3.4.1.2 Water Quality

Surface Water

The SJRWMD conducts water quality monitoring and generates data to assist in setting and meeting federal, state, and regional water quality standards. The SJRWMD collects and analyzes surface water quality data on the St. Johns River through its Surface Water Quality Monitoring Program (SJRWMD 2005). Part of this program is sponsored by the FDEP and used for the state's biennial *Integrated Water Quality Assessment for Florida.* This data is also used to determine total maximum daily loads for water bodies around the state (SJRWMD 2005). There are no water quality monitoring sites on the portion of the river in IRC.

Groundwater

Water quality in the Floridan aquifer varies with depth and location. Deeper levels of the aquifer system as well as shallower levels along the coast have higher chloride concentrations (SJRWMD 2005). Groundwater monitoring occurs as part of monitoring efforts conducted by the solid waste landfill in the vicinity of the project site (FES Group 2008a). The January 2008 Semi-Annual Groundwater Monitoring Report for the neighboring SWDD landfill (IRC SWDD 2008) revealed elevated levels (above groundwater criteria) of iron, total dissolved solids, chlorides, and ammonia. In general, these parameters exceeded their respective criteria in the same monitoring wells during previous semi-annual sampling events and monitoring is set to continue per FDEP requirements.

As discussed further in Section 3.11, Ocean Spray was permitted to inject stormwater and process wastewater into a deep injection well constructed into the Lower Floridan Aquifer (approximately 3,000 feet below land surface). Water quality sampling has revealed the presence of Tkjeldahl Nitrogen (TKN) in the monitoring well system. Replacement of the aging monitoring wells would likely resolve the issue related to TKN levels in the injection zone (see Section 3.11).

Surficial aquifer water quality varies from well to well in this region. The wells on the project site have been sampled to determine the water quality of the process feed water. Chloride, iron and total dissolved solids are also elevated in this aquifer, but are within the acceptable range for use in the process (lower than the levels in the Floridan Aquifer).

3.4.1.3 Floodplains

Flood conditions in IRC are most frequent during the rainy season from May to October. Streams and canals between Interstate 95 and the Atlantic Coast near U.S. Highway 1, as well as streams that discharge into the St. Johns River, are subject to flooding from prolonged heavy rainfall (IRC 1998a).

According to the Federal Emergency Management Agency, the majority of the project site is located in Flood Zone X; however, a small portion of the site is in Flood Zone A **(Figure 3-5)**. Flood Zone X is defined as an area determined to be outside the 500-year floodplain. Flood Zone A is described as a special flood hazard area inundated by the 100-year flood with no base flood elevation determined.

Flood Zone A does not have established flood elevation data. Therefore, the peak stage of the adjacent IRFWCD canal during the 100-year design storm, 23.3 feet NGVD, was utilized as the 100-year flood elevation.

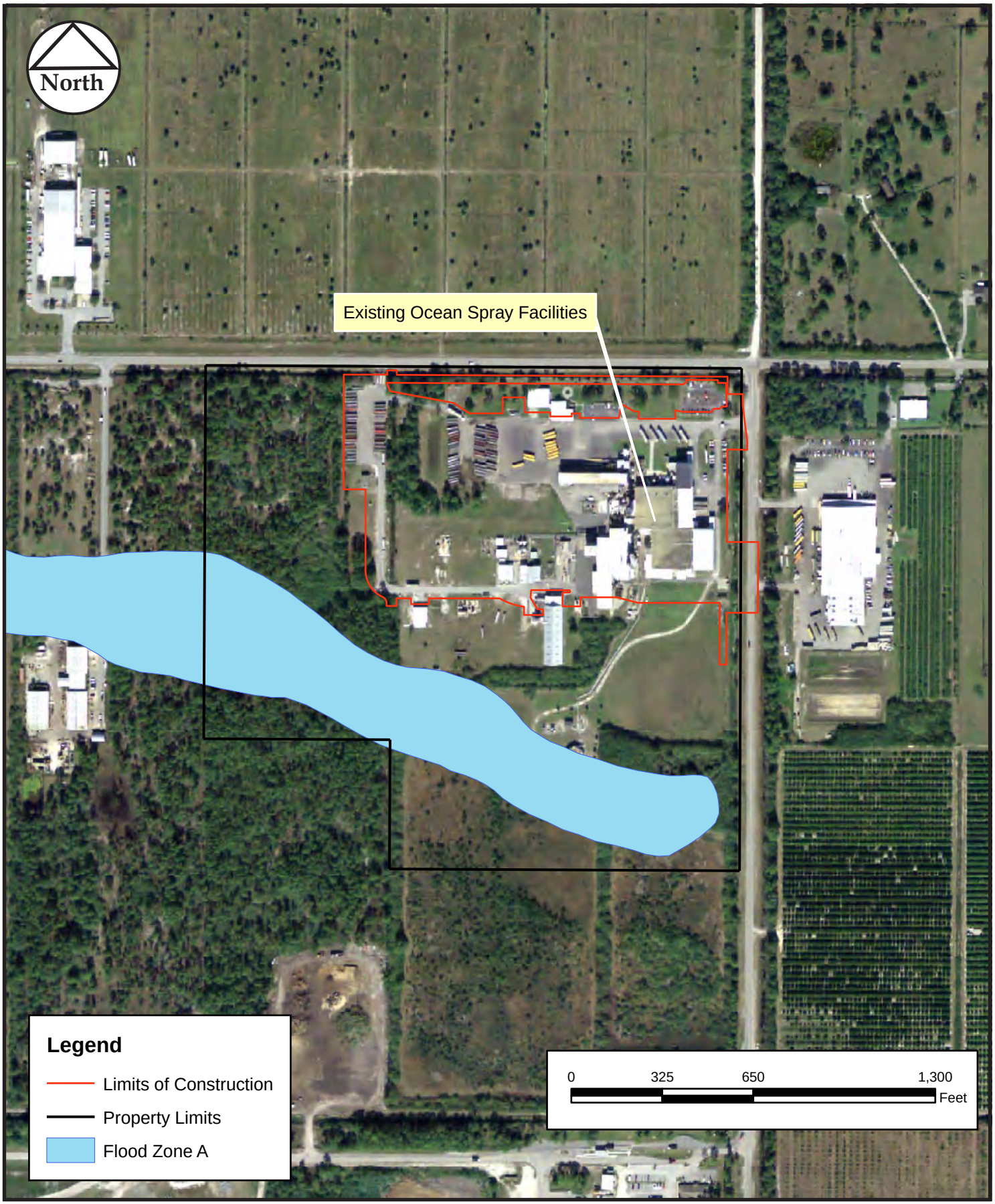
3.4.1.4 Wetlands

Wetland boundaries and USACE jurisdiction were verified in the field on November 17, 2009. The evaluation was conducted in accordance with routine determination guidelines as specified in the Florida Unified Wetland Delineation Methodology produced by FDEP (Delineation of the Landward Extent of Wetlands and Surface Waters, Chapter 62-340 F.A.C.) and in the USACE Wetland Delineation Manual (Technical Report Y-87-1). There are areas within the project site that have evidence of the three criteria required to be defined as wetlands (hydric soils, hydrophytic vegetation, and wetland hydrology). Several palustrine emergent wetlands, and scrub shrub wetlands were noted on the site.

Wetland functions are the physical, chemical, and biological processes that characterize wetland ecosystems, such as flooding, denitrification, provision of habitat for organisms, and support of aquatic life. Objective measurement of wetland functions falls within the realm of the natural sciences and, barring changes in the ecosystem being measured, is repeatable over time. Many wetland functions are considered useful or important by society. For example, inundation of wetlands can prevent flood damage elsewhere, denitrification can improve water quality, wetland habitat can help maintain waterfowl populations, and anaerobiosis can influence the development of unique plant communities that contribute to the conservation of biodiversity.

The field surveys determined that, in general, the functional value of all wetlands on the project site is low due to the prevalence of invasive species, altered hydrology from ditching and draining, historic land management practices (i.e., mowing), and extensive feral hog rooting.

There are four FDEP jurisdictional wetlands in the southern portion of the site - wetlands A, B, DE, and F. Wetlands C and Z are located on the western portion of the site and are also FDEP jurisdictional wetlands.



Source: Aerial- SJRWMD, 2004;
Floodplain Source: FEMA, 1989

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Figure 3-5
Floodplain Impacts

Palustrine Emergent Wetlands

Wetlands A and B (in the southern portion of the site) are approximately 6.09 and 1.59 acres, respectively. Historically, these areas have been mowed and maintained as fields. Neither of these wetlands is a USACE jurisdictional wetland. Common species in these wetlands include carpet grass (*Axonopus* spp.), torpedo grass (*Panicum repens*), and water-primrose (*Ludwigia octovalis*). There are small "islands" of scrub shrub vegetation including wax myrtle (*Myrica cerifera*), cabbage palm (*Sabal palmetto*), Brazilian pepper tree (*Schinus terebinthifolius*), and willow (*Salix* spp.). Upland species such as the bahia grass (*Paspalum notatum*) are present in some areas. There is a berm which varies in height from 2 to 3 feet above the wetland along the eastern portion of the site. Consequently, there is no surficial connection on site from wetland B to the 74th Avenue ditch. Additionally, due to the presence of a berm along the north-south ditch and fire water pond ditch, there is no surface water connection between wetland A and these ditches. Therefore, wetlands A and B do not have a significant nexus to a traditional navigable water or relatively permanent water and are not USACE jurisdictional wetlands (CDM 2009).

Located on the western portion of the project site, wetland C is approximately 2.53 acres and is partially located on the adjacent property. This wetland has some of the same common species in the interior wetland as well as different species including buttonbush (*Cephalanthus occidentalis*), swamp fern (*Blechnum serrulatum*), and beakrush (*Rynchospora corniculata*). Species in the exterior transition zone include St. John's wort (*Hypericum* spp.), redroot (*Lachnanthes caroliniana*), flat sedge (*Cyperus ligularis*), and variable panicum (*Panicum communtatum*). There is no surficial connection between this wetland and on-site or off-site ditches. Wetland C is an isolated wetland and is not a USACE jurisdictional wetland (CDM 2009).

Wetland Z is also located on the western portion of the site and is 0.007 acres. Species present in this wetland include Brazilian pepper tree, cabbage palm, water-primrose, flat sedge, and St. John's wort. Caesarweed (*Urena lobata*) is present along the wetland boundary. Wetland Z is an isolated wetland and is not a USACE jurisdictional wetland.

Palustrine Scrub Shrub Wetlands

Wetlands DE and F, located just north of wetlands A and B, are approximately 0.70 and 0.09 acres, respectively. These wetlands have 100 percent coverage by Brazilian pepper tree. There is little to no groundcover in these wetlands from a combination of limited light penetration and extensive damage due to feral hog activity. Common species include soft rush (*Juncus effusus*) and water primrose. Java plum (*Syzygium cumini*) is also present in wetland F. Wetland DE is connected to ditch 1 which drains to the 74th Avenue ditch. Therefore, this wetland has significant nexus to waters of the U.S. and constitutes a USACE jurisdictional wetland. Based on field verification with a representative from the USACE, Wetland F does not have a significant nexus to waters of the U.S. and is not a USACE jurisdictional wetland.

Wetland Z is 0.007 acres and is located north of Wetland C. Neither of these wetlands is a USACE jurisdictional wetland (CDM 2009).

3.4.1.5 Wild and Scenic Rivers

There are two nationally designated wild and scenic rivers in Florida, the Loxahatchee and Wekiva Rivers. Neither of these is in the vicinity of the project site.

3.4.2 Impacts of Proposed Action

3.4.2.1 Hydrology Impacts

Surface Water and Drainage

Table 3-4 summarizes impacts to wetlands and surface waters that would result from the proposed project. There would be no impacts to wetlands, but construction of the proposed project would result in unavoidable impacts to 0.39 acre of USACE jurisdictional surface waters. Surface water impacts would consist of filling and re-routing part of the north-south ditch and installing a culvert in the 74th Avenue ditch **(**Figure 3-4 depicts permanent surface water impacts from the proposed project). As described in Section 3.4.1.1, there is little functional value to the surface water resources on the project site. Much of the north-south ditch is currently covered with Brazilian pepper trees (*Schinus terebinthifolius*).

The re-routing of the north-south ditch would create 0.42 acre of surface waters that would offset the surface water impacts from the proposed project. Therefore, no additional mitigation would be required by the USACE. The portion of the ditch to be re-routed on the western side of the property is identified on Figure 2-1.

The majority of the existing buildings and infrastructure would be demolished and replaced with new roads, buildings, and process areas. As described previously,

Table 3-4 Project Wetland and Surface Water Impact Summary IRC BioEnergy Facility

Wetland ID	WL & SW Type	WL & SW Size (acres) On Site	WL & SW Acres Not Impacted	Permanent Impacts		Temporary Impacts	
				Impact Size (acres)	Impact Code	Impact Size (acres)	Impact Code
Wetland A	WL	6.09	6.09	0	NA	0	NA
Wetland B	WL	1.59	1.59	0	NA	0	NA
Wetland C	WL	2.53	2.53	0	NA	0	NA
Wetland DE	WL	0.70	0.70	0	NA	0	NA
Wetland F	WL	0.09	0.09	0	NA	0	NA
Ditch G	SW	0.05	0.05	0	NA	0	NA
Wetland Z	WL	0.007	0.007	0	NA	0	NA
Fire Water Pond	SW	0.78	0.78	0	NA	0	NA
Fire Water Pond Ditch	SW	0.49	0.49	0	NA	0	NA

74th Ave Ditch	SW	>2*	>2	0.12	F/E	0	NA
North-south Ditch	SW	1.17	0.90	0.27	F	0	NA
	Total	13.50	13.23	0.39	NA	0	NA

Impact Code: F= Fill; E=Excavation; NA = Not Applicable
WL = wetland; SW = surface water
*Ditch located offsite and not included in total acreage of wetlands and surface waters on-site.

approximately 22.4 acres of the 69.7-acre site are proposed for development. Portions of the site that would not be developed would remain in their current condition and the existing drainage patterns in these areas would be maintained.

Under the proposed project, runoff would be routed from the re-developed areas of the site into the proposed wet detention pond via a system of inlets and pipes. The wet detention pond would provide treatment and attenuation prior to discharging water into the IRFWCD C-4 drainage canal. The first-flush of stormwater runoff from process areas that are deemed at risk of surface contamination would be collected in a stormwater basin for subsequent transfer to the existing deep well injection system (see Section 3.11 for additional discussion). Runoff in excess of the first-flush volume would be directed to the wet detention pond. The detention pond storage volume and length of time for storage is referred to as permanent pool volume. For the proposed project, the permanent pool volume would be an additional 50 percent of what is ordinarily required because the site ultimately discharges to Indian River Lagoon, which is designated as an Outstanding Florida Water[5]. Additionally, since the site ultimately discharges to an Outstanding Florida Water, the treatment volume provided by the wet detention pond would also be an additional 50 percent over the volume that would otherwise be required. Thus, use of the wet detention pond would minimize potential impacts from increases in impervious surfaces.

Groundwater

As described above, groundwater recharge areas are located in the western part of the St. John's Groundwater Basin, in portions of Orange, Osceola, and Okeechobee counties. None of these areas underlies the site of the proposed project.

3.4.2.2 Water Quality

Construction

Construction activities such as clearing, grading, and excavation would increase the potential for erosion. During rain events, stormwater runoff from the areas that have been cleared and graded may contain high levels of suspended sediments. Surface water resources on the project site are not used for potable water and provide minimal habitat value. Potential impacts to water quality and functional loss of onsite surface water resources as well as surface water resources in the watershed would be minimized through compliance with the NPDES permit and implementation of a SWPPP and BMPs. Under the NPDES permit (Rule 62-621.300 (4), F.A.C.), the

[5] An Outstanding Florida Water is a water designated by the State of Florida as worthy of special protection because of its natural attributes. The special designation is intended to protect existing good water quality.

"operator" of regulated construction sites must obtain the NPDES permit and implement appropriate pollution prevention techniques to minimize erosion and sedimentation and properly manage stormwater (FDEP 2009). In order to obtain an NPDES permit, a SWPPP must be developed. The SWPPP must include the following:

- A site evaluation of how and where pollutants may be mobilized by stormwater;
- Identification of appropriate erosion and sediment controls and stormwater BMPs to reduce erosion, sedimentation, and stormwater pollution;
- A maintenance and inspection schedule;
- A recordkeeping process; and
- Identification of stormwater exit areas.

The FDEP NPDES Permit application information provides specific guidance for the implementation of appropriate best management practices.

As required by the NPDES permit, the proposed project design would achieve a condition of no net increase in pollutant loading following proposed development. In addition, compliance with federal, state, and local regulations and permits would minimize impacts to surface water quality.

Construction of the proposed project would not impact groundwater quality or recharge.

Operations

Stormwater runoff during operations of the proposed project would be routed to the proposed wet detention pond for treatment and attenuation prior to being discharged to the IRFWCD C-4 canal. The southern portion of the site is outside of the developed area and the existing drainage patterns for this area would be maintained in the proposed conditions. As required in the IRFWCD drainage permit, the proposed project would achieve a condition of no net increase in pollutant loading following development.

There are currently 11.3 acres of impervious area within the project limits. After demolition of the existing structures and construction of the proposed project, there would be an addition of approximately 2.4 acres of new impervious land cover to the project site. Given the fact that the project site is not over an active groundwater recharge area, added impervious surfaces from implementation of the proposed project would not impact groundwater resources in the aquifers underlying the project site.

A spill prevention plan would be developed to address spill containment and thereby ensure that groundwater is not impacted. All production tanks containing ethanol, denaturant, and off-spec material would have redundant level instrumentation to prevent spilling or release of hazardous material. In addition, containment dikes would minimize impact of a spill.

3.4.2.3 Floodplain Impacts

As depicted in Figure 3-5, the proposed project would not impact the 100-year floodplain.

3.4.2.4 Vegetated Wetland Impacts

As illustrated in Figure 3-5, the proposed project would not impact FDEP jurisdictional wetlands or USACE jurisdictional vegetated wetlands on the site.

3.4.2.5 Wild and Scenic River Impacts

There are no nationally designated wild and scenic rivers in the vicinity of the project site. Therefore, there would be no impacts to wild and scenic rivers from construction or operation of the proposed project.

3.4.3 Impacts of No Action

The No Action Alternative would not have any adverse impacts on surface or groundwater resources, water quality, floodplains, wetlands, or wild and scenic rivers.

3.5 Biological Resources and Special Status Species

3.5.1 Existing Environment

The majority of the 22.4-acre area that would contain the proposed project currently consists of citrus processing structures and parking lots. The western portion of the property is predominantly forested with a canopy of slash pine (*Pinus elliottii*) and an understory of saw palmetto (*Serenoa repens*). The southern portions of the site are mowed and maintained as fields. During field surveys, several common bird species were observed in field and scrub shrub habitats in the southeastern portion of the site. Evidence of feral hogs including tracks, scat, and rooting were present throughout the site. Common reptiles, such as the black racer, were observed near wetland areas. Other than one green heron observation, wading birds were not observed in any of the ponds or ditches on site. Threatened or endangered species were not observed directly on the project site during field visits. Sources of data for threatened and endangered species include: a Florida Natural Areas Inventory (FNAI) report, Bald Eagle Nest Locator, a general wildlife survey, and Gopher Tortoise burrow survey. The FNAI documents listed species sightings including categories of endangered, threatened, species of special concern, and rare species. No listed species occurrences are recorded by the FNAI for the project site. The closest adjacent FNAI occurrences are approximately 1.5 and 2 miles from the project site and occurred in the 1970s. **Table 3-5** summarizes the state and federally listed species that occur in IRC.

A general wildlife survey was conducted on October 14 and 15, 2009. Observed species were also noted during site visits on August 28, 2008; October 27, 2009; and November 4, 2009. Three bald eagles (*Haliaeetus leucocephalus*) were observed flying over the site (two adults and one juvenile). Neither bald eagles nests nor suitable nesting trees were observed within the project site. Based on the Florida Fish and

Wildlife Conservation Commission database, the closest bald eagle nest is approximately 6 miles east of the site. One gopher tortoise (*Gopherus polyphemus*) was observed on a road on the northern portion of the site during the general wildlife survey. A species-specific gopher tortoise (state-listed threatened species) burrow survey was conducted on November 20, 2009. No burrows or gopher tortoises were observed during this species-specific survey.

No critical habitat is present on the project site and no federal threatened and endangered species were observed during field surveys, nor is their presence supported by the FNAI data report. As described above, the project site has been developed for industrial uses and the natural habitat areas have been previously disturbed.

3.5.2 Impacts of Proposed Action

Threatened or endangered species were not observed during field visits to the site of the proposed project, nor are any documented on the site. Therefore, the proposed project would not adversely affect any threatened or endangered species in the area.

The majority of the area that would be occupied by the proposed project is previously disturbed (22.4 acres) and does not serve as habitat to common species. The approximately 5.9-acre area that is currently undeveloped serves as habitat to some of the common species noted above, but there is similar habitat on the remainder of the 69.7-acre site (and on adjoining properties) that could absorb any animals that would be displaced as a result of the proposed project.

No adverse impacts to state or federal jurisdictional wetlands would occur as a result of the proposed project. Approximately 0.39 acre of federal jurisdictional surface water (a small ditch) would be impacted, but the area has limited habitat value and impacts would be offset by the creation of 0.42 acre of surface waters associated with re-routing of a ditch on site.

3.5.3 Impacts of No Action

Under the No Action Alternative, there would be no construction or operations of the proposed project. Therefore, there would be no disruption to the current existing environment and no disruption to existing biological resources.

3.6 Cultural Resources

3.6.1 Existing Environment

Cultural resources include sites, places, objects, buildings, structures, or districts that are of cultural, historical, archaeological, or architectural importance. These resources are protected by federal laws and statutes and must be addressed when federally-sponsored, -funded, or -licensed projects could disrupt or threaten them.

The National Historic Preservation Act (NHPA) of 1966, as amended through 1992, establishes a program for the preservation of historic properties throughout the

Table 3-5. Federally Listed & Candidate Species in IRC, Florida *Updated February 22, 2008*				
	Common Name	**Scientific Name**	**Federal Status**	**Habitat**
Mammals	Florida panther	*Puma (= Felis) concolor coryi*	E	High pine, Tropical hardwood hammock, Scrub, Maritime hammock, Mesic temperate hammock, Pine rockland, Scrubby flatwoods, Mesic pine flatwoods, Hydric pine flatwoods, Dry prairie, Wet prairie, Freshwater marsh, Seepage swamp, Pond swamp, Mangrove
	Puma (=mountain lion)	*Puma (= Felis) concolor (all subsp. except coryi)*	T/SA	Same as above
	Southeastern beach mouse	*Peromyscus polionotus niveiventris*	T	Sea Oats community, sandy areas of adjoining coastal strand vegetation.
	West Indian manatee	*Trichechus manatus*	E, CH	Fresh and saltwater habitats, Mangroves
Birds	Audubon's crested caracara	*Polyborus plancus audubonii*	T	Improved pastures, Mesic temperate hammock, Mesic pine flatwoods, Hydric pine flatwoods, Dry prairie, Wet prairie.
	Everglade snail kite	*Rostrhamus sociabilis plumbeus*	E, CH	Hydric pine flatwoods, Freshwater marsh, Pond swamp
	Florida scrub-jay	*Aphelocoma coerulescens*	T	Scrub, Scrubby flatwoods and adjacent areas.
	Ivory-billed woodpecker	*Campephilus principalis*	E	Historic date unknown
	Piping plover	*Charadrius melodus*	T	Sandy beaches, mudflats, sandflats, spoil islands, areas adjacent to inlets and passes. Historic date unknown
	Red knot	*Calidris canutus rufa*	C	
	Whooping crane	*Grus americana*	XN	Inferred
	Wood stork	*Mycteria americana*	E	Hydric pine flatwoods, Wet prairie, Freshwater marsh, Seepage swamp, Flowing water swamp, Pond swamp, Mangrove, Saltmarsh, Seagrass
Reptiles	American crocodile	*Crocodylus acutus*	T	Mangrove, Seagrass
	American alligator	*Alligator mississippiensis*	T/SA	
	Atlantic salt marsh snake	*Nerodia clarkii taeniata*	T	Saltmarsh
	Eastern indigo snake	*Drymarchon corais couperi*	T	High pine, Topical harwood hammock, Scrubby high pine, Beach dune/Coastal strand, Maritime hammock, Mesic temperate hammock, Pine rockland, Scrubby flatwoods, Mesic pine flatwoods, Hydric pine flatwoods, Dry prairie, Cutthroat grass, Freshwater marsh, Seepage swamp,, Flowing water swamp, Pond swamp, Mangrove
	Green sea turtle[1]	*Chelonia mydas*	E	Beach dune/Coastal strand, Seagrass, Nearshore reef
	Hawksbill sea turtle[1]	*Eretmochelys imbricate*	E	Beach dune/Coastal strand, Seagrass, Nearshore reef
	Leatherback sea turtle[1]	*Dermochelys coriacea*	E	Beach dune/Coastal strand, Seagrass, Nearshore reef

Table 3-5. Federally Listed & Candidate Species in IRC, Florida
Updated February 22, 2008

	Common Name	Scientific Name	Federal Status	Habitat
	Loggerhead sea turtle[1]	*Caretta caretta*	T	Beach dune/Coastal strand, Seagrass, Nearshore reef
Fishes	Smalltooth sawfish[2]	*Pristis pectinata*	E	Beach dune/Coastal strand, Seagrass, Nearshore reef
Plants	Fragrant prickly-apple	*Cereus eriophorus var. fragrans*	E	
	Johnson's seagrass[2]	*Halophila johnsonii*	T, CH	
	Lakela's mint	*Dicerandra immaculate*	E	
	Tiny polygala	*Polygala smallii*	E	

E = Endangered; T = Threatened; PE = Proposed Endangered; PT = Proposed Threatened; C = Candidate; SA = Similarity of Appearance to a listed taxon; XN = Experimental Population, Non-Essential; CH = Critical Habitat; PCH = Proposed Critical Habitat; [1] = National Marine Fisheries Service has lead for this species in the water; [2] = National Marine Fisheries Service has lead for this species.

Source: FWS South Florida Ecological Services Office website http://www.fws.gov/verobeach/

nation. The State Historic Preservation Officer (SHPO) administers the national historic preservation program at the state level, reviews National Register of Historic Places nominations, maintains data on historic properties that have been identified but not yet nominated, and provides consultation to federal agencies. DOE, as leadfederal agency, is responsible for compliance with Section 106 of the NHPA and its implementing regulations found at 36 CFR Part 800. DOE is required to take into account the effects of its undertaking on historic properties as defined in 36 CFR Part 800.16 (l). The criteria of determining historic properties are found at 36 CFR Part 800.4.

None of the historical records investigated as part of the Phase I Environmental Site Assessment (FES Group 2008a) showed the property as being used for any purpose and/or development other than the citrus processing and pectin processing plant. Historical aerial photographs, property tax records of IRC, and conversations with knowledgeable persons were conducted to determine past uses of the property as well as buildings that may have been present (FES Group 2008a).

3.6.2 Impacts of Proposed Action

In order to comply with Section 106 of the NHPA, DOE initiated communication with the SHPO requesting concurrence that no historic properties would be affected by the proposed project (see the appendix for a copy of the consultation letter). Due to the previously disturbed nature of the site, it is extremely unlikely that cultural resources or Native American resources are present in the existing environment. The Florida SHPO concurred with DOE that no historic properties would be affected by the proposed project. While unlikely, unmarked graves may be exposed by trenching or below-grade excavation. If such should occur, construction activity would cease within an appropriate radius (no less than 50 feet) until an archaeologist qualified under 36 CFR Part 61 could examine the exposed grave(s) and the state historic preservation office was notified. Tribes would be notified immediately if the grave(s) were determined to potentially contain American Indian remains.

3.6.3 Impacts of No Action

Under the No Action Alternative, there would be no construction or operations of the proposed project; therefore, no cultural resources would be affected.

3.7 Safety and Occupational Health

3.7.1 Existing Environment

The site of the proposed project is located approximately 3.7 miles from IRC Fire Rescue Station No. 7, 4.6 miles from Fire Station No. 4, and 10 miles from the Indian River Medical Center. Police services are located approximately 9 miles from the site at the IRC Sheriff's Department.

3.7.2 Impacts of Proposed Action

3.7.2.1 Construction

During demolition of existing structures and construction of the proposed project, construction workers and the environment could be exposed to hazardous materials such as fuels, oils, solvents, lead solder, and glues and workers could be exposed to other occupational health and safety risks. A site safety plan would be prepared and implemented prior to breaking ground on the facility. INP BioEnergy develops safety plans specifically tailored to the facilities it constructs and operates. Plans would include information on all potential medical and environmental hazards and would be developed in accordance with Occupational Safety and Health Administration (OSHA) guidelines. The plans would include procedures related to excavation and trenching, electrical safety, hazardous chemicals, spill prevention, fall prevention, proper equipment usage, confined space entry, fire protection and prevention, and hearing and respiratory protection. The plan would also include procedures for conducting regular safety audits and for incident investigation. Due to INP BioEnergy's commitment to developing and implementing site safety plans, impacts to worker safety during construction are not anticipated.

3.7.2.2 Operations

The materials, chemical processes, and emissions involved in the production of bio-ethanol and green electrical power from waste biomass are potentially hazardous to health and safety; however, hazards from high pressure and high temperature operations and exposure to chemicals and emissions would be controlled by a series of measures integrated into the proposed project. As described above in Section 3.7.2.1, INP BioEnergy would develop detailed safety plans dictating emergency mitigation measures and procedures that would be required in the event of a safety emergency during operations of the proposed project. INP BioEnergy would develop a detailed site safety plan to address overall site safety rules as well as specific standard procedures and unit/equipment specific procedures. The safety plan would be developed to protect employees and the surrounding community through the use of effective management systems, employee involvement, management participation and investment. The plan would include, but not be limited to the following measures:

- Management statement of commitment to Health, Safety, Security and Environmental (HSSE) performance;
- Site HSSE rules such as personal protective equipment requirements and site access;
- Written HSSE programs and procedures including:
  - OSHA-required energy isolation procedures such as "lock, tag and try" for safe equipment management, hurricane procedures, general opening and blinding, safe work permitting, confined space entry, safe lifting, job safety analysis, emergency procedures, bomb threat procedures, management of change, hearing and respiratory protection, and conducting regular safety audits.

  - OSHA 1910 process safety management system as well as procedures related to excavation and trenching, electrical safety, hazardous chemicals, spill prevention, fall prevention, proper equipment usage, confined space entry, fire protection and prevention.

- Incorporation of HSSE into all job descriptions and performance reviews;
- Incorporation of HSSE into all operations and maintenance procedures including standard operating conditions;
- Accountability documentation and a system for enforcing HSSE rules;
- Employee orientation and safety training programs and attendance records such as fork lift operations, and emergency response;
- Tracking and reporting of all required data to authorities including the OSHA 200 and 300 logs and FDEP;
- Tracking of performance metrics such as total injury rates, OSHA recordable rates, material releases, number of HSSE incidents, self-inspections, and corrective actions;
- Formal incident investigation system;
- Formation of an HSSE committee;
- Industrial hygiene monitoring records as necessary;
- Preventative maintenance program;
- Contractor HSSE programs; and
- Annual HSSE program evaluations, and site and/or corporate audits, including the documented follow-up activities.

A safety plan including the above procedures as well as additional detailed operating requirements would minimize potential risks associated with hazards and hazardous materials.

The naturally-occurring bacterial culture to be used in the fermentation process is anaerobic, meaning that it dies when exposed to the atmosphere. It is harmless to humans and the natural environment.

3.7.3 Impacts of No Action

Under the No Action Alternative, there would be no construction of the proposed project; therefore, no safety conditions would change.

3.8 Noise and Odors

3.8.1 Existing Environment

3.8.1.1 Noise

Noise refers to an unwanted sound that interferes with normal activities such as speech, communication, or hearing. In the context of this EA, noise refers to those unwanted sounds that affect nearby receptors such as schools, hospitals, churches, libraries, homes, parks, and wilderness areas. Noise can range in loudness and duration and is typically measured in decibels and on an "A-weighted" decibel (dBA) scale for human sound perception. Because sensitivity to noise can vary with time of day, a day-night average noise level is typically used to determine if a noise would be perceived adversely by nearby receptors.

IRC regulates activities that have the potential to cause excessive noise and vibrations which could degrade the quality of life, disturb the public peace, and jeopardize the health, safety, and welfare of its citizens. The IRC Municipal County Code, Section 974.01 to 974.07, regulates noise levels in the county. At the property boundary, daytime noise levels cannot exceed 65 dBA more than 50 percent of the time (L_{50}), 70 dBA more than 10 percent of the time (L_{10}), 75 dBA more than one percent of the time (L_1), and cannot exceed a peak noise level of 85 dBA. In addition, Section 974.04 mandates that all outside construction take place between the hours of 6:00 a.m. and 8:00 p.m. **Table 3-6** summarizes the IRC Municipal County Code Noise Limits, by zoning district. The Code states that it is unlawful to project a sound or noise from one property onto another property within the boundary of the zoning district that exceeds the noise limits for that zoning district, as presented in Table 3-6.

Table 3-6 Applicable Noise Limits (as measured at property boundary of receiving parcel)

	Sound Level in Decibels A-Scale (dBA)					
Zoning District	Day (6:00 a.m.-10:00 p.m.)			Night (10:00 p.m.-6:00 a.m.)		
	L (1)	L (10)	L (50)	L (1)	L (10)	L (50)
Conservation	65	60	55	60	55	55
Residential	70	65	60	65	60	55
Commercial	75	70	65	70	65	60
Industrial	75	70	65	75	70	65
Agricultural [1]	75	70	65	75	70	65

Level L(1). That noise (A-weighted sound level) exceeding one percent of a measurement time equivalent to at least fifteen (15) minutes.
Level L(10). That noise (A-weighted sound level) exceeding ten (10) percent of a measurement time equivalent to at least fifteen (15) minutes.
Level L(50). That noise (A-weighted sound level) exceeding fifty (50) percent of a measurement time equivalent to at least fifteen (15) minutes.
[1]Residential developments within Agricultural Zoning Districts shall be subject to the decibel level thresholds for the "Residential" Zoning Districts.

Minor noise sources in the area surrounding the site of the proposed project include vehicular traffic on nearby roads, operation of agricultural equipment on nearby crop fields, and operation of equipment at the SWDD landfill.

3.8.1.2 Odors

The primary odor source in the area surrounding the area of proposed project is the SWDD sanitary landfill. The landfill includes the following operations: Class I landfill disposal, yard trash reduction and recycling, household hazardous waste management services, construction and demolition debris recycling, and landfill disposal. Odor emissions from landfills typically result from waste handling, separation, and landfilling operations.

3.8.2 Impacts of Proposed Action

3.8.2.1 Noise

Construction

Temporary increases in noise would result from construction of the proposed project from use of heavy construction equipment during demolition, clearing, excavation and other construction activities. The overall level of noise would depend on the specific noise level generated by each piece of construction equipment used, the duration and phasing of each activity in the construction process, the distance between the construction site of the proposed project and nearby receptors, and the level of shielding by natural barriers.

Construction-related noise levels would be intermittent and temporary in nature. As described in Section 3.1, the closest noise sensitive receptors are two residences located approximately 0.25 mile from the site. Other noise-sensitive receptors, including a correctional facility and other residences, are located within the 1-mile radius around the project site. Because noise levels generally decrease by 6 dBA every doubling of distance, peak construction noise at the closest receptor would range from 42 dBA to 67 dBA. It is possible that noise from construction equipment would be perceptible at the closest noise sensitive receptor; however, this is dependent upon the level of background noise at the sensitive receptor. It is unlikely that construction noise levels would be intrusive at this distance.

Operations

The proposed project would have equipment noise from pumps, fans, compressors and materials handling equipment. The noisiest equipment would be the yard waste grinder and the syngas compressor. The yard waste grinder and materials handling noise would be comparable to that from the SWDD Landfill. The proposed project equipment would have enclosures, mufflers and acoustical treatments necessary to ensure that these noise levels are met at the property boundary, with an appropriate margin of safety. The nearest residence is approximately 0.25 mile away from the facility; other noise-sensitive receptors including a correctional facility and other residences are located within a 1-mile radius of the project site. At 0.25 mile, daytime noise levels would be less than 37 dBA L_{50}, and less than 42 dBA L_{10} at peak noise

level. These would likely be well below normal daytime background levels at that location.

At night, the proposed project would not be receiving or processing material, so there would be no grinder noise. However, operational noise, including that from the syngas compressor, would occur at night. Although the proposed project would be quieter at night, background noise levels are also lower. It is possible that nighttime noise could intermittently be audible, although not intrusive, at the nearest residence, 0.25 mile away.

3.8.2.2 Odors

Construction

There would be minimal odor impacts from construction-related activities, mostly related to construction equipment emissions.

Operations

The facility would process green wastes and woody materials. The odors associated with this process are the same as those from yard mulch. The feedstock would also include some MSW; however, quantities would be small. The MSW-based feedstock would be pre-sorted off-site (at the SWDD landfill) or on-site, ground or shredded on-site, and rendered into a form that can be used in the process. The MSW would be delivered from an MSW processing facility in the region. Storage of MSW would be limited to two days (FDEP regulation) to minimize odors associated with processing the MSW on the facility site.

3.8.3 Impacts of No Action

Under the No Action Alternative, there would be no construction or operations of the proposed project, resulting in no noise or odors from project construction or operations. Existing odor and noise would continue from landfill operations on the property southwest of the project site.

3.9 Visual/Aesthetics

3.9.1 Existing Environment

The aesthetic value of a view and perceived visual images are determined by both natural and artificial landscape features. Attributes including contrasts, forms, and textures exhibited by geology, hydrology, vegetation, wildlife, and man-made features all contribute to the value. Depending on prior experiences, individual experiences of the natural environment will vary; therefore, visual effects analyses tend to be highly subjective in nature.

There are three parcels that make up the project site (main, central, and western); each was initially developed with industrial uses for citrus processing in the 1970s. Existing facilities on all three parcels of the former Ocean Spray property are industrial in nature. Land in the vicinity of the property is a mixture of agricultural operations,

pastureland, citrus groves, vacant land, and county solid waste operations at the SWDD landfill.

3.9.2 Impacts of Proposed Action

While some trees surrounding the property may function to minimize the visibility of existing buildings and associated industrial structures, the proposed project would not be fully blocked from the view of surrounding residents and drivers passing by the site. Demolition and construction activities would result in short-term visual impacts to residents and drivers; however, given the industrial nature of the project site and surrounding land, as well as the temporary duration of construction activities, this would not adversely affect visual resources.

Newly constructed facilities would be taller, but would have a similar floor area as the former citrus plant structures. No equipment, including proposed distillation towers, would exceed 160 feet above ground level, which is the ultimate proposed height of the adjacent landfill. The industrial facilities required for operation of the proposed project would not result in a significant change to the existing visual quality of the project site and surrounding area since, newly constructed buildings and infrastructure would be similar to the already developed nature of the site. Therefore, adverse changes to the visual quality of the project site and surrounding area would be negligible.

3.9.3 Impacts of No Action

The No Action Alternative would not involve demolition of existing industrial structures or construction of new facilities. There would be no short-term impacts to visual resources, surrounding residences, or drivers from construction activity. Under the No Action Alternative, the existing decommissioned Ocean Spray facility would continue to exist.

3.10 Energy Sources, Water Supply, and Sewer Service

3.10.1 Affected Environment

3.10.1.1 Energy Sources

There are three existing Florida Power and Light substations on the site that were used for Ocean Spray operations. There is also an existing natural gas line on the site.

3.10.1.2 Water Supply

There are six wells on site (two active, three backup, and one that is capped); however, on-site water wells are not currently used for drinking water (FES Group 2008a). There are two wells constructed in the Floridan Aquifer, and four wells constructed in the surficial aquifer.

Ocean Spray currently holds a Consumptive Use Permit (CUP) through SJRWMD. CUP No. 10710 was issued by SJRWMD on September 30, 1999 and is a 20-year permit for water use from both the surficial aquifer and the Floridan Aquifer. The permit

allowed for a maximum annual water withdrawal from the Floridan Aquifer of up to 10 mgy for commercial and industrial process type use, with a maximum daily withdrawal not to exceed 0.143 million gallons per day (mgd) from the Floridan Aquifer. Maximum annual permitted withdrawals from the surficial aquifer were allocated on an increasing annual basis ranging from 76 mgy in 2008 to 114 mgy in 2019. The maximum daily permitted withdrawals were also allocated on an increasing annual basis ranging from 0.52 mgd in 2008 to 0.74 mgd in 2019.

In October 2009, the permit allocation was reduced during the five year compliance review due to lack of use of the wells. The resulting allocation was a significantly reduced 0.9 mgy from the Floridan Aquifer and 0.9 mgy from the surficial aquifer. These reduced aquifer allocations are the currently prevailing permit limits.

3.10.1.3 Sewer Service

There is no existing sewer service to the site. Domestic wastewater generated by the Ocean Spray facility was disposed of via several septic tanks. As described in Section 3.11, Ocean Spray used a deep injection well for process wastewater and stormwater disposal.

3.10.2 Environmental Consequences

3.10.2.1 Proposed Project

Energy Sources

The proposed project would be self-sustaining from both a heat and power standpoint. Only a limited amount of natural gas (or landfill gas) would be required at the gasifier for initial start-up. The energy generated from gasification would be used for the heating of subsequent feed, as well as for the generation of steam for production of electricity and for process heating requirements. Landfill gas from the adjacent landfill would also be used in a turbine to produce power. Approximately 6 megawatts of power would be produced by the proposed project - a portion of which would be used for plant operations, but it is also estimated that as much as 2 megawatts would be available to export to the local grid as renewable power.

Due to the increased load requirement for startup of this facility, and the need to be able to transmit power back to the grid after start-up, INP BioEnergy and Florida Power and Light determined that the existing substations must be demolished and replaced with a newer, adequate feed. Florida Power and Light would route the new feed from the Rosedale substation several miles away. A new substation on the site would be located in the northwest corner of the site, from which all new and retained facilities would be fed.

The Ocean Spray facility did not utilize landfill gas during operations. As such, no gas line exists from the IRC landfill to the site. INP BioEnergy would be using landfill gas to supplement the syngas generated in the process. A new transmission line to convey landfill gas from the current landfill flare to the project site is proposed as part of this project. The proposed route for the pipeline has not yet been determined by the

project design team. The pipeline would, however, be designed in a manner that minimizes environmental impacts and avoids the wetlands on the site.

There is an existing natural gas line on the Ocean Spray site. INP BioEnergy proposes to use natural gas intermittently in conjunction with landfill gas for start-up periods and to supplement the process as needed. The existing line would be relocated to the desired location within the process area.

Water Supply

The proposed project would require an average of 0.3 mgd of groundwater to supply the process. This water would be provided by surficial aquifer wells (shallow). Occasionally, additional water would be required (for start-up and maintenance periods, where recirculated water would have to be recharged). INP BioEnergy submitted a CUP modification in June 2010 to transfer ownership of the CUP permit as well as to increase the permit allocation from the 2009 reduced quantities to quantities required for the proposed project.

The permit modification includes a request for a maximum day withdrawal of 0.5 mgd from the surficial aquifer wells to meet peak needs. Additionally, 1 mgy from the Floridan Aquifer was requested for back-up supply for pond augmentation or other on-site uses. Water from the Floridan Aquifer would not be used as process water due to chloride levels.

Water use during operation of the proposed project would stay within the limits dictated by the CUP. In addition, the SJRWMD permitting process is designed to protect the aquifer from excessive withdrawals; a permit modification cannot be issued by SJRWMD if any the requested allocation will result in detrimental impacts to the aquifer. As a result, there would be no adverse impacts to water supply from the proposed project.

The existing water wells and supply system would be refurbished to provide the plant process water requirement. The process would create approximately 0.08 mgd of process wastewater, all of which would be disposed of via the existing deep injection well system, as described further in Section 3.11.

Sewer Service

The existing septic systems would be abandoned in accordance with the Florida Department of Health guidelines during the demolition phase of the proposed project. Domestic wastewater from the proposed project would be disposed of via a new connection to the IRC sanitary sewer. IRC has indicated that adequate treatment capacity is available at its West Regional wastewater treatment facility and permit approvals are pending. Upon receipt of the IRC sanitary sewer permit, a FDEP permit application would be filed for connection to the system.

As discussed in Section 3.11, process wastewater and first-flush stormwater from process areas of the site would be disposed of via the existing deep injection well system. Although it is INP BioEnergy's intent to continue to use the deep injection

well for wastewater disposal, connection to IRC's sanitary sewer system is available as an alternative if required. INP BioEnergy would treat the wastewater stream to meet the County's industrial pretreatment program requirements.

3.10.2.2 Impacts of No Action

Under the No Action Alternative, the proposed project would not be constructed. Therefore, there would be no need for an energy source, water supply, or sewer service for the project. Landfill gas would continue to be flared and not be converted to electricity.

3.11 Waste Management and Hazardous Materials

3.11.1 Existing Environment

3.11.1.1 Waste Management

Historically, an existing deep injection well on site has been used for the disposal of stormwater and process wastewater from the Ocean Spray Facility. Ocean Spray was permitted to inject up to 0.94 mgd into the deep injection well. The deep injection well is constructed into the Lower Floridan Aquifer (approximately 3,000 feet below land surface). There are several hundred feet of confinement between the injection zone and the next shallowest aquifer from which drinking water can be withdrawn. This confining layer protects the underground source of drinking water from any potential cross-connection of flows.

An Underground Injection Control permit was issued to Ocean Spray in December 2008 in conjunction with Administrative Order No. AO-UIC-08-0013. The Administrative Order requires that the owner identify the source of, and resolve the issues related to, increasing TKN levels within the triple-zone monitoring well system. Water quality sampling results have been showing an increasing TKN trend since the early 1990's. Evaluation of the monitoring wells by INP BioEnergy's consultant have indicated that replacement of the aging monitoring wells would likely resolve the issue related to TKN levels in the injection zone. FDEP would require continued monitoring after the monitoring wells are replaced to confirm that the issue has been resolved.

3.11.1.2 Hazardous Materials

Ocean Spray originally applied as a small quantity generator of hazardous waste in 1989 and was later classified as a Conditionally Exempt Small Quantity Generator in 2003 due to reduced waste generation patterns.

Hazardous substances and petroleum products that were utilized in the citrus concentrate production operation and equipment vehicle maintenance remain contained on the property. Since the plant ceased operation, there has been a reduction in the amount and usage of such substances at the property. During the site visit for the Phase I Environmental Site Assessment, no evidence of release to the soil of hazardous substances and petroleum products was observed.

A Phase II Environmental Site Assessment was performed at the site (FES 2008b). In development of the analyses for the hazardous materials on the site, the diverse nature of potential contaminants based on the range of chemicals used on-site resulted in a screening for Priority Pollutants, a list of volatile and semi-volatile organic compounds and heavy metals in common industrial use. This list of potential contaminants is listed in EPA Analytical Methods 8260 and 8270 (volatile and semi-volatile organic compounds) and 8010 (Metals). In addition, as a marker for petroleum, Fl-Pro was used as a measure of petroleum contamination. The absence of any analytes in excess of the FDEP target concentrations in soil and groundwater indicates that no significant potential sources of contamination were encountered during the Phase II Environmental Site Assessment (FES 2008b).

3.11.2 Impacts of Proposed Action

3.11.2.1 Waste Management Impacts

Wastewater

While the Ocean Spray facility injected a combination of process wastewater and stormwater into the deep injection well that encroached upon the 0.94 mgd permitted capacity at times, INP BioEnergy would inject approximately one-tenth of the permitted volume. Process wastewater generation is projected to be approximately 0.08 mgd. The deep injection well would also be used for disposal of first-flush stormwater from process areas on the site.

The Administrative Order referenced in Section 3.11.1.1 must be resolved to the satisfaction of FDEP through corrective actions, rehabilitation of the monitoring well system, termination of the deep injection well operations, or other alternative approved by FDEP. At this time, INP BioEnergy is evaluating rehabilitative actions for the monitoring well system for presentation to FDEP for approval when appropriate.

Ash Removal

The primary byproduct of the bioenergy process is the residual ash that is left over from the gasification process. Approximately 30 tons per day (9,900 tons per year based on a 330-day operating schedule) of ash would be generated, which represents a significant volume reduction compared to the incoming material. The ash would be non-hazardous and would be used as a soil amendment or road base if a market is found. If there is not a market, or if there is a surplus of ash, it would be sent to the adjacent SWDD landfill for disposal or for use as daily cover (as needed).

Stillage Disposal

Stillage from the fermentors contains spent cells that would require disposal. Due to the potentially high solids content of this wastewater stream, several treatment options are being considered. One option calls for centrifuging of the waste stream to remove the cells/solids. The solids would be exposed to air to demonstrate that the cells have been killed, and would then be disposed of at the IRC SWDD landfill. The centrate (liquid portion) from the centrifuge would be re-circulated back into the process. Alternatively, if the overall concentration of solids in the combined

wastewater stream (from all process areas) is considered to be acceptable to FDEP, the stillage may be disposed of in the deep injection well system. FDEP would make this determination during the permit application review process. INP BioEnergy would likely be required to demonstrate that the spent cells have been killed prior to disposal in the injection well. Since the cells are anaerobic microbes, exposure to air would effectively kill the cells prior to disposal.

3.11.2.2 Hazardous Material Impacts

Construction

Any remaining hazardous substances and petroleum products from past land use, including the contents of above-ground storage tanks, would be properly disposed of prior to demolition and construction activities. Implementation of safety measures, described in Section 3.7.2, would minimize potential impacts to employees and the surrounding communities related to hazardous materials during construction. In addition, the SWPPP described in Section 3.4.2.2, combined with construction of the wet detention pond described in 3.4.2.1, would minimize erosion, sedimentation, and polluted stormwater runoff, as well as prevent contamination of surface waters on site. As described in Section 3.7.2, all safety plans would be developed in compliance with OSHA guidelines and would include procedures related to hazardous chemicals and spill prevention, among other procedures.

Operations

Operations of the proposed project would not result in the production or release of hazardous materials aside from those described in Section 3.3. Compliance with the deep injection well permit would limit potential adverse impacts from the generation of waste materials during operations of the proposed project. Implementation of safety measures described in INP BioEnergy's safety manual would minimize potential impacts related to hazardous materials during operations.

All production tanks containing ethanol, denaturant, and off-spec material would have redundant level instrumentation to prevent the spilling or release of hazardous material. In addition, containment dikes constructed around the tanks would minimize the impact of a spill. The proposed project would meet Florida tank registration requirements.

3.11.3 Impacts of No Action

Under the No Action Alternative, the waste material that would have been processed by the proposed project would continue to use present methods for disposal at nearby landfills.

3.12 Traffic and Transportation

3.12.1 Existing Environment

The project site is on the southwest corner of 9th Street Southwest (also known as Oslo Road) and 74th Avenue Southwest. Both of these roads are two-lane and undivided. Oslo Road runs east to west and 74th Avenue runs north to south. The Transportation

Element of the *2020 IRC Comprehensive Plan* identifies Oslo Road as a Rural Minor Arterial roadway, and identifies 74th Avenue as a Rural Major Collector. Major state and county roads in the vicinity include State Route (SR) 60, located approximately 3.6 miles north, and Interstate 95, located approximately 1 mile west of the project site. Other roads that service IRC are US 1 and State Route A1A. Indian River Boulevard is a four-lane divided county roadway running parallel to US 1 in Vero Beach and through the unincorporated areas adjacent to the city. Additional roadways in the north part of the county that are important to regional transportation include County Roads 507, 510, and 512 (IRC 2006).

The IRC General Plan *Transportation Element* identifies major trip generators and attractors in the county. Trip production areas are major residential areas while trip attractor areas are major shopping areas. In the vicinity of the project site, major trip generators include Oslo Park residential area (located near Oslo Road and 43rd Avenue Southwest) and Pine Tree Park residential area (located near Oslo Road and Clemain Avenue). In addition, Squire Village and Holiday Village are two mobile home parks and developments in the same area near the project site. All of these sites are approximately 5 miles from the project site. The closest major trip attractor in relation to the project site is Oslo Plaza shopping area (located near Oslo Road and 27th Avenue) (IRC 2006).

Average Annual Daily Traffic in 2009 along Oslo Road between 66th Avenue and 82nd Avenue was 3,930, and on 74th Avenue between Oslo Road and the landfill was 1,496 (IRC Traffic Engineering 2009). This section of Oslo Road near the project area (between 58th Avenue and Interstate 95) operates with average delays to motorists. The intersection of Oslo Road and 74th Avenue extending south along 74th Avenue also operates with average delays while Interstate 95 south of SR 60 operates with relatively low delay to motorists. The IRC 2020 Comprehensive Plan forecasts roadways that are predicted to exceed capacity by 2030. Interstate 95 from the south county line to SR 60 is expected to exceed capacity by 2030. Oslo Road between 82nd Avenue and 58th Avenue is also expected to exceed capacity by 2030; however, Oslo Road from Interstate 95 to 82nd Avenue is not expected to exceed capacity (IRC 2006).

3.12.2 Impacts of Proposed Action

3.12.2.1 Construction

Incremental transportation impacts associated with implementation of the proposed project would generally be limited to the construction timeframe. Construction is expected to start in 2010 and would last approximately 18 months. During construction, traffic would include trucks removing demolition debris (some of which would go to the adjacent landfill) and demolition salvage materials, hauling soil to and from the site, and delivering concrete and other construction materials. Traffic would also include construction worker vehicles. It is assumed that most truck traffic would approach from Interstate 95 or SR 60 and would use Oslo Road and 74th Avenue SW to access the project site.

Demolition would last approximately six months. Associated traffic (including trucks hauling debris and salvage, as well as worker vehicles) would average approximately 50 vehicles per day for about two months and 20 vehicles per day for the remaining four months.

During peak construction (approximately 12 months in duration), an estimated 200-250 trucks and worker vehicles would travel to and from the site. During the remaining six months, traffic would average 100 trucks and worker vehicles per day.

While there may be intermittent delays experienced on roadways used to access the site, construction traffic would not cause affected roadways to exceed capacity.

3.12.2.2 Operations

Traffic volume increases or changes in traffic patterns would be minimal as a result of the proposed project. As requested by the IRC Traffic Engineer, the trip generation rates from Institute of Transportation Engineers for Heavy Industrial (Land Use 120) were used to estimate the number of trips generated by both the former Ocean Spray Facility and the proposed project.

Using these rates and IRC's trip generation methodology, operations would result in an increase of 29 trips over trips associated with the former Ocean Spray operations, for a total of approximately 278 trips per day. This includes employee vehicle trips, daily truck trips necessary for hauling feedstock and other materials to the facility, removing the final product (ethanol), and removing waste materials generated during operations (ash). About 28 of the 278 trips would be trucks bringing feedstock to the plant and approximately 10 of those trucks (the in-county feedstock) would have been destined for the adjacent landfill if the proposed project was not constructed.

IRC determined that the amount of increased traffic generated by the proposed project is not significant enough to require further analysis and documentation in a traffic study (IRC Code Chapter 952.07, Traffic Impact Study, subsection 5(a)).

3.12.3 Impacts of No Action

Under the No Action Alternative, there would be no construction or operations of the proposed project. Roadway conditions would change based on other development and background growth within the county in addition to future roadway improvements. There would be no impact from the proposed project.

3.13 Socioeconomic and Environmental Justice Issues

The concept of environmental justice embraces two principles: 1) fair treatment of all people regardless of race, color, nation of origin, or income; and 2) meaningful involvement of people in communities potentially affected by program actions.

The CEQ (1997) states that environmental justice concerns may arise from effects on the natural or physical environment, such as human health or ecological effects on minority or low-income populations, or from related social or economic effects.

3.13.1 Existing Environment

The total population of IRC in 2008 was 131,020 (U.S. Census Bureau 2008a). In 2000, over 87 percent of the county's population was identified as White, 8.2 percent as Black or African American, 0.2 percent as American Indian or Alaskan Native, 0.7 percent as Asian, 1.2 percent as two or more races, and 2.1 percent as some other race (U.S. Census Bureau 2000a). In 2000, approximately 0.014 percent of the population of Florida lived in census tract 509.01, block group 3, the census tract and block group corresponding to the project site. At this time, approximately 70 percent of the population in this tract and block group was identified as White alone (U.S. Census Bureau 2000b). Also within the proposed project census tract and block group, approximately 12 percent of the population was identified as Black or African American alone; approximately 0.1 percent was identified as American Indian and Alaska Native alone; approximately 0.1 percent was identified as Asian alone; approximately 2.4 percent was identified as two or more races; and, approximately 15 percent was identified as some other race (U.S. Census Bureau 2000b).

The median household income of IRC in 2008 was $47,069, compared to the U.S. median of $52,175. Also in 2008, 14 percent of the county's population was below the federal poverty level compared to 13.2 percent for the entire United States (U.S. Census Bureau 2008b; U.S. Census Bureau 2008c).

3.13.2 Impacts of Proposed Action

As identified through the U.S. Census Bureau, there is not a disproportionately high minority or low-income population in the vicinity of the proposed project site compared to the surrounding population of IRC. In addition, the Department determined there were no unique exposure pathways, sensitivities, or cultural practices would result in different impacts on minority or low-income populations. Given this and the fact that the proposed project would not result in any significant adverse impacts to air quality, water quality, or the availability of public utilities and services, there would be no impact to environmental justice populations from the construction or operations of the proposed project. In addition, the proposed project is expected to create approximately 200-250 jobs during construction and 50 full-time jobs during operations. INP BioEnergy plans to recruit and hire workers from the IRC area for as many of these positions as possible; therefore, increased demands on local services (e.g., schools, emergency services, etc.) would be minimal.

3.13.3 Impacts of No Action

Under the No Action Alternative, IRC would not benefit from the creation of an estimated 200-250 construction jobs and 50 full-time jobs.

3.14 Intentionally Destructive Acts

In December 2006, the DOE Office of General Counsel issued interim guidance stipulating that NEPA documents prepared for DOE actions address potential environmental consequences of intentional destructive acts (i.e., acts of sabotage or

terrorism) (DOE 2006). Construction and operation of the proposed project would not involve the transportation, storage, or use of radioactive, explosive, or toxic materials. Consequently, it is highly unlikely that construction or operations would be viewed as a potential target by saboteurs or terrorists. Furthermore, the project site is not near any national defense infrastructure or in the immediate vicinity of a major inland port, container terminal, freight trains, or nuclear power plant. The proposed project would not offer any targets of opportunity for terrorists or saboteurs to inflict adverse impacts to human life, health, or safety.

Section 4
Cumulative Impacts

The cumulative impacts analysis considers the impact on the environment that would result from the incremental impact of the proposed project when added to other past, present, and reasonably foreseeable future actions. Actions considered for cumulative impacts include actions that have the potential to result in individually minor but collectively significant impacts. Actions that have been accounted for in the affected environment and/or proposed project impact analysis are not considered separately in this section because the combined effects are already addressed in Section 3 of this EA.

Two projects deserve discussion in this section- the IRC SWDD Landfill Lateral Expansion and the Oslo Road Expansion and Construction of an I-95 Interchange. However, as described below, neither project is expected to result in significant cumulative impacts with the proposed project.

The **IRC SWDD Landfill Lateral Expansion** is a lateral expansion of the landfill directly south of the proposed project site that is currently undergoing permitting and is planned to begin in the next year. Landfill expansion represents a new area of landfill that can receive waste after the currently permitted area is filled. This usually does not increase the level of landfill operations, but the location may shift.

The **Oslo Road Expansion and Construction of an I-95 Interchange** is another project (set of projects) scheduled for construction in the project area. As a condition of approval of its sand mine construction and operations, North Cypress Reserve, Inc. agreed to work with the County Public Works Department to pave Oslo Road from the existing edge of pavement through the 86th Avenue intersection, as well as the first 100 feet of 86th Avenue SW south of Oslo Road. This roadway improvement is completed. An additional requirement of the sand mine permit approval is continued daily monitoring and maintenance of the area around 86th Avenue and 17th Street SW. Other roadway improvements planned in the vicinity of the project site are expansion of the 74th Ave/Oslo Road junction on the northeast corner of the area of the proposed project and development of an Oslo Road/I-95 interchange. These projects are planned for construction within the next 10 years.

Due to the nature of these other projects in the vicinity of the bioenergy center and the anticipated typical environmental issues associated with each, the two environmental indicators for which there could be cumulative impacts are air quality and traffic and transportation.

4.1 Air Quality

As described in Section 3.3, the proposed project is in an area that is in attainment for all criteria pollutants. During construction, the mitigation measures listed below would minimize construction-related air quality emissions:

- Using ultra-low sulfur diesel fuel and minimizing idling;
- Spraying water on exposed areas to suppress dust;
- Covering trucks that haul dust generating materials to and from the site;
- Washing wheels and underbodies of construction vehicles prior to departure from the site;
- Reducing vehicle travel over unpaved areas and reducing speed when travel on unpaved areas is necessary; and
- Routinely cleaning paved areas to lessen the amount of dust available to be re-suspended.

The FDEP requires that all reasonable precautions be implemented to limit fugitive dust emissions during both construction and operation of projects. Therefore, it is likely that the projects listed above would also implement all feasible construction emissions control measures, and that the cumulative impact of construction emissions from these projects would be minor.

Analysis of long-term emissions of criteria pollutants from operations of the project indicates that emissions would be less than the federal major stationary source threshold of 100 tons per year for any criteria pollutant. Operations of the proposed project would comply with applicable federal and state air regulations. The proposed project includes air pollution control equipment and emissions limitations for all process emission points, including the vent gas boiler, feedstock dryers, fermentation and distillation systems and the tank farm.

Dispersion modeling conducted for the proposed project demonstrated that maximum predicted offsite air pollutant concentrations due to the project would all be well below NAAQS. Therefore, implementation of the proposed project would not result in a significant and unavoidable impact. The project dispersion modeling results were also added to actual monitored background air pollutant concentrations from the FDEP monitoring stations closest to the project site. These background air pollutant concentrations include contributions from all sources in the project vicinity. Table 3-3 in Section 3.3 shows that predicted worst-case project plus background air pollutant concentrations would be below NAAQS (supporting information is available in the Dispersion Modeling Report submitted to FDEP with the Air Permit Application). Therefore, the project would not have a significant cumulative air quality impact.

4.2 Traffic and Transportation

Based on the 18-month construction period of the proposed project, daily construction traffic would not be expected to cause affected roadways to exceed capacity. The 18-month construction period of the proposed project could temporarily overlap with one of the planned expansions at the landfill.

As described in Section 3.12, the County determined that operations of the proposed project would not require further analysis in a formal traffic study. Since short- and long-term contributions to traffic from the proposed project are anticipated to be very small, they would not result in a large cumulative effect when combined with past, present, and reasonably foreseeable future projects.

One of the requirements of the North Cypress Reserve, Inc.'s sand mine project is the paving of Oslo Road from the existing edge of pavement through the 86th Avenue intersection. This would improve the intersection area for existing traffic and the public, as well as for traffic from the proposed sand mine. The combination of paving Oslo Road, expanding the 74th Ave/Oslo Road junction, and the development of an Oslo Road/I-95 interchange would improve the operational capacity of area roadways.

Section 5
Commitment of Resources and Short-Term Uses

Under NEPA, an EA must contain a discussion of irreversible and irretrievable commitment of resources resulting from the Proposed Action if it was implemented (40 CFR 1502.16). The term "irreversible commitment of resources" generally refers to the use or destruction of a resource so that it cannot be replaced or restored over a long period of time. The term "irretrievable commitment of resources" refers to the loss of production or use of natural resources and represents lost opportunities for the period when the resource cannot be used.

NEPA also requires a description of the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity (40 CFR 1502.16).

Labor, energy, materials, and capital would be committed for demolition of existing structures and construction of the proposed project. The use of resources for construction materials would be irretrievable, except to the extent they can be recycled; however, none of the resources used in construction constitutes rare resources. Additionally, operations of the proposed project would result in increased generation of renewable energy resources, which could reduce the use of and reliance on imported and non-renewable energy sources.

Water use (0.3 mgd, or 99 mgy) would represent an irretrievable commitment of resources for the period of project operations. It is not an irreversible commitment since the aquifer from which water is withdrawn would recharge over time.

The land area (approximately 22.4 acres of the 69.7-acre site) and surface water area (approximately 0.39 acre) that would be affected by construction of the proposed project would not be recovered and are therefore considered irreversible and irretrievable commitments of resources on the proposed project site. However, only 5.9 acres of the 22.4 acres is currently undeveloped; the remaining 16.5 acres has already been committed to a prior industrial use. The 0.39 acre of surface water lost as a result of the proposed project would be mitigated through creation of an additional 0.42 acre of surface water by re-routing a ditch on site.

Section 6
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Appendix
DOE Scoping Notice Documentation

Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

April 20, 2010

TO: Distribution List

SUBJECT: Notice of Scoping – INEOS New Planet BioEnergy Commercial Scale Integrated Demonstration Biorefinery, Indian River County, Florida (DOE/EA1773)

The U.S. Department of Energy (DOE) is proposing to provide federal funding to INEOS New Planet BioEnergy for the final design, construction, and initial start-up of a commercial scale integrated demonstration biorefinery near Vero Beach, Florida. The facility would produce 8 million gallons per year of bioethanol. Steam generated by the production of bioethanol would be used to power the biorefinery and to generate electricity. Details of the proposed project and its location are contained in the attachment to this letter. Pursuant to the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations for implementing the procedural provision of NEPA (40 CFR Parts 1500-1508), and DOE's implementing procedures for compliance with NEPA (10 CFR 1021). DOE is preparing a draft Environmental Assessment (EA) to:

- Identify any adverse environmental effects that cannot be avoided should this proposed project be implemented.
- Evaluate viable alternatives to the proposed project.
- Describe the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity.
- Characterize any irreversible and irretrievable commitments of resources that would be involved should this proposed project be implemented.

Probable Environmental Effects/Issues Scoped for the Environmental Assessment

The EA will describe and analyze any potential impacts on the environment that would be caused by the project and will identify possible mitigation measures to reduce or eliminate those impacts that may result to:

- Land Use
- Air Quality
- Biological Resources
- Cultural Resources
- Noise and Odor
- Safety and Occupational Health
- Socioeconomics and Environmental Justice
- Utilities
- Traffic and Transportation
- Aesthetics
- Waste Management and Hazardous Materials
- Water Resources

Development of a Reasonable Range of Alternatives

DOE is required to consider a reasonable range of alternatives to the proposed action during an environmental review. The definition of alternatives is governed by the "rule of reason." An EA must consider a reasonable range of options that could accomplish the agency's purpose and need and reduce environmental effects. Reasonable alternatives are those that may be feasibly carried out based on environmental, technical, and economic factors.

The No Action Alternative will be addressed. The need for project redesign, or a project alternative, will be determined the course of environmental review.

Public Scoping

The DOE will make this letter available to all interested federal, state, and local agencies to provide input on issues to be addressed in the EA. Agencies are invited to identify the issues, within their statutory responsibilities that should be considered in the EA. The general public is also invited to submit comments on the scope of the EA.

No formal public scoping meeting is currently planned for this project. This letter as well as the draft EA, when it is available, will be posted in the DOE Golden Field Office online reading room: http://www.eere.energy.gov/golden/Reading_Room.aspx.

The DOE Golden Field Office welcomes your input throughout our NEPA process. Please provide any comments on this scoping letter on or before **May 21, 2010** to:

Kristin Kerwin
Department of Energy
1617 Cole Boulevard
Golden, Colorado 80401
kristin.kerwin@go.doe.gov

We look forward to hearing from you.

Sincerely,

Kristin Kerwin

Kristin Kerwin
NEPA Compliance Officer

Attachment

INEOS New Plant Biorefinery Proposed Project Description and Location

The U.S. Department of Energy (DOE) is proposing to provide up to $50 million to INEOS New Plant Biorefinery (INPB) for the final design, construction, and initial start-up of a commercial scale integrated demonstration biorefinery (proposed project) near Vero Beach, Florida. The project as proposed by INPB would utilize a process that would convert locally available, non-food, cellulosic waste materials into ethanol. The facility would produce 8 million gallons per year of ethanol and 2 megawatts of electricity for commercial use. This project would demonstrate key equipment at full commercial scale using wood and vegetative wastes and construction and demolition waste as feedstock.

The proposed project would be located on approximately 70 acres of a site that was used as a citrus processing facility until 2005. The proposed project site is located at 925 74th Avenue near Vero Beach, Indian River County at the southwest corner of 74th Avenue SW and 9th Street SW as shown in Exhibit 1. Land use in the vicinity of the proposed project is comprised mainly of agricultural and light industrial zones. The project site is zoned General Industrial and surrounding parcels are zoned Light Industrial, Agricultural, and General Commercial. There are two residential areas in the vicinity of the site. One is a single residence located approximately 0.25 mile west of the site along Oslo Road and the second is a group of houses located approximately 1 mile southwest, between Interstate 95 and 74th Avenue Southwest.

The project site is bordered on the north by a drainage canal, 9th Street SW and a cattle pasture; on the east by a drainage canal, 74th Avenue SW, the Indian River Exchange Packers, and citrus groves; to the south and southwest by the Indian River County Solid Waste Disposal District (IRC SWDD) landfill; and, to the west by a strip of undeveloped land. The relatively flat property contains portions of Portland cement concrete, asphaltic concrete and grass-covered surfaces, as well as a series of above-ground pipes and metal industrial structures from the citrus processing facility. The site also contains some scattered wetland areas and drainage ditches.

The proposed project, shown in Exhibit 2, would operate up to 330 days per year. The process technology of the proposed project would combine thermochemical and biochemical processes. There are four main process steps: feedstock gasification, synthesis gas fermentation, ethanol recovery, and power generation. The technology has been successfully developed, demonstrated and optimized through six years of operation in the large, fully integrated pilot plant located at INEOS Bio's Fayetteville, Arkansas technology center.

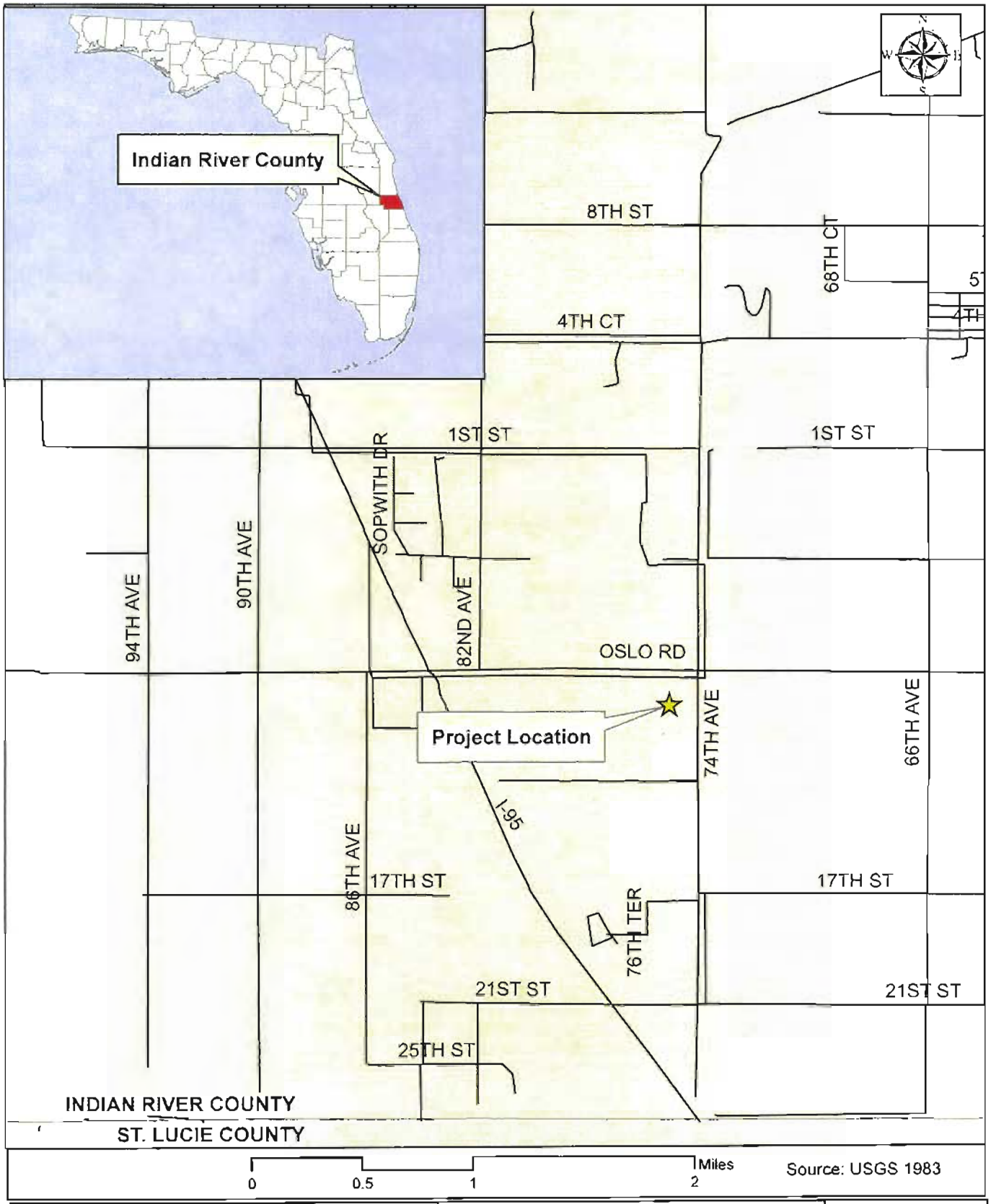
The feedstock for this proposed project would be primarily vegetative yard waste and construction and demolition debris. It is expected that, on an annual average basis, the feedstock would be a combination of approximately 80 percent vegetative waste and 20 percent clean woody construction debris. The feedstock system design would process approximately 425 tons per day of raw feedstock. As a demonstration facility, the proposed project would be used to test the compatibility of the process with municipal solid waste. It is expected that up to one month of operation could be devoted to municipal solid waste testing.

The proposed process would convert feedstock to syngas (a synthetic gas composed primarily of hydrogen and carbon monoxide) using two gasifiers. The syngas would be fermented and converted to ethanol by bacteria. Ethanol would be purified by distillation, denatured and stored until transported off-site by truck. Waste heat and vent gas streams would be used to generate steam and electric power in sufficient quantities that the proposed facility would be energy self-sufficient during stable operation and excess renewable electricity would be available for export to the electric power grid.

Project location maps of the proposed site location are attached.

Exhibit 1 – Proposed site location map
Exhibit 2 – Proposed facility site layout

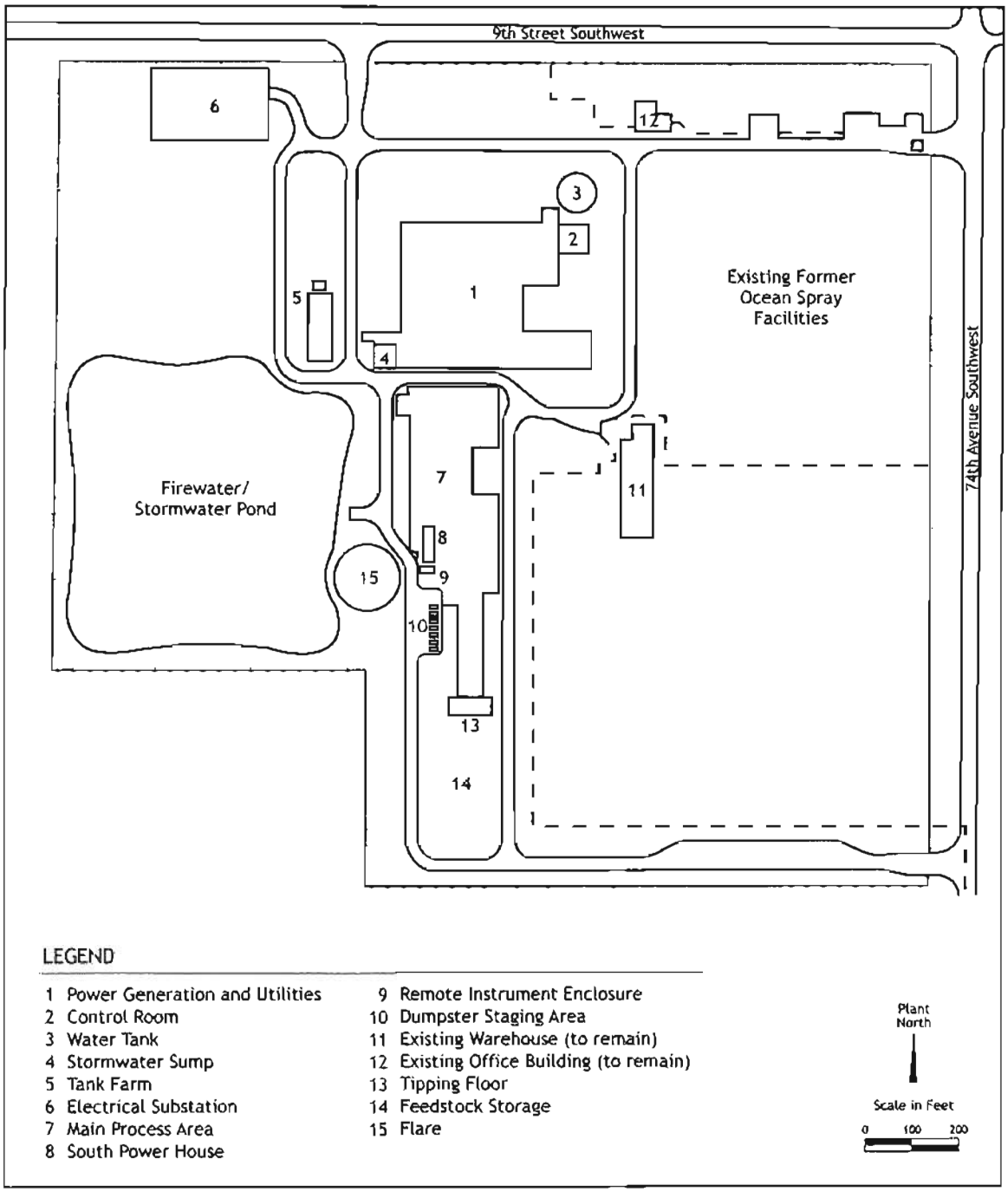
Exhibit 1



CDM	INP Bioenergy Indian River County, FL	Site Location Map	

Exhibit 2

Proposed Facility Site Layout



INEOS New Planet Bioenergy

List of Interested Parties for Public Scoping Notice

FEDERAL AGENCIES

- U.S. Army Corps of Engineers

  Headquarters
  441 G Street, NW
  Washington, DC 20314-1000

  Jacksonville District
  701 San Marco Boulevard
  Jacksonville, FL 32207

- U.S. Fish and Wildlife Service

  Headquarters
  1849 C Street, NW
  Washington, DC 20240

  South Florida Ecological Services
  1339 20th Street
  Vero Beach, FL 32960-3559

- U.S. EPA

  Headquarters
  USEPA Ariel Rios Building
  1200 Pennsylvania Ave.
  Washington, DC 20004

  Region 4
  Atlanta Federal Center
  61 Forsyth St. SW
  Atlanta, GA 30303-3104

STATE AGENCIES

- Florida Department of Environmental Protection
  - Central District Administration
    Central District Office
    3319 Maguire Blvd., Suite 232
    Orlando, FL 32803-3767
    Attn: Vivian Garfein
    - ALSO AT THIS ADDRESS
      - Brownfields Redevelopment Program
        Attn: George Houston
      - Division of Waste Management
        Attn: Tom Lubozynski
      - Division of Water Resource Management
        Attn: Christianne Ferraro
      - Office of Submerged Lands and Environmental Resources
        Attn: David Herbster
  - Division of Air Resource Management
    2600 Blair Stone Road
    MS 5500
    Tallahassee, FL 32399-2400
    Attn: Joe Kahn

INEOS New Planet Bioenergy

List of Interested Parties for Public Scoping Notice

- St. Johns River Water Management District

  Headquarters
  PO Box 1429
  Palatka, FL 32178
  Attn: Kirby Greene

  Palm Bay Service Center
  525 Community College Pkwy
  Palm Bay, FL 32256
  Attn: Mike Slayton

- Florida Fish and Wildlife Conservation Commission

  Farris Bryant Building
  620 S. Meridian St.
  Tallahassee, FL 32399-1600
  Attn: Nick Wiley

- Florida Division of Historical Resources

  500 S. Bronough Street
  Tallahassee, FL 32399
  Attn: Barbara Mattick

- Florida Department of Transportation

  Headquarters
  605 Suwannee Street
  Tallahassee, FL 32399
  Attn: Stephanie Kopelousos

  District 4
  3400 W. Commercial Blvd.
  Ft. Lauderdale, FL 33309
  Attn: James Wolfe

- Florida Energy and Climate Commission
  600 South Calhoun Street
  Suite 251
  Tallahassee, FL 32399-0001
  Attn: Jeremy Susac

LOCAL AGENCIES

- Indian River County

  - County Administrator's Office
    1801 27th Street
    Vero Beach, FL 32960
    Attn: Joe Baird

  - Community Development Department
    1801 27th Street
    Vero Beach, FL 32960
    Attn: Robert Keating

  - Utilities and Solid Waste Department
    1801 27th Street

Vero Beach, FL 32960
Attn: Erik Olson

- Fire Rescue Division
  1801 27th Street
  Vero Beach, FL 32960
  Attn: Brian Nolan

- Economic Development Council
  1801 27th Street
  Vero Beach, FL 32960
  Attn: Joe Baird

- Sherriff's Office
  4055 41st Avenue
  Vero Beach, FL 32960
  772-569-6700

- City of Vero Beach
  1053 20th Place
  Vero Beach, FL 32960
  Attn: James Gabbard

- Indian River Farms Water Control District
  7305 4th Street
  Vero Beach, FL 32968
  Attn: David Gunter

- Indian River Soil and Water Conservation District
  1028 20th Place, Suite A
  Vero Beach, FL 32960

- Treasure Coast Regional Planning Council
  301 Southeast Ocean Boulevard
  Stuart, FL 34994-2298
  Attn: Michael J Busha

- Indian River County Chamber of Commerce
  PO Box 2947
  Vero Beach, FL 32961
  Attn: Helene Caseltine

INEOS New Planet Bioenergy

List of Interested Parties for Public Scoping Notice

OTHER INTERESTED PARTIES

- Neighbors
    - Adjacent properties only or within a radius of ¼ mile. A List of the property owners is attached as *Appendix 1*.

- Indian River Neighborhood Association
  PO Box 643868
  Vero Beach, FL 32964-3868
  Attn: Brian Carman

- Indian River Aerodrome
  125 Nieuport Dr.
  Vero Beach, FL 32968

APPENDIX 1 - LIST OF PROPERTY OWNERS WITHIN 1/4 MILE OF THE SITE

Parcel	Owner	PropertyAddress	MailingAddress1	MailingAddress2
33382400001009000001.0	BEALE HOLDINGS INC	525 74TH AV VERO BEACH, FL 32968	3 SEAHORSE LN	VERO BEACH, FL 32960
33382400001010000002.0	INDIAN RIVER LAND DEVELOP LLC	7625 5TH ST SW VERO BEACH, FL 32968	1221 COCOANUT RD	BOCA RATON, FL 33432
33382400001015000001.0	KNIGHT C REED JR	7650 9TH ST SW VERO BEACH, FL 32968	7750 9TH ST SW	VERO BEACH, FL 32968-9298
33382400001015000001.1	KNIGHT C REED JR	7750 9TH ST SW VERO BEACH, FL 32968	7750 9TH ST SW	VERO BEACH, FL 32968-9298
33382500001001000001.0	OCEAN SPRAY CRANBERRIES INC	925 74TH AV SW VERO BEACH, FL 32967	ATTN: ACCOUNTING SUPERVISOR 925 74TH AVE SW	VERO BEACH, FL 32968-9755
33382500001001000001.1	IRC SOLID WASTE DISPOSAL DIST	9TH ST SW VERO BEACH, FL 32966	1801 27TH ST BLDG A	VERO BEACH, FL 32960-3384
33382500001001000002.0	OCEAN SPRAY CRANBERRIES INC	7625 9TH ST SW VERO BEACH, FL 32968	925 74TH AVE SW	VERO BEACH, FL 32968
33382500001002000001.0	OCEAN SPRAY CRANBERRIES INC	7625 9TH ST SW VERO BEACH, FL 32968	925 74TH AVE SW	VERO BEACH, FL 32968
33382500001002000002.0	IRC SOLID WASTE DISP'L DIST &	7775 9TH ST SW VERO BEACH, FL 32968	C/O MWI CORP (LOC #9070/5402) 201 N FEDERAL HIGHWAY	DEERFIELD BEACH, FL 33441
33382500001002000002.1	IRC SOLID WASTE DISPOSAL DIST	7775 9TH ST SW VERO BEACH, FL 32968	LOC 9070 #5402 1801 27TH ST	VERO BEACH, FL 32960
33382500001002000002.2	IRC SOLID WASTE DISPOSAL DIST	7775 9TH ST SW VERO BEACH, FL 32968	LOC 9070 #5402 1801 27TH ST	VERO BEACH, FL 32960
33382500001002000003.0	IRC SOLID WASTE DISPOSAL DIST	9TH ST SW VERO BEACH, FL 32968	1801 27TH ST BLDG A	VERO BEACH, FL 32960-3384
33382500001003000001.0	IRC SOLID WASTE DISPOSAL DIST	9TH ST SW VERO BEACH, FL 32968	C/O UTILITIES DEPT 1801 27TH ST	VERO BEACH, FL 32960
33382500001007000001.0	IRC SOLID WASTE DISPOSAL DIST	13TH ST SW VERO BEACH, FL 32968	LOC 9070 #5402 1801 27TH ST	VERO BEACH, FL 32960
33382500001007000003.0	IRC SOLID WASTE DISPOSAL DIST	13TH ST SW VERO BEACH, FL 32968	1801 27TH ST	VERO BEACH, FL 32960
33382500001009000001.0	INDIAN RIVER COUNTY	1325 74TH AV SW VERO BEACH, FL 32968	(LOC 9070 #5197 #5235 #5237) 1801 27TH ST	VERO BEACH, FL 32960
33391900001013000001.0	EDDY JOHN P JUDY	7370 9TH ST SW VERO BEACH, FL 32968	7370 OSLO RD SW	VERO BEACH, FL 32968
33391900001013000002.0	GREENE BARNETTE E JR (COTR)(1/2)& HARIOT H (COTR)(1/2	7250 9TH ST SW VERO BEACH, FL 32968	FBO HARIOT H GREENE REV TRUST 2075 38TH AVE	VERO BEACH, FL 32960-2450
33391900006000000008.0	SCHLITT LAWRENCE P WANDA	7345 6TH ST SW VERO BEACH, FL 32968	656 BOUGAINVILLEA LN	VERO BEACH, FL 32963
33393000001003000002.0	LAPLANT THOMAS M (TR)	7255 9TH ST SW VERO BEACH, FL 32968	FBO LAND TRUST #400 525 47TH AVE	VERO BEACH, FL 32968-1854
33393000001004000001.0	INDIAN RIVER EXCHANGE PACKERS INC (50%) &	7355 9TH ST SW VERO BEACH, FL 32968	7355 9TH ST SW	VERO BEACH, FL 32968
33393000001005000001.0	MIRAFLORES INC	1200 74TH AV VERO BEACH, FL 32968	PO BOX 309	VERO BEACH, FL 32961-0309
33393000001012000001.0	STREETMAN CALPHREY B (1/2) &	13TH ST SW VERO BEACH, FL 32968	PO BOX 880	VERO BEACH, FL 32961-0880

FLORIDA DEPARTMENT OF STATE
Dawn K. Roberts
Interim Secretary of State
DIVISION OF HISTORICAL RESOURCES

Ms. Kristin Kerwin
Department of Energy
1617 Cole Boulevard
Golden, Colorado 80401-3393

May 26, 2010

RE: DHR Project File No.: 2010-1894
Department of Energy
Notice of Scoping – INEOS New Plant BioEnergy Commercial Scale Integrated Demonstration Biorefinery
Indian River County

Dear Ms. Kerwin:

Our office reviewed the referenced project for possible impact to historic properties listed, or eligible for listing, in the National Register of Historic Places. The review was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, 36 CFR Part 800: Protection of Historic Properties, and the National Environmental Policy Act of 1969, as amended.

Based on the information provided, it is the opinion of this office that the proposed project will have no effect on historic properties.

If you have any questions concerning our comments, please contact Samantha Earnest, Historic Preservationist, by electronic mail *swearnest@dos.state.fl.us*, or at 850-245-6333.

Sincerely,

Laura A. Kammerer

Laura A. Kammerer
Deputy State Historic Preservation Officer
For Review and Compliance

500 S. Bronough Street • Tallahassee, FL 32399-0250 • http://www.flheritage.com

☐ Director's Office
(850) 245-6300 • FAX: 245-6436

☐ Archaeological Research
(850) 245-6444 • FAX: 245-6452

☒ Historic Preservation
(850) 245-6333 • FAX: 245-6437

Florida Department of
Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

June 10, 2010

Ms. Kristin Kerwin
Golden Field Office
U.S. Department of Energy
1617 Cole Boulevard
Golden, CO 80401-3393

RE: U.S. Department of Energy - Energy Efficiency and Renewable Energy Technology Deployment, Demonstration and Commercialization - Scoping Notice on INEOS New Planet Bioenergy Commercial Scale Integrated Demonstration Biorefinery - Vero Beach, Indian River County, Florida.
SAI # FL201004285223C

Dear Ms. Kerwin:

The Florida State Clearinghouse has coordinated a review of the scoping notice under the following authorities: Presidential Executive Order 12372; § 403.061(40), *Florida Statutes*; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

The St. Johns River Water Management District (SJRWMD) notes that the scoping notice did not address the facility's water use or related issues. Therefore, it is not clear whether a consumptive use permit (CUP) would be required from the SJRWMD. The proposed environmental assessment should address the facility's water use, proposed water supply source, and whether a CUP is needed. A SJRWMD CUP will be required if the facility's consumptive use exceeds 100,000 gallons per day annual average for all wells and pumps combined within the property, the wells/pumps combined are capable of withdrawing 1.0 million gallons per day or more, or a well casing is 6 inches in diameter or greater.

If a CUP is needed, the SJRWMD requires that the lowest acceptable quality water source must be used in place of higher quality water sources unless it can be demonstrated that its use is not economically, environmentally, or technologically feasible. Lowest quality sources include surface water, stormwater, and reclaimed water. A consumptive use cannot cause unmitigated adverse impacts to surface waters, wetlands, or existing uses. In addition, it cannot result in saline water intrusion, result in offsite damages, and must be a reasonable beneficial use.

Existing wells on the property that are not proposed for use by the facility must be properly plugged and abandoned in accordance with SJRWMD rules and regulations. Any existing, active wells may continue to be used only in accordance with the respective SJRWMD-issued CUP. Any change in use of the wells is subject to the approval of an appropriate CUP.

Please refer to the SJRWMD CUP handbook for additional details. The handbook is available on at http://www.floridaswater.com/. The rules and criteria in place at the time of CUP application submittal will be used during the CUP review process. Please contact Supervising Hydrologist, Mr. Richard Burklew, at rburklew@sjrwmd.com or (321) 676-6605 or for further information and assistance.

The Florida Department of Environmental Protection's (DEP) Waste Management Program staff in Orlando has advised the applicant of the permitting requirements for this project. Registration is required if yard trash will be processed at the facility, but will not be needed if the incoming yard trash has already been processed at other regulated facilities, such as the registered Indian River County Yard Waste Processing Facility (WACS 19134). As of May 27, 2010, the DEP's Solid Waste Section in Tallahassee had not yet received a registration application for this facility.

Feedstock into the process is specified as "wood and vegetative wastes and construction and demolition waste." The information provided in the attached project proposal mentions that the feedstock would be a combination of about 80% vegetative waste and 20% clean woody construction debris. DEP staff assumes this feedstock would meet the definition in Rule 62-701.200(16), *Florida Administrative Code* (*F.A.C.*), for clean wood, which includes: wood, lumber, tree and shrub trunks, branches, and limbs, that are free of paint, glue, filler, penthachlorophenol, creosote, tar, asphalt, chromated copper arsenate (CCA), other wood preservatives or treatments. While there is nothing in Solid Waste Management Facilities Rule, Chapter 62-701, *F.A.C.*, that would prohibit gasification of CCA wood, there may be an issue with any char left over after gasification, should some CCA wood be in the feedstock. It is staff's understanding that the provisions in the Solid Waste Combustor Ash Management Rule, Chapter 62-702, *F.A.C.*, would not apply. Please contact Ms. Francine Joyal in the DEP's Bureau of Solid and Hazardous Waste at (850) 245-8747 or Francine.Joyal@dep.state.fl.us for additional information.

Based on the information contained in the scoping notice and the enclosed state agency comments, the state has no objections to the allocation of federal funds for the subject proposal and, therefore, the funding award is consistent with the Florida Coastal Management Program (FCMP). To ensure the project's continued consistency with the FCMP, the concerns identified by our reviewing agencies must be addressed prior to

project implementation. The state's continued concurrence will be based on the activity's compliance with FCMP authorities, including federal and state monitoring of the activity to ensure its continued conformance, and the adequate resolution of issues identified during this and subsequent reviews. The state's final concurrence of the project's consistency with the FCMP will be determined during the environmental permitting process.

Thank you for the opportunity to review the subject document. Should you have any questions regarding this letter, please contact Mr. Chris Stahl at (850) 245-2169.

Yours sincerely,

Sally B. Mann

Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/cjs
Enclosures

cc: Linda Frohock, DEP, DWM
Lisa Kelley, DEP, Central District
Steve Fitzgibbons, SJRWMD

Project Information	
Project:	FL201004285223C
Comments Due:	05/30/2010
Letter Due:	06/10/2010
Description:	U.S. DEPARTMENT OF ENERGY - ENERGY EFFICIENCY AND RENEWABLE ENERGY TECHNOLOGY DEPLOYMENT, DEMONSTRATION AND COMMERCIALIZATION - SCOPING NOTICE ON INEOS NEW PLANET BIOENERGY COMMERCIAL SCALE INTEGRATED DEMONSTRATION BIOREFINERY - VERO BEACH, INDIAN RIVER COUNTY, FLORIDA.
Keywords:	DOE - INEOS NEW PLANET BIOENERGY COMMERCIAL BIOREFINERY - INDIAN RIVER CO.
CFDA #:	81.129

Agency Comments:

TREASURE COAST RPC - TREASURE COAST REGIONAL PLANNING COUNCIL

The proposed project is neither inconsistent nor in conflict with the Strategic Regional Policy Plan.

STATE - FLORIDA DEPARTMENT OF STATE

No Comment/Consistent

TRANSPORTATION - FLORIDA DEPARTMENT OF TRANSPORTATION

Released Without Comment

ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

The DEP Waste Management Program staff in Orlando has advised the applicant of the permitting requirements for this project. Registration is required if yard trash will be processed at the facility, but will not be needed if the incoming yard trash has already been processed at other regulated facilities, such as the registered Indian River County Yard Waste Processing Facility (WACS 19134). As of May 27, 2010, the DEP's Solid Waste Section in Tallahassee had not yet received a registration application for this facility. Feedstock into the process is specified as "wood and vegetative wastes and construction and demolition waste." The information provided in the attached project proposal mentions that the feedstock would be a combination of about 80% vegetative waste and 20% clean woody construction debris. DEP staff assumes this feedstock would meet the definition in Rule 62-701.200(16), F.A.C., for clean wood, which includes: wood, lumber, tree and shrub trunks, branches, and limbs, that are free of paint, glue, filler, penthachlorophenol, creosote, tar, asphalt, chromated copper arsenate (CCA), other wood preservatives or treatments. While there is nothing in Solid Waste Management Facilities Rule, Chapter 62-701, F.A.C., that would prohibit gasification of CCA wood, there may be an issue with any char left over after gasification, should some CCA wood be in the feedstock. It is DEP's understanding that the provisions in the Solid Waste Combustor Ash Management Rule, Chapter 62-702, F.A.C., would not apply. Please contact Ms. Francine Joyal in the DEP's Bureau of Solid and Hazardous Waste at (850) 245-8747 or Francine.Joyal@dep.state.fl.us for additional information.

ST. JOHNS RIVER WMD - ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

The scoping notice did not address the facility's water use or related issues. Therefore, it is not clear whether a consumptive use permit (CUP) would be required from the SJRWMD. The environmental assessment should address the facility's water use, proposed water supply source, and whether a CUP is needed. A SJRWMD CUP will be required if the consumptive use exceeds 100,000 gallons per day annual average for all wells and pumps combined within the property, the wells/pumps combined are capable of withdrawing 1.0 million gallons per day or more, or a well casing is 6 inches in diameter or greater. If a CUP is needed, the District requires that the lowest acceptable quality water source must be used in place of higher quality water sources unless it can be demonstrated that its use is not economically, environmentally, or technologically feasible. Lowest quality sources include surface water, stormwater, and reclaimed water. A consumptive use cannot cause unmitigated adverse impacts to surface waters, wetlands, or existing uses. In addition, it cannot result in saline water intrusion, result in offsite damages, and must be a reasonable beneficial use. Existing wells on the property that are not proposed for use by the facility must be properly plugged and abandoned in accordance with District rules and regulations. Any existing, active wells may continue to be used only in accordance with the respective District-issued CUP. Any change in use of the wells is subject to the approval of an appropriate CUP. Please refer to the SJRWMD CUP handbook for additional details. The handbook is available on at www.floridaswater.com. The rules and criteria in place at the time of CUP application submittal will be used during the CUP review process. Please contact Supervising Hydrologist, Mr. Richard Burklew, at (321) 676-6605 or rburklew@sjrwmd.com for further information.

COUNTY: INDIAN RIVER
SCH-106-DOE

2010-2342

DATE: 4/26/2010
COMMENTS DUE DATE: 5/30/2010
CLEARANCE DUE DATE: 6/10/2010
SAI#: FL201004285223C

MESSAGE:

STATE AGENCIES	WATER MNGMNT. DISTRICTS	OPB POLICY UNIT	RPCS & LOC GOVS
ENVIRONMENTAL PROTECTION	ST. JOHNS RIVER WMD		
X STATE			
TRANSPORTATION			

RECEIVED
2010 MAY 30 A 8:52
FLORIDA DEPARTMENT OF STATE
DIVISION OF HISTORICAL RESOURCES
BUREAU OF HISTORIC PRESERVATION

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

X **Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.**

_ **Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.**

_ **Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.**

_ **Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.**

Project Description:

U.S. DEPARTMENT OF ENERGY - ENERGY EFFICIENCY AND RENEWABLE ENERGY TECHNOLOGY DEPLOYMENT, DEMONSTRATION AND COMMERCIALIZATION - SCOPING NOTICE ON INEOS NEW PLANET BIOENERGY COMMERCIAL SCALE INTEGRATED DEMONSTRATION BIOREFINERY - VERO BEACH, INDIAN RIVER COUNTY, FLORIDA.

To: Florida State Clearinghouse

AGENCY CONTACT AND COORDINATOR (SCH)
3900 COMMONWEALTH BOULEVARD MS-47
TALLAHASSEE, FLORIDA 32399-3000
TELEPHONE: (850) 245-2161
FAX: (850) 245-2190

EO. 12372/NEPA Federal Consistency

- ☑ No Comment
- ☐ Comment Attached
- ☐ Not Applicable

- ☑ No Comment/Consistent
- ☐ Consistent/Comments Attached
- ☐ Inconsistent/Comments Attached
- ☐ Not Applicable

From:

Division/Bureau: Division of Historical Resources
Bureau of Historic Preservation

Reviewer: Katie Patterson — Laura A. Kammerer, Deputy SHPO

Date: 5/17/10 — 5.25.2010

RECEIVED
MAY 28 2010
DEP Office of
Intergovt'l Programs

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
SAM NUNN
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA GEORGIA 30303-8960

May 11, 2010

Ms. Kristin Kerwin
Department of Energy
1617 Cole Boulevard
Golden, CO 80401

RE: Early Coordination for the
INEOS New Planet BioEnergy
Commercial Scale Integrated Demonstration Biorefinery,
Indian River County, FL (DOE/EA 1773)

Dear Ms. Kerwin:

The U.S. Environmental Protection Agency (EPA), pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA), and Section 309 of the Clean Air Act, reviewed your letter and regarding the proposed biorefinery. We appreciate your early coordination with us. The purpose of this letter is to respond to your request for scoping comments.

The proposed action for Department of Energy (DOE) is to provide funding for the proposed commercial scale integrated demonstration biorefinery project. The facility will use vegetative waste and woody construction debris as feedstock for gasification, synthesis gas fermentation and ethanol recovery, resulting in bioethanol to be transported for offsite use.

Based on the information you provided, the following areas are of particular concern and should be addressed in the forthcoming NEPA document: alternatives analysis (both technological alternatives and site location alternatives), air emissions, air monitoring, waste handling and disposal, aesthetic impacts, ecological, safety and health impacts, construction and community impacts, environmental justice, cultural and archaeological resources and cumulative effects. In addition, water resources, wetlands impacts, mitigation plans and coordination with the U.S. Army Corps of Engineers (COE) should be documented. Please see our attached comments.

We appreciate your early coordination with us. If you have any questions, please contact Ramona McConney (404/562-9615).

Sincerely,

Heinz J. Mueller, Chief
NEPA Program Office
Office of Policy and Management

Scoping comments regarding
INEOS New Planet BioEnergy
Commercial Scale Integrated Demonstration Biorefinery,
Indian River County, FL (DOE/EA 1773)

General comments

Evaluation of the impacts during preparation of the NEPA document may require various forms of modeling and risk assessment. The following areas are of particular concern: air emissions, air monitoring, waste handling and disposal, aesthetic impacts, ecological, safety and health impacts, construction and community impacts, environmental justice, cultural and archaeological resources and cumulative effects.

In addition, alternatives analysis is a core concern in the NEPA process. Technology alternatives, site location alternatives, and their influence on potential impacts should be fully considered and evaluated in the forthcoming NEPA document.

NEPA Process

In addition to the refinery, we consider the interconnection of pipelines, site access and fuel-handling infrastructure parts of the project. The NEPA document should evaluate the impacts of these actions as direct project impacts, and not as indirect (induced) or cumulative impacts, or as a connected action.

Purpose and Need

The purpose and need for this project should be fully disclosed in the NEPA document with respect to demonstrating the feasibility of the technology, projected power generation needs, and determining the least damaging practicable alternative that would minimize environmental impacts.

In addition to the DOE purpose and need statement, we also suggest that the applicant's purpose and need for the proposed project be included in the forthcoming NEPA document. This should include the proposed number of average homes or square mile area that would be served by the facility's ethanol production. In this way, the need for the proposed refinery could be evaluated further.

The EPA recommends that growth rate projection data be substantiated in the NEPA document. This data should take industrial, commercial, and institutional users into consideration, as well as residential growth.

Project Impact Analyses

The DEIS should include the protocol of the assumptions and procedures that were used to address the project's air quality impacts. The air quality impact assessment should address all applicable project related emissions (*e.g.*, toxics, criteria pollutants, fugitive, etc.). The evaluation criteria should also be provided, including but not limited to, the National Ambient Air Quality Standards

(NAAQS), Prevention of Significant Deterioration (PSD) increments and other air quality related parameters of concern.

A discussion of the existing air quality conditions, and the attainment designation status of the area in which the refinery will be built should be included in the document. A conformity review should be included in the document, along with details regarding all other emissions from the refinery.

Noise

EPA recommends that the noise levels from project sources be documented in the NEPA document: noise from the refinery, trucks, and construction.

The appropriate noise metric would likely be the equivalent level (Leq) metric to obtain a peak 1-hr average level ($Leq_{(1)}$). The day-night level (DNL) metric would be required if trucks run day and night and are frequent (a useful reference on metrics is the 1974 EPA "levels" document available online at: www.nonoise.org/library/levels/levels.htm).

Water Resources

Your letter and attachment noted that the site is bordered by drainage canals and contains some scattered wetland areas. Project impacts to wetlands, streams and other Waters of the U.S. should be avoided and minimized during project site selection and operation, consistent with the 404(b)(1) Guidelines of the Clean Water Act. Any wetlands proposed for filling should be quantified and qualified in terms of acreages and the type/quality of the Waters affected. Permanent (direct, indirect, and cumulative) and temporary (construction) impacts should be discussed.

Unavoidable impacts to Waters of the U.S. should be appropriately compensated through coordination with the U.S. Army Corps of Engineers (COE), U.S. Fish and Wildlife Service (FWS) and EPA. A draft wetland mitigation plan with applicant commitments should be discussed in the NEPA document and finalized during the 404 permitting process.

A table showing the wetlands for existing and final site conditions for each evaluated configuration should be provided in the NEPA document, to demonstrate the mitigation steps of avoidance and minimization required by NEPA and CWA Part 404(b)(1) regulations.

The final component of the NEPA and CWA required mitigation is the compensatory mitigation that should comply with the Mitigation Rule, 33 CFR Parts 325 and 332, and 40 CFR Part 230.

In addition, if any flood control structures subject to 33 U.S.C. 408 will be affected by the project, coordination with the U.S. Army Corps of Engineers (COE) is required.

Groundwater Quality

The EIS should discuss drinking water sources in the area, the presence or absence of sole source aquifers, water quantity issues, and any other potential impacts to groundwater which might occur as the result of this project.

Hazardous Waste

Details regarding onsite generation, storage, transport and disposition of hazardous waste should be disclosed in the NEPA document. Coordination with the FDEP or EPA is advised regarding hazardous waste issues. If any hazardous waste is discovered on the selected construction site, this issue should be reported to appropriate agencies and appropriately addressed prior to construction.

Environmental Justice (EJ)

Impacts to area residents including EJ populations should be considered during the site selection process and during project operation, in order to avoid/minimize disproportionate environmental, social, and economic impacts. Census data should be used to conduct the EJ analysis that compares the block groups within the project area to neighboring block groups, counties, and the state. Analyses should be mindful of possible EJ concentrations (pockets) within block groups that may be affected by power refinery emissions and other impacts. Potential cumulative effects should be evaluated in terms of impacts to the residents.

Construction Impacts

In addition to operational impacts, construction impacts should also be disclosed and minimized. These include air emissions, noise, soil erosion and other impacts during construction. The expected construction time should also be disclosed in the NEPA document to help assess the magnitude of construction impacts. Efforts should be made to minimize construction impacts in terms of fuel choice and engine tuning of equipment, site selection for staging areas, working hours during the day, limiting open burning, use of shielding (hush-houses) for stationary equipment, fugitive dust control, and other areas.

Indirect (Induced) Impacts

Indirect impacts are those impacts that would not occur but for the proposed project. These impacts should be listed and discussed, including those facilities that would be induced to locate in the project area due to the refinery project.

Cumulative Impacts

Cumulative impacts should be disclosed. The basis for defining the project area should be included (for example: a project area based on a physical feature (e.g., watershed), or reasonable radial distance from the refinery.

The size and configuration of the project area will likely differ for each area of concern. Guidance on defining a project area and other aspects of the cumulative impacts analysis is provided by the Council on Environmental Quality (CEQ) at: http://www.nepa.gov/nepa/nepanet.htm

The cumulative impacts analysis should document those ongoing and proposed projects in foreseeable future within the project area that would impact the same resources as the refinery.

Historic Preservation

The NEPA document should reflect the coordination with the State Historic Preservation Officers (SHPO) on a cultural resources survey. The NEPA document should discuss procedures for events such as unearthing archaeological sites during prospective construction. Typical procedures include work cessation in the area until SHPO approval of continued construction.

From: Charles_Kelso@fws.gov [mailto:Charles_Kelso@fws.gov]
Sent: Monday, May 24, 2010 11:36 AM
To: Kerwin, Kristin
Subject: INEOS New Planet BioEnergy Commercial Scale lntegrated Demonstration Biorefinery, Indian River County, Florida (DOE/EA1773)

Kristin Kerwin
NEPA Coordinator
Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

Dear Ms. Kerwin,
The U.S. Fish and Wildlife Service (Service) has reviewed the Notice of Scoping for the INEOS New Planet BioEnergy Commercial Scale Integrated Demonstration Biorefinery, Indian River County, Florida (DOE/EA1773)

The project will convert a waste by-product into a new source of clean energy, an action which should have a positive effect on natural resources as a whole. Therefore, we do not believe that this project will have adverse effects on fish and wildlife resources.

Thank you for providing the Service an opportunity to comment on this proposal.

Chuck Kelso
U.S. Fish and Wildlife Service
South Florida Ecological Services Field Office
1339 20th Street
Vero Beach, FL 32960-3559
(772)562-3909 x 241 (Office)
(772)538-5519 (Cell)