Permit Application

AIR CONSTRUCTION PERMIT APPLICATION FOR HCN SCRUBBING SYSTEM

INEOS New Planet BioEnergy

Prepared For: INEOS New Planet BioEnergy
925 74th Avenue SW
Vero Beach, FL 32968

Submitted By: Golder Associates Inc.
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Distribution: 4 copies – FDEP
2 copies – INEOS New Planet BioEnergy
1 copy – Golder Associates Inc.

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Golder Associates

APPLICATION FOR AIR PERMIT - LONG FORM

Department of
Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit:

- For any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

Air Operation Permit – Use this form to apply for:

- An initial federally enforceable state air operation permit (FESOP); or
- An initial, revised, or renewal Title V air operation permit.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: **INEOS New Planet BioEnergy**	
2. Site Name: **Indian River County BioEnergy Facility**	
3. Facility Identification Number: **0610096**	
4. Facility Location... Street Address or Other Locator: **925 74th Avenue SW** City: **Vero Beach** County: **Indian River** Zip Code: **32968**	
5. Relocatable Facility? ☐ Yes ☒ No	6. Existing Title V Permitted Facility? ☒ Yes ☐ No

Application Contact

1. Application Contact Name: **Gary F. Phillips, HSSE Manager**
2. Application Contact Mailing Address... Organization/Firm: **INEOS New Planet BioEnergy LLC** Street Address: **925 74th Avenue SW** City: **Vero Beach** State: **FL** Zip Code: **32968**
3. Application Contact Telephone Numbers... Telephone: (**772**) **794-7909** ext. Fax: (**772**) **794-7999**
4. Application Contact E-mail Address: **gary.phillips@ineos.com**

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	3. PSD Number (if applicable):
2. Project Number(s):	4. Siting Number (if applicable):

APPLICATION INFORMATION

Purpose of Application

This application for air permit is being submitted to obtain: (Check one)

Air Construction Permit

☒ Air construction permit.

☐ Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).

☐ Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

Air Operation Permit

☐ Initial Title V air operation permit.

☐ Title V air operation permit revision.

☐ Title V air operation permit renewal.

☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.

☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

☐ Air construction permit and Title V permit revision, incorporating the proposed project.

☐ Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

☐ I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

This application is for Air Construction Permit for installing a hydrogen cyanide (HCN) Scrubbing System to scrub HCN from syngas.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
003	Gasification, Fermentation and Distillation Systems	AC1F	250

Application Processing Fee

Check one: ☒ Attached - Amount: $ **250** ☒ Not Applicable

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name :
   Nigel Falcon, Site Manager

2. Owner/Authorized Representative Mailing Address...
   Organization/Firm: **INEOS New Planet BioEnergy LLC**
   Street Address: **925 74th Avenue SW**
   City: **Vero Beach** State: **FL** Zip Code: **32968**

4. Application Responsible Official Telephone Numbers...
   Telephone: **(772) 794-7915** ext. Fax: **(772) 794-7999**

5. Application Responsible Official E-mail Address: **Nigel.Falcon@ineos.com**

5. Owner/Authorized Representative Statement:

   I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.

   Nigel Falcon — Signature

   May 20th, 2014 — Date

APPLICATION INFORMATION

Application Responsible Official Certification

Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1. Application Responsible Official Name:

2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):

- ☐ For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.
- ☐ For a partnership or sole proprietorship, a general partner or the proprietor, respectively.
- ☐ For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.
- ☐ The designated representative at an Acid Rain source or CAIR source.

3. Application Responsible Official Mailing Address...
Organization/Firm:
Street Address:
City: State: Zip Code:

4. Application Responsible Official Telephone Numbers...
Telephone: ext. Fax:

5. Application Responsible Official E-mail Address:

6. Application Responsible Official Certification:

I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.

_____ _____

Signature Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: **Kennard F. Kosky**
   Registration Number: **14996**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Golder Associates Inc.****
   Street Address: **6026 NW 1st Place**
   City: **Gainesville** State: **FL** Zip Code: **32607**
3. Professional Engineer Telephone Numbers...
   Telephone: **(352) 336-5600** ext. **21156** Fax: **(352) 336-6603**
4. Professional Engineer E-mail Address: **kkosky@golder.com**
5. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.

(4) If the purpose of this application is to obtain an air construction permit (check here ☒, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here ☐, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here ☐, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Kennard F. Kosky — 5/21/14

Signature Date

(seal)

* Attach any exception to certification statement.
**Board of Professional Engineers Certificate of Authorization #00001670.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone **17** East (km) **550.7** North (km) **3,051.3**		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) **27/35/10** Longitude (DD/MM/SS) **80/28/55**	
3. Governmental Facility Code: **0**	4. Facility Status Code: **A**	5. Facility Major Group SIC Code: **28**	6. Facility SIC(s): **2869**
7. Facility Comment :			

Facility Contact

1. Facility Contact Name: **Gary F. Phillips, HSSE Manager**
2. Facility Contact Mailing Address... Organization/Firm: **INEOS New Planet BioEnergy LLC** Street Address: **925 74th Avenue SW** City: **Vero Beach** State: **FL** Zip Code: **32968**
3. Facility Contact Telephone Numbers: Telephone: (**772**) **794-7909** ext. Fax: (**772**) **794-7999**
4. Facility Contact E-mail Address: **gary.phillips@ineos.com**

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: ( ) ext. Fax: ( )
4. Facility Primary Responsible Official E-mail Address:

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a "major source" and a "synthetic minor source."

1. ☐ Small Business Stationary Source	☐ Unknown
2. ☐ Synthetic Non-Title V Source	
3. ☐ Title V Source	
4. ☐ Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. ☐ Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. ☐ Major Source of Hazardous Air Pollutants (HAPs)	
7. ☐ Synthetic Minor Source of HAPs	
8. ☒ One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. ☐ One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. ☒ One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. ☐ Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:	

The two shredder and trammel engines in the Material handling Area (EU 001) are subject to 40, CFR 60 Subpart IIII and 40 CFR 63, Subpart ZZZZ.

Gasification, fermentation, and Distillation Systems (EU 003) are subject to 40 CFR 60, Subpart VVa.

The product storage tank and the denaturant storage tank in the Tank Farm (EU 007) are subject to 40 CFR 60 Subpart Kb.

Natural gas-fired emergency generator in the Emergency Equipment (EU011) is subject to 40 CFR 60 Subpart JJJJ.

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
PM	**B**	**N**
PM10	**B**	**N**
PM2.5	**B**	**N**
VOC	**SM**	**N**
SO2	**SM**	**N**
NOx	**SM**	**N**
CO	**SM**	**N**
Pb	**B**	**N**
H114	**B**	**N**
H106	**SM**	**N**
H027	**B**	**N**
D/F	**B**	**N**
H054-HCN	**B**	**N**

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility-Wide Cap [Y or N]? (all units)	3. Emissions Unit ID's Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

7. Facility-Wide or Multi-Unit Emissions Cap Comment:

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **Part II** ☐ Previously Submitted, Date:_____

2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **Part II** ☐ Previously Submitted, Date:_____

3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **INPB-FI-C3** ☐ Previously Submitted, Date:_____

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location:
   ☐ Attached, Document ID:_____ ☒ Not Applicable (existing permitted facility)

2. Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL):
   ☒ Attached, Document ID: **Part II**

3. Rule Applicability Analysis:
   ☒ Attached, Document ID: **Part II**

4. List of Exempt Emissions Units:
   ☐ Attached, Document ID:_____ ☐ Not Applicable (no exempt units at facility)

5. Fugitive Emissions Identification:
   ☐ Attached, Document ID:_____ ☐ Not Applicable

6. Air Quality Analysis (Rule 62-212.400(7), F.A.C.):
   ☐ Attached, Document ID:_____ ☒ Not Applicable

7. Source Impact Analysis (Rule 62-212.400(5), F.A.C.):
   ☐ Attached, Document ID:_____ ☒ Not Applicable

8. Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.):
   ☐ Attached, Document ID:_____ ☒ Not Applicable

9. Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.):
   ☐ Attached, Document ID:_____ ☒ Not Applicable

10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.):
    ☐ Attached, Document ID:_____ ☒ Not Applicable

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units:
   ☐ Attached, Document ID:_____ ☐ Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities: (Required for initial/renewal applications only)
   ☐ Attached, Document ID:_____ ☐ Not Applicable (revision application)

2. Identification of Applicable Requirements: (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought)
   ☐ Attached, Document ID:_____
   ☐ Not Applicable (revision application with no change in applicable requirements)

3. Compliance Report and Plan: (Required for all initial/revision/renewal applications)
   ☐ Attached, Document ID:_____
   Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.

4. List of Equipment/Activities Regulated under Title VI: (If applicable, required for initial/renewal applications only)
   ☐ Attached, Document ID:_____
   ☐ Equipment/Activities Onsite but Not Required to be Individually Listed
   ☒ Not Applicable

5. Verification of Risk Management Plan Submission to EPA: (If applicable, required for initial/renewal applications only)
   ☐ Attached, Document ID:_____ ☐ Not Applicable

6. Requested Changes to Current Title V Air Operation Permit:
   ☐ Attached, Document ID:_____ ☐ Not Applicable

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Facilities Subject to Acid Rain, CAIR, or Hg Budget Program

1. Acid Rain Program Forms:

   Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☒ Not Applicable (not an Acid Rain source)

   Phase II NO_X Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☒ Not Applicable

   New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☒ Not Applicable

2. CAIR Part (DEP Form No. 62-210.900(1)(b)):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☒ Not Applicable (not a CAIR source)

Additional Requirements Comment

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

EMISSIONS UNIT INFORMATION
Section [1]
Gasification, Fermentation and Distillation Systems

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☒ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

   ☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
   Gasification, Fermentation and Distillation Systems

3. Emissions Unit Identification Number: **003**

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:
A		**July 31, 2013**	**28**

8. Federal Program Applicability: (Check all that apply)

   ☐ Acid Rain Unit

   ☐ CAIR Unit

9. Package Unit:
   Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:
    This emission unit consists of combination of three different processes namely gasification, fermentation and distillation required to produce the final ethanol product. Specifically the emission unit includes two gasifiers, which heat incoming feedstock through a starved air-pyrolysis to produce syngas, the fermentation system, which further cleans and bubbles the syngas and the distillation system where the filtered fermented broth is further extracted as ethanol. INPB is proposing to install a scrubbing system to scrub HCN from syngas prior to fermentation.

Emissions Unit Control Equipment/Method: Control **1** of **6**

1. Control Equipment/Method Description:
   Activated Carbon Injection (for each gasifier train)

2. Control Device or Method Code: **207**

Emissions Unit Control Equipment/Method: Control **2** of **6**

1. Control Equipment/Method Description:
   Dry Sorbent Injection (DSI) – Sodium bicarbonate (for each gasifier train).

2. Control Device or Method Code: **206**

Emissions Unit Control Equipment/Method: Control **3** of **6**

1. Control Equipment/Method Description:
   Fabric filter (for each gasifier train)

2. Control Device or Method Code: **127**

Emissions Unit Control Equipment/Method: Control **4** of **6**

1. Control Equipment/Method Description:
   Scrubbers – Vent gas scrubber for fermentation off gases, distillation overhead scrubber for the distillation and dehydration system off gases

2. Control Device or Method Code: **129**

Emissions Unit Control Equipment/Method: Control **5** of **6**

1. Control Equipment/Method Description:
   Miscellaneous control devices- Vent gas boiler is used as a control for process vent emissions from the fermentation and the distillation system

2. Control Device or Method Code: **099**

Emissions Unit Control Equipment/Method: Control **6** of **6**

1. Control Equipment/Method Description:
   Scrubbers – remove HCN from syngas.

2. Control Device or Method Code: **129**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate: **8,000,000 gallons of ethanol**	
3. Maximum Heat Input Rate: million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	**7** days/week
52 weeks/year	**8760** hours/year
6. Operating Capacity/Schedule Comment: **Maximum production rate based on a 12-month rolling basis and Permit No. 0610096-004-AC.** **Maximum production rate with the addition of a denaturant is limited to 8,420,000 gallons of ethanol.**	

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:	2. Emission Point Type Code: **2**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **The HCN Scrubber System is used to reduce the HCN concentration from syngas**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **65** feet	7. Exit Diameter: **2.5** Feet
8. Exit Temperature: **68.9**°F	9. Actual Volumetric Flow Rate: **44,000** acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: Feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude… Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: **Stack parameters are for the Air HCN Scrubber (Tower 3 of the HCN Scrubbing System) and based on vendor information. Flow rate shown is maximum capacity of fan.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment **1** of **1**

1. Segment Description (Process/Fuel Type): **microIndustrial Processes; Chemical Manufacturing; Methanol/Alcohol Production; Ethanol by Fermentation**		
2. Source Classification Code (SCC): **3-01-250-10**	3. SCC Units: **1,000 gallons of ethanol produced**	
4. Maximum Hourly Rate:	5. Maximum Annual Rate: **8,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Maximum annual rate based on Permit No.0610096-004-AC**		

Segment Description and Rate: Segment **_** of **_**

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
HCN (H054)	**129**		**NS**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **HCN**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **0.87** lb/hour **3.8** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **4.7 ppmv** Reference:	7. Emissions Method Code: **2**
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions: **See Part II.**	
11. Potential, Fugitive, and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions _ of _

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation _ of _

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

Visible Emissions Limitation: Visible Emissions Limitation _ of _

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor _ of _

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor _ of _

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **See Part II** ☐ Previously Submitted, Date _____

2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☐ Previously Submitted, Date _____

3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **See Part II** ☐ Previously Submitted, Date _____

4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☐ Previously Submitted, Date _____
   ☐ Not Applicable (construction application)

5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☐ Previously Submitted, Date _____
   ☒ Not Applicable

6. Compliance Demonstration Reports/Records:
   ☐ Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☒ Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute:
   ☐ Attached, Document ID: _____ ☒ Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☒ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements: ☐ Attached, Document ID: _____
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ ☐ Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: _____ ☐ Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ ☐ Not Applicable

Additional Requirements Comment

PART II

PART II

APPLICATION FOR WET SCRUBBER FOR THE REMOVAL OF HYDROGEN CYANIDE FROM SYNGAS

EXECUTIVE SUMMARY

INEOS New Planet BioEnergy (INPB) is seeking authorization from the Florida Department of Environmental Protection (FDEP) to construct and operate a wet scrubber to remove hydrogen cyanide from the syngas after the gasification process at the Indian River County BioEnergy (INEOS Bio) facility in Vero Beach, Indian River County, FL. There are several syngas cleanup processes such as sodium bicarbonate and activated carbon injection along with fabric filter already in place. This additional cleanup system will reduce the hydrogen cyanide concentration in the syngas to a level that is not harmful for the fermentation process. The INEOS Bio facility is currently operating under Air Construction (AC) Permit No. 0610096-004-AC issued on June 28, 2013. An AC Permit application was submitted in September 2013 to revise the New Source Performance Standard applicability of the vent gas boiler (EU 006). Application for the initial Title V air operation permit for the facility was submitted on December 31, 2013.

This air construction permit application package consists of the appropriate application form [DEP Form 62-210.900(1)], a description of the proposed project, and rule applicability for the project. The project will add air pollution control equipment with a manufacturer's guaranteed removal efficiency of 95 percent or greater and not include any physical changes to any of the existing emissions units. There will be only a minor increase in air emissions for the facility.

PROPOSED PROJECT

The INEOS Bio Vero Beach facility is currently permitted to gasify biomass, vegetative matter, yard waste, land clearing debris and untreated wood as feedstock to the gasification system. The gasification of vegetative matter produces low levels of HCN in the syngas

Redacted

Redacted

Redacted

Redacted

RULE APPLICABILITY

Under Federal and State of Florida PSD review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and a pre-construction permit issued. The U.S. Environmental Protection Agency (EPA) has approved Florida's State Implementation Plan (SIP), which contains PSD regulations. The applicable PSD rules in Florida are found in Rule 62-212.400, Florida Administrative Code (F.A.C.).

A "major facility" is defined as any of 28 named source categories that have the potential to emit 100 tons per year (TPY) or more, or any other stationary facility that has the potential to emit 250 TPY or more, of any pollutant regulated under the CAA. "Potential to emit" means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment. Once a new source is determined to be a "major facility" for a particular pollutant, any pollutant emitted in amounts greater than the PSD significant emission rates is subject to PSD review. For an existing source for which a modification is proposed, the modification is subject to PSD review if the net increase in emissions due to the modification is greater than the PSD significant emission rates.

PSD review is used to determine whether significant air quality deterioration will result from the new or modified facility. Federal PSD requirements are contained in Title 40, Part 52.21 of the Code of Federal Regulations (40 CFR 52.21), Prevention of Significant Deterioration of Air Quality. The State of Florida has adopted the federal PSD regulations by reference (Rule 62-212.400, F.A.C.). Major facilities and major modifications are required to undergo the following analyses related to PSD for each pollutant emitted in significant amounts:

- Control technology review
- Source impact analysis
- Air quality analysis (monitoring)
- Source information
- Additional impact analyses

The INPB facility is not a major stationary source according to PSD rules in 62-212.400, F.A.C. Based on Rule 62-210.200(205), F.A.C., modification is defined as any physical change in, change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any pollutant subject to new source review regulation under the Clean Air Act. Although addition of the HCN scrubber is a physical change, it will not increase emissions of any regulated New Source Review (NSR) pollutants. HCN is not a NSR pollutant and the scrubbing system will have a removal efficiency of greater than 95 percent using commercially proven control technology. Therefore, it is not a modification under FDEP Rules and a minor-source AC permit will be required for the HCN scrubber.

HCN (CAS # 74-90-8) is a hazardous air pollutant defined in EPA and FDEP regulations. The effects of HCN have been well studied and effect levels have been recommended by the National Institute of Occupational Safety and Health's (NIOSH), Occupational Safety and Health Administration (OSHA) and the American Congress of Governmental Industrial Hygienists (ACGIH). NIOSH recommends short-term exposure limit of 4.7 ppm for HCN. The STEL is a 15-minute time-weighted average (TWA) exposure which should not be exceeded at any time during a workday. OSHA's permissible exposure limit (PEL) for HCN is 10 ppm. The PEL expressed as a time-weighted average is the concentration of a substance to which most workers can be exposed without adverse effect averaged over a normal 8-hour workday or a 40-hour workweek. ACGIH recommends a ceiling of 10 ppm (skin).

Attached Table 1 presents the maximum potential HCN emissions from the Vero Beach facility with the scrubber system. As shown, the maximum potential annual emission is 3.8 TPY, which is below the individual HAP threshold of 10 TPY for a major source of HAP emissions. The Vero Beach facility is currently not a major source of HAP emissions with a maximum annual total HAPs emissions potential of 13.6 TPY (AC application dated April, 2012). With the additional 3.8 TPY of HCN emissions, the total HAPs emissions potential will be 17.4 TPY, which is less than the total HAPS emission threshold of 25 TPY for a major source of HAP emissions. As a result, with the HCN scrubber system, the Vero Beach facility will remain as an area source (not major) of HAP emissions.

TABLE

Table 1: Potential HCN Emissions with the HCN Scrubbing System

Pollutants	Basis	Ref.	Tower 3 (Air HCN Scrubber) Inlet Condition	Tower 3 (Air HCN Scrubber) Outlet Condition
HCN Concentration (ppm)	Design	a	102.0	4.7
HCN Molecular Weight (MW)	Properties	--	27.0	27.0
Temperature (F)	Design	b	68.9	68.9
Pressure (lb/ft3)	Design	b	14.84	14.70
HCN Density (lb/ft3)	Calculated	c	0.071	0.070
Gas Flow (acfm)	Design	b	44,000	44,000
Mass Emission Rate (lb/hr)	Calculated	d	19.03	0.87
Mass Emission Rate (TPY)	Calculated	e	83.4	3.8

[a] Inlet concentration based on design information. Outlet concentration based on vendor guarantee of 95%+ control efficiency and INPB proposed value.

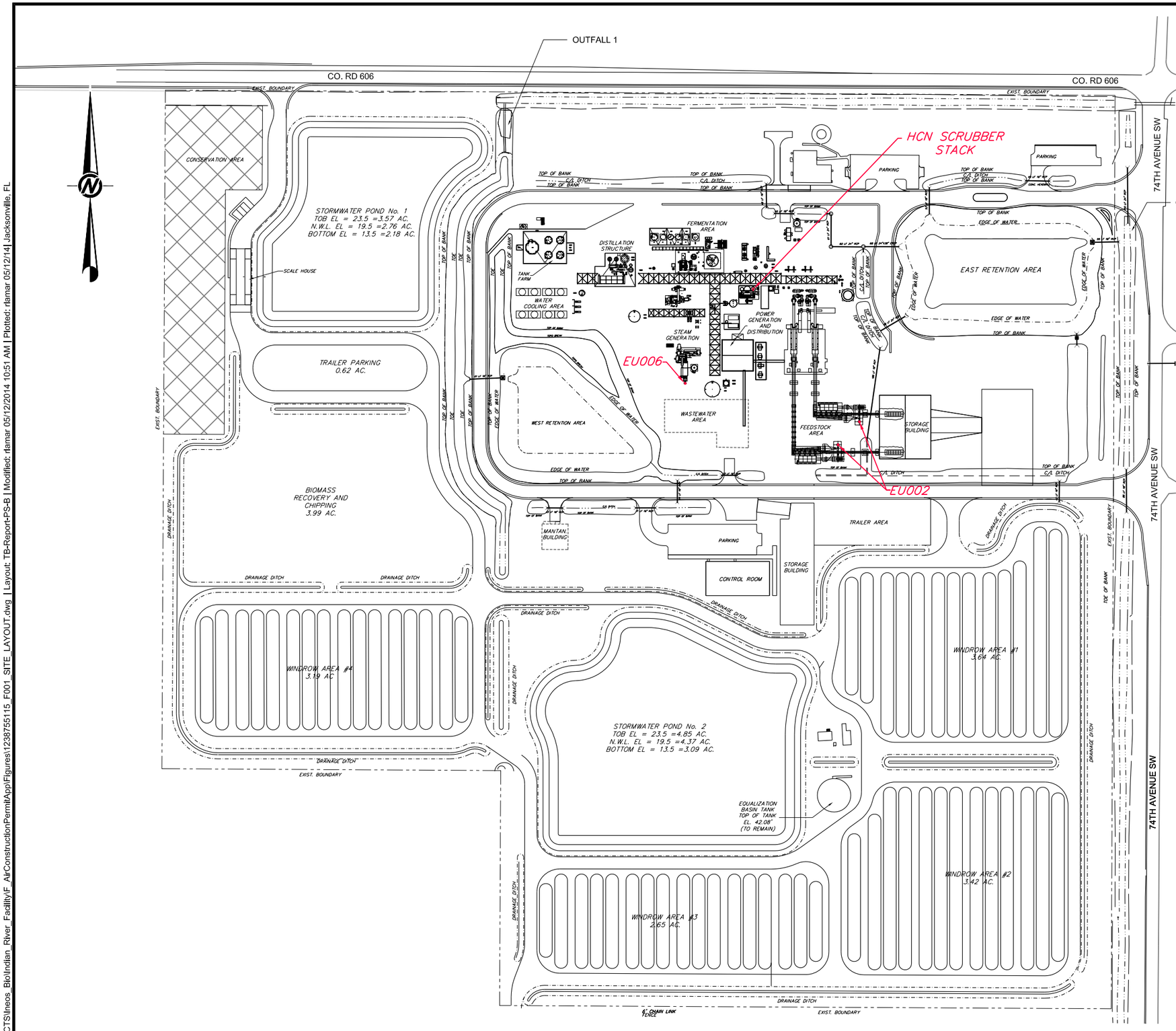
[b] Design data.

[c] HCN Density = Pressure (psi) x 144 in^2/ft^2 / (Gas Constant/MW) /Temperature (ºK).

[d] Emission Rate (lb/hr) = Concentration (ppm)/1,000,0000 x Gas Flow (acfm) x Density (lb/ft3) x 60 min/hr.

[e] Annual Emission Rate (TPY) = Hourly Emission rate (lb/hr) x 8,760 hr/yr x ton/2,000 lb.

FIGURES



LEGEND

WATER FEATURES AND SURFACE BODIES

NOTES

1) NO POTABLE WATER WELLS ON OR WITHIN THE 500 FT OF THE SITE.

REFERENCES

1) DRAWING BASED ON INEOSKEY.DWG PROVIDED BY CLIENT ON MAY 5TH, 2013
2) HCN SCRUBBER LOCATION IMPORTED FROM T-209_30FT-STACK_25APR14.NWD FILE PROVIDED BY CLIENT ON MAY 5TH, 2014

200 0 200
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
0						

PROJECT

INEOS NEW PLANET BIOENERGY
AIR CONSTRUCTION PERMIT APPLICATION

TITLE

SITE PLAN

Golder Associates

PROJECT No.		123-8755115	FILE No.	123875515_E001
DESIGN	NRL	05/12/14	SCALE	AS SHOWN
CADD	NRL	05/12/14		
CHECK	SM	05/12/14		
REVIEW	SM	05/12/14		

FIGURE 1

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FIGURE 2. OVERALL PROCESS FLOW DIAGRAM
INEOS BIO ETHANOL PROCESS
INPB Vero Beach Facility

Source: Golder, 2014

Golder Associates

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Redacted

FIGURE 3. PROCESS FLOW DIAGRAM
HCN SCRUBBING SYSTEM
INPB Vero Beach Facility

Source: Golder, 2014

Process Flow Legend
Solid/Liquid ——→
Gas - - - - →

Golder Associates

Y:\Projects\2012\123-87551 Ineos\Air Permitting\AC Permit_05-2014\Figures\Figure 3.vsd

APPENDIX A

FISHER-KLOSTERMAN®

A CECO Environmental Company
P. O. Box 11190
822 South 15th Street (40210)
Louisville, Kentucky 40251-0190

To: Sean Slape, INEOS Bio

From: Tyler Cobb, Fisher-Klosterman

Date: April 23, 2014

Subject: FKI PBS960 scrubber performance guarantee for removal of HCN from Air, FKI SO#10-01-03678

Fisher-Klosterman guarantees removal efficiency of 95%+ of the HCN in the air stream. This is contingent upon INEOS Bio operating the column at the conditions specified in our proposal FKP#2014-0073-01 Revision 2 and adhering to the operation instructions provided in the I&OM Manual.