restrictions on this specific 24 acres. The overall Freeport facility is many thousands of acres "inside the block" and there are 4 or more 30-acre areas that can serve as backup sites if this first chosen area is found to be unsuitable or too expensive compared to other specific sites also within the same Freeport block.

Spill Prevention Control and Countermeasures, SPCC, regulations are expected to not be applicable due to the small quantities of oils being stored on the site.

Because Algenol uses saltwater, not fresh water, as a feedstock, the project will conserve freshwater that would otherwise be consumed to make the fuel we displace. Algenol fuel will also conserve land. Algenol anticipates making 6,000 gallons of fuel per year per acre without using fossil fuel-based fertilizers. Corn-based ethanol is produced at a rate of approximately 400 gallons per year per acre. Algenol will use land that is not suitable for any other crop production. Algenol requires no energy intensive fuel refineries.

Alcohol and Tobacco Tax and Trade Bureau: *A bureau of the Department of Treasury, the Alcohol and Tobacco Tax and Trade Bureau is responsible for collecting excise taxes and administering certain permitting requirements associated with the production of alcohol. Algenol's envisioned facilities will be classified as Alcohol Fuel Plants because they will be producing alcohol exclusively for use as a fuel. As such, Algenol will apply for and receive the required Alcohol Fuel Producers Permit in accordance with all rules and regulations.*

EPA Renewable Identification Numbers: *The EPA's RIN program is an administrative element of the Renewable Fuel Standard used by obligated parties and renewable fuel producers to demonstrate compliance with usage mandates and track the volumes of renewable fuels. As Algenol begins commercial production and transfer of ethanol, we will be fully compliant with the labeling and reporting requirements of the RIN program.*

State, Regional, Local regulation:

Hybrid Algae: *The location of the pilot plant has no state, regional or local regulations specific to the regulation of our hybrid algae or other biotechnology-derived organisms.*

Air: *The projected facility will be a minor source of air emissions and require state authorization under TAC 30 Ch. 116 and/or Ch. 106. Based on preliminary data an actual permit under Ch. 116 will not be needed. The project can be authorized under permit-by-rule §106.261. This will require registration with the Texas Commission on Environmental Quality for their review.*

Water: *A construction stormwater permit will be needed for the earthwork in preparing the site and for the construction of the actual project. The location being considered would be covered by Dow's existing site water permit.*

When completed and normal operations begin, stormwater from the project site and any process wastewater will need to be addressed within the site's water permit. Depending on the nature of the water, this could be fairly easy and quick or could take several months to authorize.

The site will have appropriate concrete containment.

3. Has any review (e.g., NEPA documentation, permits, agency consultations) been completed? If yes, is a finding or report available and how can a copy be obtained?

Algenol Biofuels Response: *No.*

Federal: *As mentioned above, Algenol has submitted a letter to APHIS providing a detailed identification of the hybrid algae that we use to produce ethanol fuel, as well as our analysis of the relevant regulations, and seeking an opinion letter from APHIS that that its hybrid algae are not "regulated articles" under 7 C.F.R. Part 340 and their use does not require a permit or other authorization APHIS.*

If APHIS were to exercise jurisdiction over Algenol's hybrid algae, its regulation would likely only extend to permitting the occasional interstate transfer of hybrid algae cell cultures between the Baltimore research facility and the Texas pilot plant. The issuance of such interstate movement permits is categorically excluded under APHIS's NEPA implementation regulations. 7 CFR § 372.5(c)(3)(iii)(B). This interstate movement would not trigger any of the exceptions to APHIS's categorical exclusions, as set forth at 7 CFR § 372.5(d).

EPA's regulation of our hybrid algae under TSCA would occur under regulations at 40 CFR Part 725. These regulatory activities would likely be found to constitute "functional compliance" with NEPA requirements. See Environmental Defense Fund v. EPA, *489 F.2d 1247, 1257 (D.C. Cir. 1973). However, it is well-established that this would not exempt DOE from undergoing its own NEPA review for its funding of this project.* See Oregon Environmental Council v. Kunzman, *714 F.2d 901, 905 (9th Cir. 1983).*

Under DOE's own NEPA implementation regulations, Algenol's activities should also be categorically excluded from additional NEPA environmental review. Based on the absence of any significant risk to health, safety or the environment, this pilot project should be treated in a manner similar to those described in Appendix B to 10 CFR Subpart D of Part 1021, including categorical exclusions applicable to site characterization, monitoring and general research, such as B3.6 "Siting/construction/operation/decommissioning of facilities for bench-scale research, conventional laboratory operations, small-scale research and development and pilot projects"; "Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis; small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible.); or B3.12 "Siting, construction (or modification), operation, and decommissioning of microbiological and biomedical diagnostic, treatment and research facilities...".

State of Florida:

Aquaculture License; Hybrid Algae*: Algenol has a scale up facility situated on approximately five acres in Loxahatchee, Palm Beach County, Florida at which scale up is done from the laboratory scale, to the greenhouse and photobioreactor scales. Algenol has approximately 15 scientists, engineers and support staff at this scale up facility. When fully operational, the Palm Beach County facility would include* Exemption 4 *The Palm Beach County facility is licensed by the State of Florida as an aquaculture facility for nearly two years, is operated as a zero discharge facility, and at all times has operated in compliance with Florida's Aquaculture Best Management Practices. We have had several inspections and have passed all without any compliance issue, delay or stop orders. All work with the hybrid algae at the Palm Beach County scale up facility will be conducted in fully enclosed photobioreactors that are situated in a lined containment area. The description of the workings of the pilot project in Sec. I, 2 also apply to the Palm Beach County scale up*

facility. The State of Florida has no state laws or regulations specific to Algenol's hybrid algae.

Algenol has, however, initiated discussions with the Florida Department of Agriculture, Division of Aquaculture, to determine what additional permits or licenses, if any, are required to conduct scale up at the facility with our hybrid algae.

Air: *Algenol has applied for and obtained a Generic Facility Exemption from Palm Beach County relating to air permit rules for its aquaculture scale up and development facility located in Loxahatchee, Florida. This exemption request is made pursuant to Florida Administrative Code Chapter 62-210.300 Section (3)(b)2.*

Presently, the Palm Beach County facility does not generate ethanol or any other biofuel from algae, however, Algenol is testing the ability of various algae strains to withstand exposure to ethanol in concentrations that would be observed in commercial production. Exemption 4 *. During the course of these experiments, some ethanol will be vented to the atmosphere periodically until the cultures are free of ethanol. Following Algenol's calculations, it was concluded that any annual VOC emissions would be far less than the amount allowed by the Generic Facility Exemption at F.A.C. Chapter 62-210.300 Section (3)(b)2 and far below any Federal or State regulations.*

4. Is the proposed project part of a larger scope of work? If yes, please describe.

Algenol Biofuels Response: *Yes, as described in the "Business and Commercialization Plan" section of this application. Algenol has an aquaculture and scale up facility situated on approximately five acres in Palm Beach County, Florida. Algenol has approximately 15 scientists, engineers and support staff at this scale up facility. At a research laboratory in Baltimore, Maryland, Algenol employs nearly 20 scientists, engineers and support staff. The Baltimore laboratory is focused on the identification, molecular modification, and testing of algae species suitable for biofuel production.*

Algenol understands from instructions provided in Appendix E to the FOA that NEPA information should be provided only for the primary location(s) at which work would be done, and that NEPA information for locations such as the following does not need to be included: routine laboratory, document research, and routine crop growing or feedstock collection. See FOA, Appendix E at 95. For that reason, the remainder of Algenol's responses will focus on the Texas facility where this project will take place. Algenol understands that, should this proposal be accepted, additional NEPA information must be submitted regarding its activities in Maryland and Florida.

5. Do you anticipate requesting additional federal funding for subsequent phases of this project? If yes, please describe.
   Algenol Biofuels Response: *No.*

6. Does the scope of your project **only** involve one or more of the following:
   - Information gathering such as literature surveys, inventories, audits,
   - Data analysis including computer modeling,
   - Document preparation such as design, feasibility studies, analytical energy supply and demand studies, or
   - Information dissemination, including document mailings, publication, distribution, training, conferences, and informational programs.

   Algenol Biofuels Response: *No, the project will include the production of fuel grade ethanol.*

PART II: Environmental Considerations

1. Clearing or Excavation (indicate if greater than 1 acre)
   Algenol Biofuels Response: *Yes.*
   - *The specific nature or type of activity or condition:*
     - *24 acres will be filled*

   - *Whether a consultation, approval, or permit applies and a description and status of the permitting/approval/documentation process:*
     - *Before any earthwork can be done, the land involved needs to be determined to not contain jurisdictional wetlands. The particular area involved does not likely contain jurisdictional wetland but it will need to be confirmed. Dow Chemical has several alternative locations at its Freeport facility in the event of restrictions on this land.*
     - *A construction stormwater permit will be needed for the earthwork in preparing the site and for the construction of the actual project. The location being considered would be covered by Dow's existing site water permit.*

2. Dredge and/or Fill. Specify the number of acres.
   Algenol Biofuels Response: *Yes, see answer above for item 1 clearing and excavation.*

3. New or Modified Federal/State Permits and/or Requests for Exemptions
   Algenol Biofuels Response: *Yes.*

   - *The specific nature or type of activity or condition:*
     - As discussed more fully in Sec. I, 2, above, Algenol expects that its work with hybrid algae will be regulated by EPA under TSCA. Algenol has written to APHIS to confirm that that agency will not regulate the hybrid algae as a potential plant pest under the Plant Protection Act. APHIS's response is pending.
     - The projected facility will be a minor source of air emissions and require state authorization under TAC 30 Ch. 116 and/or Ch. 106. Based on preliminary data an actual permit under Ch. 116 will not be needed. The project can be authorized under permit-by-rule §106.261. This will require registration with TCEQ for their review.
     - As a minor source, the projected facility will not require federal new source review.
   - *Whether a consultation, approval, or permit applies and a description and status of the permitting/approval/documentation process:*
     - Currently, we are in the process of completing emission calculations that will allow final confirmation of permit-by-rule applicability.

4. Pre-Existing Contamination
   Algenol Biofuels Response: *No.*

5. Asbestos
   Algenol Biofuels Response: *No. Asbestos has never been used on this land.*

6. Criteria Pollutants
   Algenol Biofuels Response: *No. Criteria air pollutants are addressed in the air permitting section.*

7. Non-Attainment Areas
   Algenol Biofuels Response: Yes, this is a non-attainment area for ozone. Air permitting is addressed in the previous section.

8. Class I Air Quality Control Region
   Algenol Biofuels Response: No, this is not a Class I Air Quality Control Region. Emissions from the facility will not impact any of these regions. The closest region is 700 miles away, Big Bend National Park.

9. Navigable Air Space
   Algenol Biofuels Response: *No.*

10. Areas with Special Designation (e.g., National Forests, Parks, Trails)
    Algenol Biofuels Response: *No.*

11. Prime, Unique or Important Farmland
    Algenol Biofuels Response: *No.*

12. Archeological/Cultural Resources
    Algenol Biofuels Response: *No. If a permit from the Corps of Engineers is required (i.e. Dredge and Fill of Wetlands), the process includes an archeological review and a study may be required. See Part I, section 2 above.*

13. Threatened/Endangered Species and/or Critical Habitat
    Algenol Biofuels Response: *No. If a permit from the Corps of Engineers is required (i.e. Dredge and Fill of Wetlands), the process includes a review of threatened and endangered species. We are not aware of any endangered species in this area.*

14. Other Protected Species (Wild Burros, Migratory Birds)
    Algenol Biofuels Response: *No. We are not aware of any protected species in this area. This would be reviewed in the course of the project and appropriate siting.*

15. Floodplains
    Algenol Biofuels Response: *No. The area is out of the floodplain. It is protected by the levee.*

16. Special Sources of Groundwater (e.g., Sole Source Aquifer)
    Algenol Biofuels Response: *No. We will not be using groundwater. There are multiple aquifers in the area.*

17. Underground Extraction/Injection (non-hazardous substances)
    Algenol Biofuels Response: *No. We will not be using underground extraction and injection.*

18. Wetlands
    Algenol Biofuels Response: *No. This area is currently considered non-jurisdictional. We will confirm this, see Part I, section 2 above.*

19. Coastal Zones
    Algenol Biofuels Response: *No. This land is separated by a levee.*

20. Public Issues or Concerns
    Algenol Biofuels Response: *No. Algenol's use of hybrid algae is most accurately characterized as the contained, industrial application of biotechnology, and we anticipate that it will be both regulated and accepted as such. To the extent any concerns are expressed, we are prepared to demonstrate the*

sufficiency of our containment measures and other actions taken to ensure that this project will not pose a risk to health, safety or the environment.

21. Noise
Algenol Biofuels Response: *No.*

22. Depletion of a Non-Renewable Resource
Algenol Biofuels Response: *No.*

23. Aesthetics
Algenol Biofuels Response: *No.*

24. Odor
Algenol Biofuels Response: *No.*

Section B. Would your project use, disturb, or produce any chemicals or biological substances? (i.e., pesticides, industrial process, fuels, lubricants, bacteria) For each materials or processes listed below please indicate:

1. Polychlorinated Biphenyls (PCBs)
Algenol Biofuels Response: *No.*

2. Import, Manufacture, or Processing of Toxic Substances
Algenol Biofuels Response: *No. Although the hybrid algae will likely be regulated under TSCA, the algal strains chosen for use are non-toxic.*

3. Chemical Storage, Use, and Disposal
Algenol Biofuels Response: *No.*

4. Pesticide Use
Algenol Biofuels Response: *No, with exception of a minimal amount of normal, licensed weed and pest control using EPA-registered products.*

5. Hazardous, Toxic, or Criteria Pollutant Air Emissions
Algenol Biofuels Response: *No.*

6. Liquid Effluent
****Algenol Biofuels Response:*** *The drainage from the containment area on which the photobioreactors are located is controlled by valves and the drain lines lead to buried sumps. Under normal operations, rainwater is drained from the containment area to the sumps by gravity. The sumps have pumps that will move the rainwater to the drainage ditch on the property. In the case of a spill, the drainage will be diverted to a water sterilization system that will remove biomass and sterilize the water using chlorine bleach. All sterilized water will be stored for reuse in the photobioreactors or evaporated in evaporation tanks.*

**The facility's water sterilization system uses* Exemption 4

7. Underground Extraction/Injection (hazardous substances)
Algenol Biofuels Response: *No.*

8. Hazardous Waste
Algenol Biofuels Response: *No.*

9. Underground Storage Tanks
Algenol Biofuels Response: *No.*

10. Biological Materials. Indicate if genetically altered materials are involved.
Algenol Biofuels Response: *Yes.*

**The platform organisms to be used for this project include* Exemption 4

Please refer to Part. I, 2 Hybrid Algae for a more detailed discussion of the federal and state regulatory issues around, and the quantities of, hybrid algae involved.

Section C. Would your project require or produce any radiological materials? For each item below, please indicate:

1. Radioactive Mixed Waste
Algenol Biofuels Response: *No.*

2. Radioactive Waste
Algenol Biofuels Response: *No.*

3. Radiation Exposures
Algenol Biofuels Response: *No.*

NEPA R&D Laboratory Questions

1. Please provide and describe the location of the facility or facilities where lab work will take place.

Algenol Biofuels Response: *Laboratory facilities for non-routine analyses are located in existing laboratories of the Freeport, Texas site operations of The Dow Chemical Company. An additional new laboratory will be located in one of the project buildings for routine analyses.*

2. What type of safety protocols are in place in the areas where work will take place? Who monitors

these? Internally and externally? OSHA standards?

Algenol Biofuels Response: *Mr. Gregory Schlicht, Algenol's General Counsel will lead the Company's efforts to manage legal and regulatory issues. Prior to joining Algenol, Mr. Schlicht served as Senior Vice President, General Counsel and Corporate Secretary of VeraSun Energy, a leading producer and marketer of ethanol and distillers grains. While at VeraSun, Mr. Schlicht managed the Environmental, Health and Safety division for the company's 16 biorefineries. Mr. Schlicht's experience as the general counsel of two large public companies provides him with broad legal and commercial experience. As well, his work in the energy industry, including his role in managing commodity risks and Environmental, Health and Safety (EH&S) for 16 biorefineries, aligns well with his responsibilities at Algenol, which will help Algenol successfully construct and operate the pilot-scale biorefinery. Other members of the team responsible for regulatory and EH&S will include regulatory professionals, environmental, health and safety professionals, quality assurance/quality control, and legal professionals. The team will be responsible for preparing and submitting all required permits, developing and auditing compliance with EH&S procedures, and developing and monitoring compliance with Standard Operating procedures for the pilot-scale biorefinery.*

An EH&S director will plan, direct and implement EH&S programs, procedures and policies to ensure occupational, health and environmental safety compliance. The director will address, among other issues, OHSA's Laboratory Safety Standard, requirements for preparation of Chemical Hygiene Plans, Hazard Communication Standard, Occupational Exposure to Hazardous Chemicals in Laboratories Standard, and limits on airborne contaminants such as carbon dioxide and ethanol. Also, the director will conform standard operating procedures to OSHA's Process Safety Management standard in order to prevent or minimize the consequences stemming from a release of photobioreactor contents. Prior to developing a written action plan in consultation with employees, the director will complete a compilation of process safety information to ensure a full understanding of the technology, materials and equipment necessary to complete the project. The resulting process hazard analysis shall be proportionate to complexity of the project and will identify, evaluate and control the potential hazards of the processes.

The safety protocols will be the same protocols used by the Freeport site operations of The Dow Chemical Company. The facility will comply with all of The Dow Chemical Company's safety rules, standards and procedures, which comply with, and in many situations, exceed OSHA's requirements.

3. How are the gases, chemicals, heavy metals, etc.? handled, stored and disposed?

Algenol Biofuels Response: *There will be no heavy metals used or generated. Gases and chemicals are handled, stored and disposed of in accordance with Dow Chemical's EH&S standards that are applied consistently throughout the Freeport facility. The EH&S protocols will be the same protocols used by the Freeport site operations of The Dow Chemical Company. The facility will comply with all of The Dow Chemical Company's rules, standards and procedures, which comply with, and in many situations, exceed environmental regulations.*

4. What type of safety equipment is in place for the facilities (i.e. fume hoods, alarms, scrubbers, etc...)?

Algenol Biofuels Response: *During design and construction the safety equipment will be planned and considered using similar models to existing facilities on the Freeport site. There will be pre-startup EH&S reviews conducted jointly by Algenol and Dow to ensure all safety requirements are met before use of the facilities. For example, Dow will determine if there will need to be a fume hood for any lab analyses. Dow will probably require a fire monitor and there will be fire extinguishers and safety shower/eye wash stations. The facility will be inside the Dow fence-line and, therefore, Dow security personnel will manage access. Also, the building will be tied into the site-wide alert system for*

notifications and Dow on-site 24-hour emergency response personnel/equipment will respond as needed for fire, medical and other emergencies.

5. What permits are in place for the facility for this type of work? Please list.
Algenol Biofuels Response: *Presently, Dow has a water permit for the site. The facility will be located within the fence-line of The Dow Chemical Company's Freeport, Texas Operations complex. The complex has a site water and hazardous waste permit.*

6. What permits are needed or will be acquired for this type of work? Please list.
Algenol Biofuels Response: *See response to question I.2 above.*

7. How is liquid effluent handled and discharged?

Algenol Biofuels Response: *Laboratory liquid effluent and process liquid effluent will be collected in a tank and transported to Dow's on-site wastewater treatment plant.*

8. How is toxic waste handled, stored, disposed?
Algenol Biofuels Response: *The project will not generate any toxic waste.*

9. Will the work being done create any air pollutants? If so please explain how these are handled/disposed/mitigated.
Algenol Biofuels Response: *Yes. The air emissions from this facility are primarily fugitive emissions of ethyl alcohol. They will be controlled by implementing a leak detection and repair program. Good engineering practice will be used to minimize other sources of potential emissions.*

10. Are Genetically Modified Organisms (GMOs) being used? If so please describe how these will be transported, stored, handled and disposed. How are these classified by APHIS? By TSCA? By state and local agencies?
Algenol Biofuels Response: *Please see response above to Part I, 2. Hybrid Algae*

11. Will prototypes be tested in a separate location, if so, please describe the location and answer questions #1-9?
Algenol Biofuels Response: *Yes.*

- *Algenol has an aquaculture and scale up facility situated on approximately five acres in Loxahatchee, Palm Beach County, Florida. Algenol has approximately 15 scientists, engineers and support staff at this scale up facility. See Sec. I.2 for a further discussion of the Florida facility.*
- *Algenol has a research laboratory in Baltimore, Maryland, that employs nearly 20 scientists, engineers and support staff. The Baltimore laboratory is focused on the identification, molecular modification, and testing of cyanobacteria species suitable for biofuel production. Only basic research is performed at this facility. All research is conducted indoors, in a contained facility, and at laboratory quantities. Hybrid algae at this facility are subject to regulation under TSCA and EPA implementing regulations.*

12. Are subcontractors being used for some of the work? If so please answer Questions #1-10 for work being completed by subcontractors.
Algenol Biofuels Response:

- *No. All laboratory work is expected to be completed on-site by project team members.*

Project Management Plan

Pilot-Scale Integrated Biorefinery Operations for Producing Ethanol From Algae

Algenol Biofuels Inc.

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II. **Management Organization and Responsibilities**

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VIII. **Process Hazard Analysis / Environmental Health and Safety**

IX. **Resource Loaded Project Plan**

Proprietary Information: All information in this document is proprietary. Algenol Biofuels requests all information in this document not be released to persons outside the Government, except for the purposes of review and evaluation.

I. Introduction:

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Attachment A: Resource Loaded Project Plan

ID	WBS	Task Name	Cost ($)	FTE Hours	Duration	Start	Finish	20

REDACTED
EXEMPTION 4

Attachment A: Resource Loaded Project Plan

ID	WBS	Task Name	Cost ($)	FTE Hours	Duration	Start	Finish	20 Qt
Exemption 4								

REDACTED
EXEMPTION 4

Attachment A: Resource Loaded Project Plan

ID	WBS	Task Name	Cost ($)	FTE Hours	Duration	Start	Finish	20

REDACTED
EXEMPTION 4

Attachment A: Resource Loaded Project Plan

ID	WBS	Task Name	Cost ($)	FTE Hours	Duration	Start	Finish	20 Qt

REDACTED
EXEMPTION 4

Attachment A: Resource Loaded Project Plan

ID	WBS	Task Name	Cost ($)	FTE Hours	Duration	Start	Finish	20 Qt

Exemption 4

REDACTED
EXEMPTION 4

Attachment A: Resource Loaded Project Plan

ID	WBS	Task Name	Cost ($)	FTE Hours	Duration	Start	Finish	20 Qt

Exemption 4

REDACTED
EXEMPTION 4

Attachment A: Resource Loaded Project Plan

ID	WBS	Task Name	Cost ($)	FTE Hours	Duration	Start	Finish	20

REDACTED
EXEMPTION 4

Attachment A: Resource Loaded Project Plan

ID	WBS	Task Name	Cost ($)	FTE Hours	Duration	Start	Finish	20
								Exemption 4

REDACTED
EXEMPTION 4

Existing Facility

REDACTED
EXEMPTION 4

REDACTED
EXEMPTION 4

Proposed Facility

REDACTED
EXEMPTION 4

REDACTED
EXEMPTION 4

REDACTED
EXEMPTION 4

REDACTED
EXEMPTION 4

ALGENOL BIOFUELS INC.

Business and Commercialization Plan

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VI. ALGENOL'S VALUE PROPOSITION

Exemption 4

Algenol Biofuels Inc.

Intellectual Property Statement

Background:

Algenol Biofuels Inc. is developing and commercializing Direct to Ethanol™ technology invented by Mr. Paul Woods and Dr. John Coleman between 1984 and 1996 and patented in the U.S. in 2001 and 2004 (US Patent Nos. 6,306,639 and 6,699,696). Direct to Ethanol™ technology involves over-expressing in blue-green algae (cyanobacteria) the genes for fermentation pathway enzymes (pyruvate decarboxylase and alcohol dehydrogenase). These enzymes are found widely in nature. The resulting enhanced algae actively carry out photosynthesis and utilize carbon dioxide, sunlight and water to make ethanol inside each algal cell. The ethanol made inside the cell diffuses through the cell wall into the culture medium and then evaporates, along with water, into the headspace of an enclosed, sealed photobioreactor designed by Algenol. The ethanol-water vapor is harvested from the photobioreactor, ethanol is separated from the ethanol-water vapor, and then condensed and distilled into fuel grade ethanol.

Algenol has assembled a team of more than 100 employees and consultants to develop the technology from proof-of-principle to commercialization, including molecular biologists, marine biologists, biochemists, mechanical and chemical engineers, project managers and two full time patent attorneys. Since inception, the Company has filed several provisional and non-provisional patent applications covering recent inventions in the field and expects to continue this practice for the foreseeable future. In addition to the technologies for which the Company has obtained, or is pursuing, a patent, it has amassed significant knowledge and trade secrets related to the above detailed Direct to Ethanol™ technology.

All of the IP necessary to complete this project is owned, and has been developed, by Algenol and its wholly owned subsidiaries. Rights to use, commercialize and license the technology reside solely with Algenol. The above referenced patents were originally assigned to Enol Energy Inc., a Company started by Mr. Woods, which has since become a wholly owned subsidiary of Algenol. The license agreements transferring the rights to the technology to Algenol grants exclusive, worldwide, royalty-free right and license to use, sell, manufacture and otherwise commercialize the technology. Mr. Woods, pursuant to the agreement, assigned his rights to the technology to Algenol. Below please find further details regarding Algenol's patents and patent applications.

Exemption 4

The following patents and patent applications are owned by Algenol:

Exemption 4

In each instance, the inventors of the intellectual property that is the subject of these patents have either been an employee or a consultant of Algenol, or one of its wholly owned subsidiaries, at the time of the invention. Algenol's standard employment agreements and consulting agreements include the following language, or language substantially the same:

Proprietary Rights. All work arising from the Services performed hereunder all materials and products developed or prepared for Company by Employee in connection with the Services performed hereunder, and all resulting inventions, discoveries, processes, ideas, methods, designs, know-how, whether or not patentable, and other copyrightable materials (all of the foregoing being referred to as "Work Product") are the exclusive property throughout the world of Company, and all right, title and interest therein shall vest in Company and are hereby assigned to the Company. Whenever requested to do so by Company or any subsidiary and/or affiliate thereof, at Company's expense, and without further compensation or consideration, Consultant shall promptly execute any and all applications, assignments and other instruments and perform such acts which Company shall deem necessary or advisable in order to apply for and obtain copyrights, letters, patents and other applicable statutory

In addition to the above detailed patents and patent applications, Algenol has filed patent applications for these inventions in international jurisdictions, including Europe, Canada, Australia and the World Intellectual Property Organization.

Discussion:

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ALGENOL
BIOFUELS
DIRECT TO ETHANOL™

Pilot-Scale Integrated Biorefinery
Simplified Process Flow Diagram

Redacted
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Detailed blueprints for the Algenol pilot-scale integrated biorefinery are located in the final four pages of the PFD_Data document:
Sheet 1: Site Layout and Notes
Sheet 2: Operations Layout
Sheet 3: Detailed Process Flow Diagram
Sheet 4: Notes and Electrical Loads

Proprietary Information: All information in this document is proprietary. Algenol Biofuels requests all information in this document not be released to persons outside the Government, except for the purposes of review and evaluation.

Process Flow Diagram Step 1

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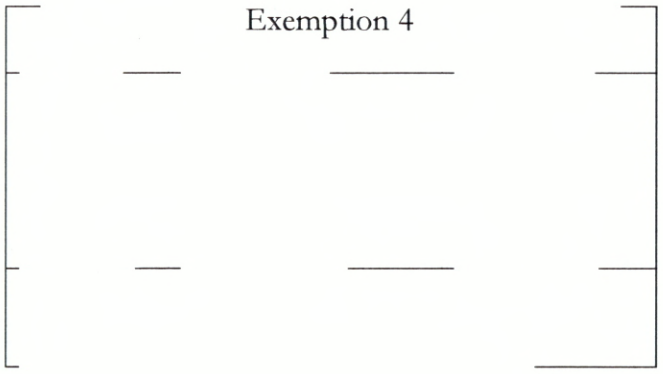

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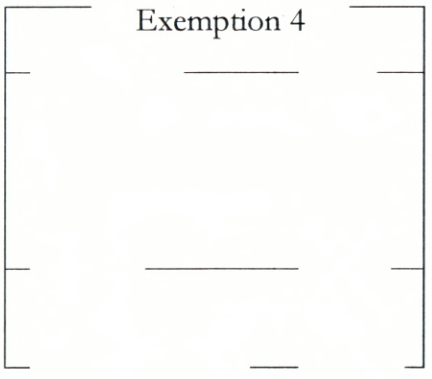

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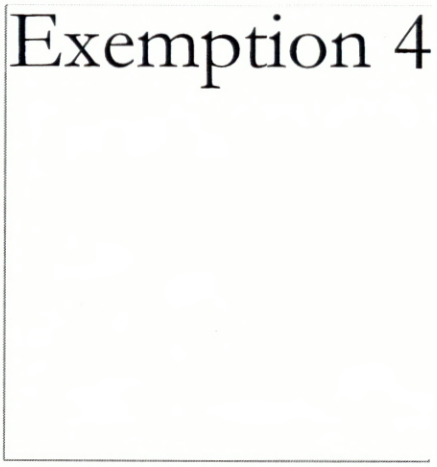
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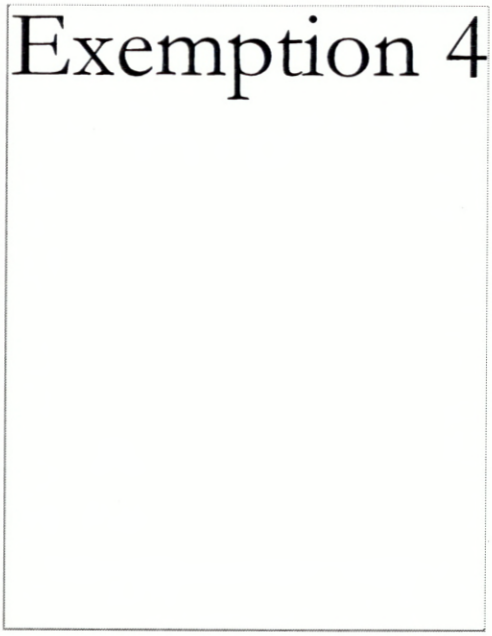
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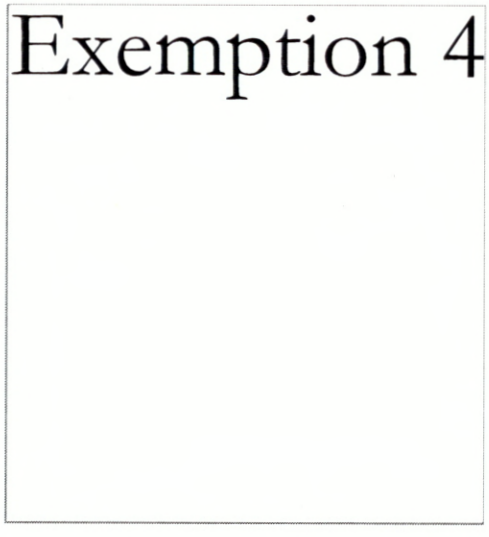

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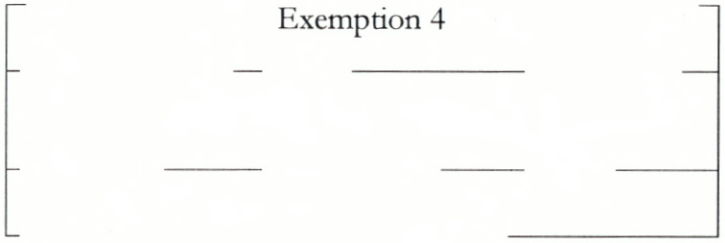

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