

Permit No.	Scan Date	DIN
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**February 5, 2014**

Solid Waste Section

Asheville Regional Office

**APPROVED DOCUMENT**

**Division of Waste Management**

**Solid Waste Section**

**Date March 25, 2014 By** 



## PHARMACEUTICAL DIMENSIONS

dba

## OZONE WASTE SOLUTIONS

### SOLID WASTE PERMIT APPLICATION

### FOR

### MEDICAL WASTE DESTRUCTION

### USING OZONATION DISINFECTION PROCESS

RECEIVED

FEB - 5 2014

SOLID WASTE SECTION  
ASHEVILLE REGIONAL OFFICE

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## INTRODUCTION

Ozone Waste Solutions has been developed by Pharmaceutical Dimensions to offer regulated medical waste generators, a “Green” alternative to other less environmentally friendly medical waste destruction services such as incineration or the less efficient treatment of autoclaving.

Ozone Waste Solutions will operate an ozonation-based destruction process to destroy pathogens and trace amounts of non-RCRA regulated pharmaceuticals. The ozonation process produces no air emissions or odors and results in a finely shredded, sterilized solid waste that has been reduced in volume by up to 90% and is suitable for final disposition at any local sanitary landfill. The destruction of pathogenic, bio-hazardous, or infectious waste is accomplished using a process which takes clean oxygen and converts it to a short lived, highly oxidative, species called ozone.

Ozone is a powerful oxidant that has been used since the 18<sup>th</sup> century as a disinfectant in water treatments, and room disinfection. The pharmaceutical industry uses it currently to sterilize liquid medications, glass drug containers, as well as to purify water for manufacturing processes. The use of ozone is not new and there is currently no evidence to suggest that ozone may be a potential carcinogen. The post treatment residue is moved mechanically into a vacuum box for subsequent municipal landfill management. Any remaining ozone not consumed in the treatment process is reused in the next destruction process or if left alone will revert back to normal atmospheric oxygen in minutes. The unit also has an ozone destruction mode that utilizes, Carulite, a catalyst to speed up the reduction of ozone back to oxygen immediately if you need to open the machine for repairs or adjustments.

**SECTION 1: GENERAL INFORMATION**

1. Name of new processor operation: Ozone Waste Solutions

2. The Processor Operation contact: Tim McQueen  
Chief Operating Officer  
Ozone Waste Solutions  
7353-A West Friendly Avenue  
Greensboro, NC 27410  
336-550-4037  
[tmcqueen@phdreturns.com](mailto:tmcqueen@phdreturns.com)

3. Primary Permit Contact /Operator: Tim McQueen  
Chief Operating Officer  
Ozone Waste Solutions  
7353-A West Friendly Avenue  
Greensboro, NC 27410  
336-550-4037  
[tmcqueen@phdreturns.com](mailto:tmcqueen@phdreturns.com)

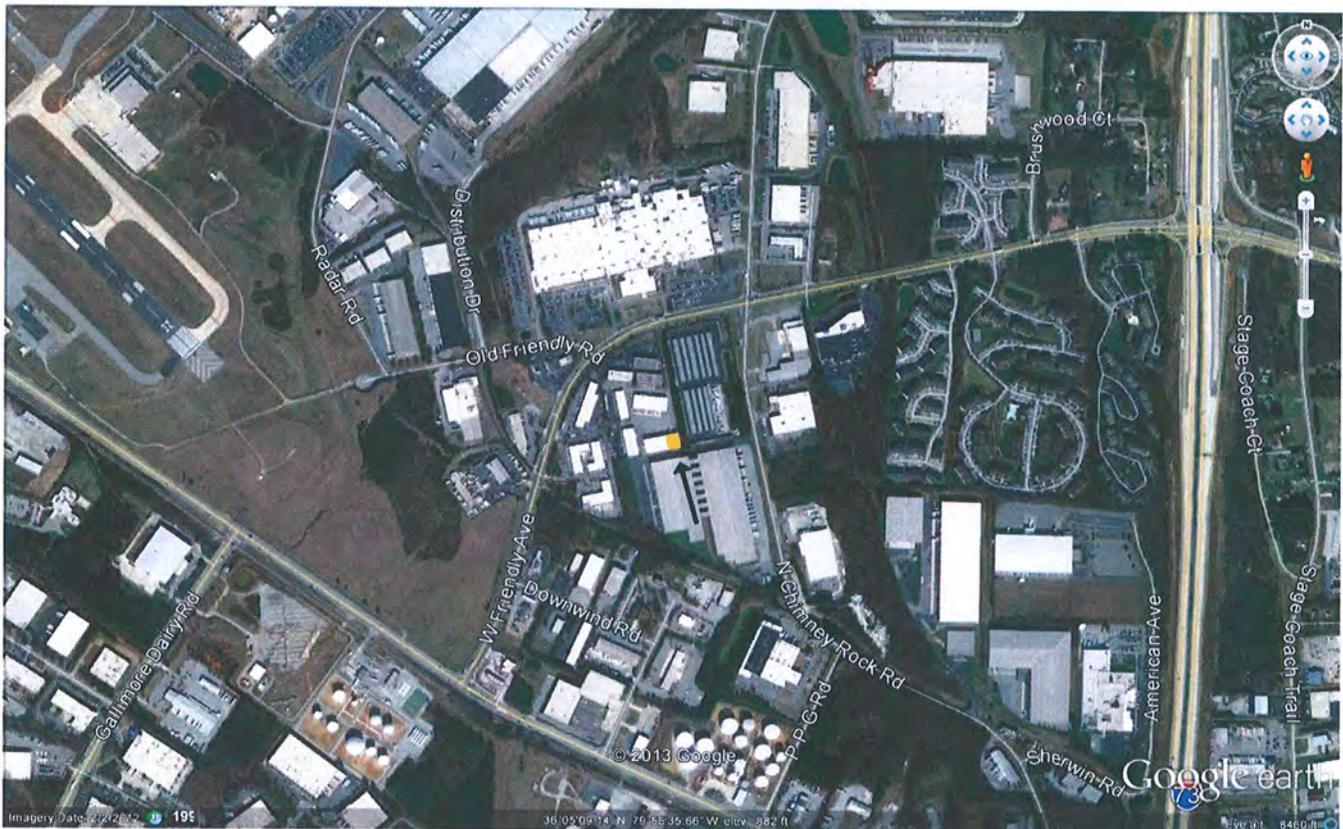
4. Name, Address, telephone Number, email address of Landowner:  
  
Highwoods Realty Limited Partnership  
By Highwoods Properties., Inc.,  
General Partner  
Reggie Beeson, Director of Leasing  
420 Gallimore Dairy Road, Suite C  
Greensboro, NC 27409  
336-605-5301

5. Permit Invoice, Fees Contact: Tim McQueen  
Chief Operating Officer  
Ozone Waste Solutions  
7353-A West Friendly Avenue  
Greensboro, NC 27410  
336-550-4037  
[tmcqueen@phdreturns.com](mailto:tmcqueen@phdreturns.com)

## SECTION 2: PROPERTY INFORMATION AND MAPS

- The property is located at 7353 West Friendly Avenue, Greensboro, N.C. 27410. The property, Suite A, is a commercial warehouse located within an industrial zoned business park adjacent to the southeast corner of the Piedmont Triad Airport on the east side of Friendly Avenue. Suite A is in the rear of the business park on the southeast corner. Suite A, shown below in Figure 1, is highlighted in yellow and designated by the black arrow pointer. The property has not been used for solid waste processing in the past.

Figure 1, shows the site and neighboring properties from a higher altitude.



West Friendly Business Park  
Greensboro, NC 27410

Figure 2 is a map showing the location of the property, suite A, within the business park.

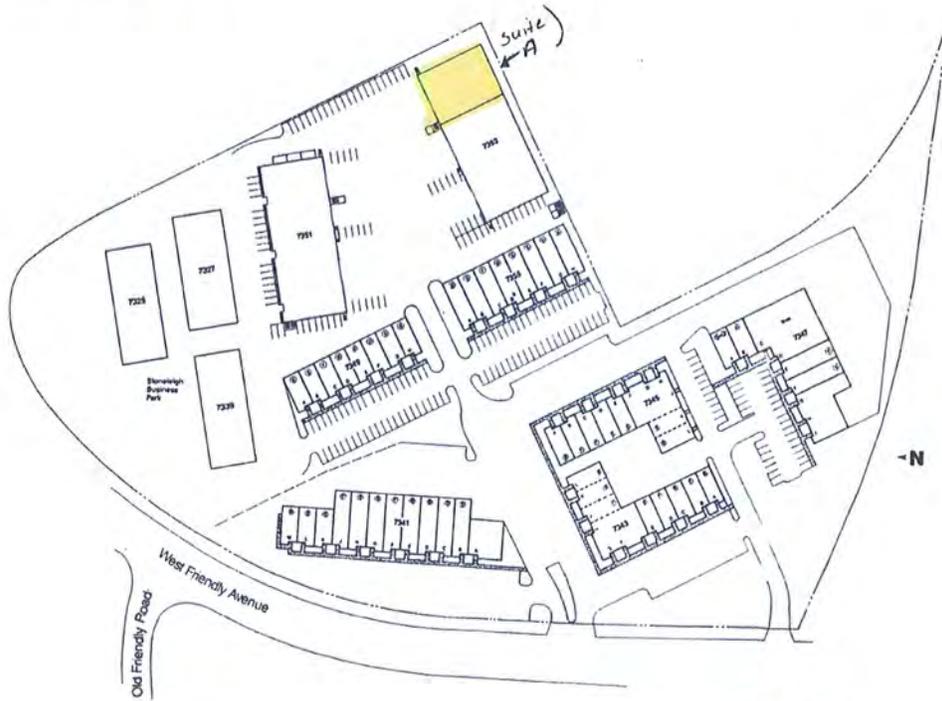
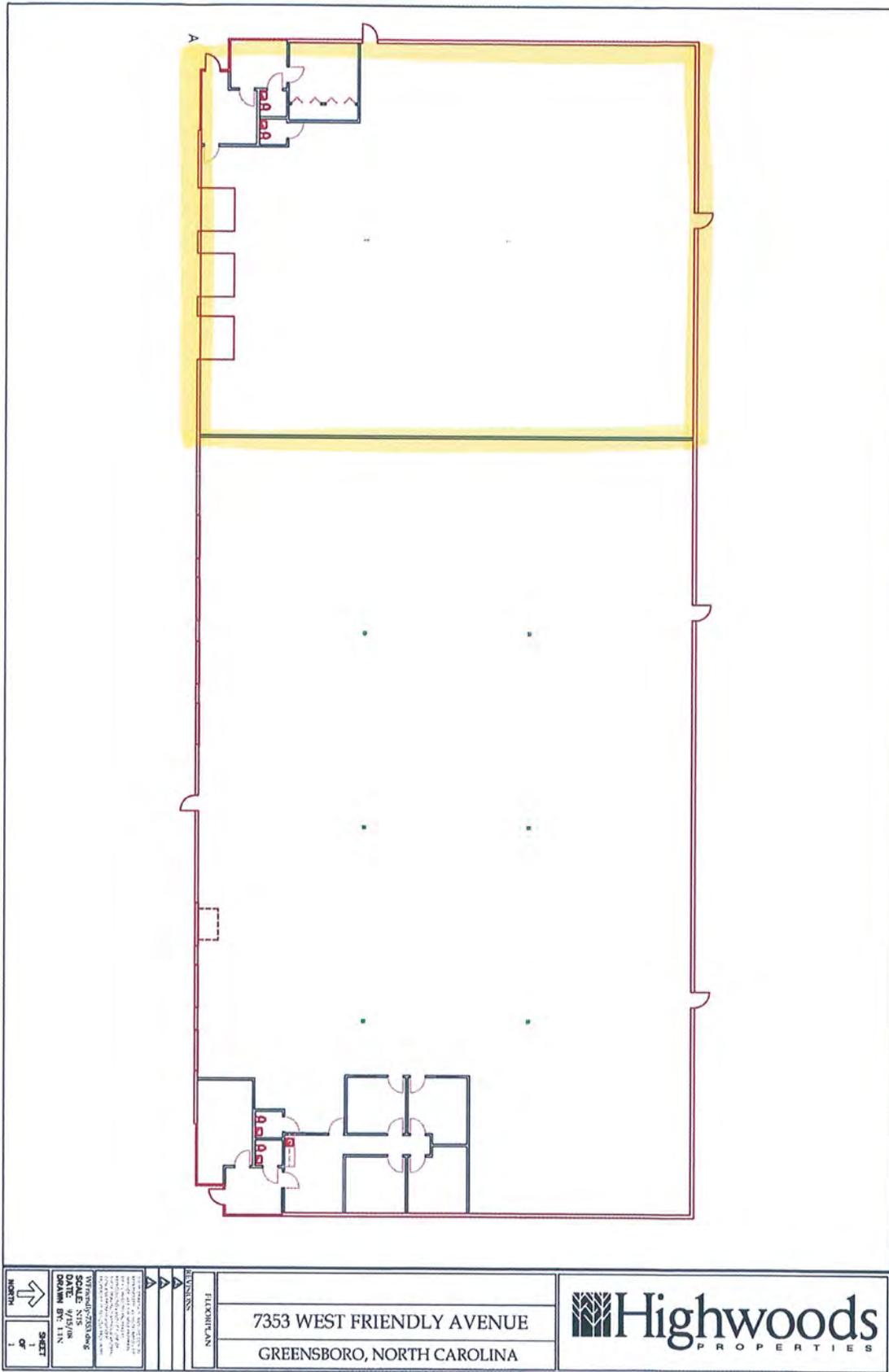


Figure 3 shows the property, suite A, in relation to the building.



NORTH ↑	SHEET 1 of 1	DATE: 9/15/08 DRAWN BY: TTN	SYNOPSIS 7353 WEST FRIENDLY AVENUE GREENSBORO, NORTH CAROLINA	ELABORATED BY: TTN	REVISIONS	Highwoods PROPERTIES

7. The total square footage of the building is 22,826 rsf, of that; **Suite A** will house the New Processor Operation within 7,500 rsf.
8. The legal description and size of the property is listed below followed by a copy of the property plat map in Figure 4.

The size of the actual area to be used for the processor operation is 7,500 rsf.

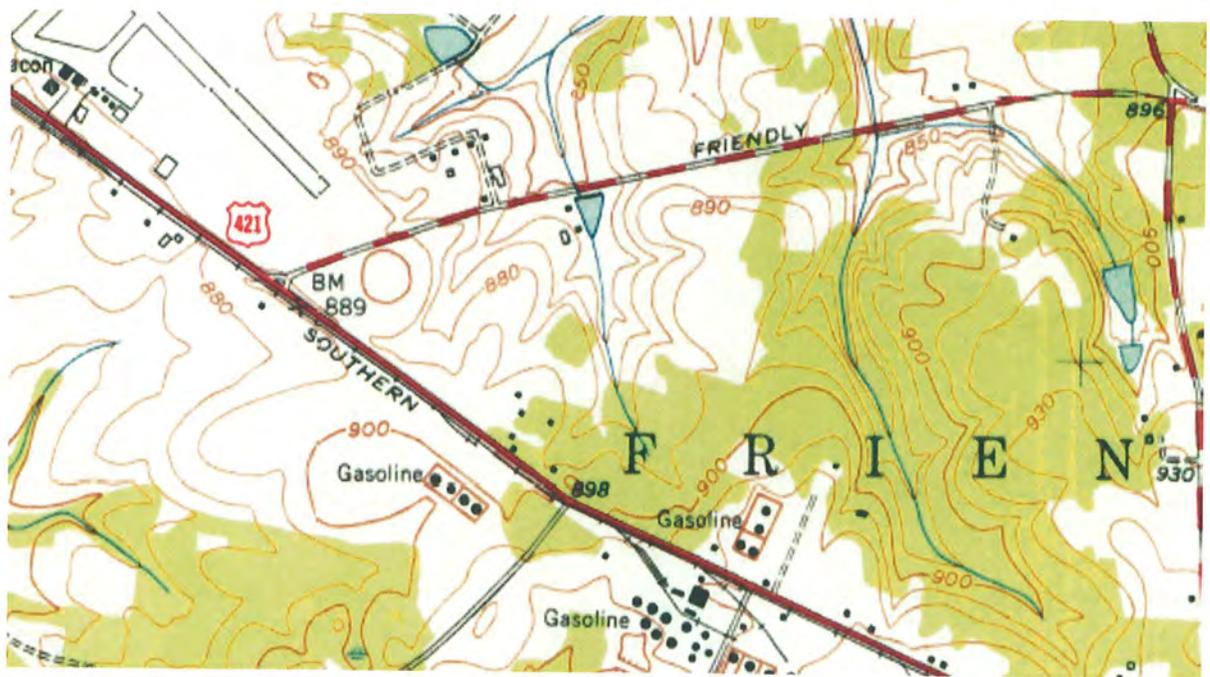
**Tract A:** BEGINNING at an iron in the northern line of Lot 3 as shown on the plat of Dow Corning Corporation as recorded in Plat Book 75, Page 152, Guilford County Registry, said iron also being located at the southwestern corner of Lot 2 as shown on the plat of Dow Corning Corporation as recorded in Plat Book 77 at Page 2, Guilford County Registry, and running thence from said point and place of BEGINNING along the northern line of said Lot 3, South 68 degrees 04 minutes 00 seconds West 460.57 feet to an iron; thence North 21 degrees 55 minutes 30 seconds West 544.08 feet to an iron; thence North 84 degrees 57 minutes 00 seconds East 481.04 feet to an iron located in the western line of Lot 2 as shown on the plat of Dow Corning Corporation recorded in Plat Book 77, page 2, Guilford County Registry; thence with the western line of said Lot 2, South 21 degrees 56 minutes 00 seconds East 405.37 feet to the point and place of BEGINNING, containing 5.022 acres, more or less, and being part of Lot 1 of the Dow Corning Corporation Subdivision recorded in Plat Book 73, Page 94, Guilford County Registry, all as shown on a survey prepared by Robert E. Wilson, Inc., dated May 31, 1989, and last revised January 16, 1991, labeled Job No. 46,613.

**Tract B:** BEGINNING at an iron pipe in the southeastern right-of-way line of West Friendly Avenue (S.R. 2147), said beginning point being the northwestern corner (the westernmost corner) of Lot 1 of the Dow Corning Corporation property as shown on that plat recorded in Plat Book 73 at Page 94 in the Guilford County Registry, and from said point of beginning, thence with the western line of the said Lot 1, and thence with the western line of Lot 3 of the Dow Corning Corporation property as shown on that plat recorded in Plat Book 75, Page 152 in the Guilford County Registry, South 21 degrees 55 minutes 30 seconds East 892.52 feet to an iron pipe; thence with the southwestern line of the said Lot 3 along a curve to the left a chord bearing and distance of South 49 degrees 54 minutes 00 seconds East 420.65 feet to an iron pipe; thence North 77 degrees 55 minutes 10 seconds West 363.84 feet to an iron pipe; thence North 75 degrees 04 minutes 30 seconds West 123.44 feet to an iron pipe; thence North 70 degrees 53 minutes 50 seconds West 97.81 feet to an iron pipe; thence North 66 degrees 40 minutes 30 seconds West 97.85 feet to an iron pipe; thence North 62 degrees 38 minutes 30 seconds West 97.65 feet to an iron pipe; thence North 62 degrees 38 minutes 30 seconds West 104.08 feet to an iron pipe in the eastern right-of-way line of West Friendly Avenue; thence with the eastern right-of-way line of West Friendly Avenue, North 05 degrees 02 minutes 36 seconds East 308.37 feet to a monument; thence continuing with the eastern right-of-way line of West Friendly Avenue, North 07 degrees 03 minutes 31 seconds East 195.25 feet to a monument; and thence with the southeastern right-of-way line of West Friendly Avenue along a curve to the right a chord bearing and distance of North 21 degrees 45 minutes 44 seconds East 351.64 feet to an iron pipe, the point of BEGINNING; the above-described property being 7.597 acres as shown on that survey dated May 31, 1989, and last revised January 16, 1991, prepared by Robert E. Wilson, Inc., Job No. 46,613.

Figure 4: Guilford County Plat for 7353 West Friendly Avenue with the proposed property, Suite A, highlighted in yellow and designated with the black arrow.



9. Figure 5: USGS topographic quadrangle map of the area. (note: Full scale maps are available in the accompanying mail tube)



10. Provide a letter from the appropriate city or county official confirming that the siting of the facility will be in accordance with all zoning and local laws, regulations, and ordinances, or that no such zoning, laws, regulations, or ordinances are applicable. To accomplish the zoning requirements we were required to change the zoning from Light Industrial to Conditional District-Heavy Industrial as well as obtain a Special Use permit. The approval letters from the City of Greensboro are attached below.



Planning Department

August 23, 2013

Don R. Vaughan  
Attorney at Law  
612 West Friendly Avenue  
Greensboro, NC 27401

Dear Mr. Vaughan:

At their August 12, 2013 meeting, the Greensboro Zoning Commission approved your request to rezone the property located at **7353 West Friendly Avenue**, generally described as southeast of West Friendly Avenue and west of North Chimney Rock Road from LI (Light Industrial) to **CD-HI** (Conditional District-Heavy Industrial) with the following conditions:

1. Uses: Limited All uses allowed in the HI (Heavy Industrial) zoning district **except** salvage yards, junk yards, and scrap processing; any use with a drive-through facility; convenience store with fuel pumps; bars, nightclubs, and brewpubs; and sexually oriented businesses.

We would like to remind you that plans for any development of this property must be submitted to the Technical Review Committee prior to any changes in the property. This includes subdivision approval, site plan approval, grading of the property, tree removal, and installation of any utilities and/or application for any building permits.

If you have any questions, please call me at (336) 373-4649.

Sincerely,

A handwritten signature in black ink that reads "Michael T. Kirkman".

Michael T. Kirkman, AICP, CZO  
Zoning Administrator

CC: Building Inspections

August 23, 2013

Don R. Vaughan  
Attorney at Law  
612 West Friendly Avenue  
Greensboro, NC 27401

Dear Mr. Vaughan:

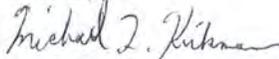
At their August 12, 2013 meeting, the Greensboro Zoning Commission approved your request for a Special Use Permit for the property located at **7353 West Friendly Avenue**, generally described as southeast of West Friendly Avenue and west of North Chimney Rock Road with the following conditions:

1. Uses: All uses allowed in the HI zoning district including waste related services except salvage yards, junk yards, and scrap processing; any use with a drive-through facility; convenience stores with fuel pumps; bars, nightclubs, and brewpubs; and sexually oriented businesses.

We would like to remind you that plans for any development of this property must be submitted to the Technical Review Committee prior to any changes in the property. This includes subdivision approval, site plan approval, grading of the property, tree removal, and installation of any utilities and/or application for any building permits.

If you have any questions, please call me at (336) 373-4649.

Sincerely,



Michael T. Kirkman, AICP, CZO  
Zoning Administrator

CC: Building Inspections

*For clarification we asked the NC DENR for an air permit application determination request and received the letter shown below.*

**Tim**

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**From:** Grogan, Patrick <patrick.grogan@ncdenr.gov>  
**Sent:** Tuesday, May 07, 2013 9:17 AM  
**To:** tmcqueen@phdreturns.com  
**Subject:** NC Air Quality permit

Hi Mr. McQueen,

Since the equipment does not have any way to vent to the outside atmosphere, you will not need any permits from the NC Air Quality section.

Please let me know if I can help with any other questions.

*Patrick Grogan*

Patrick Grogan - [patrick.grogan@ncdenr.gov](mailto:patrick.grogan@ncdenr.gov)  
North Carolina Dept. of Environment & Natural Resources  
Environmental Assistance and Outreach  
610 East Center Ave., Suite 301  
Mooresville, NC 28115  
Ph: (704) 235-2107 Fax: (704) 663-6040

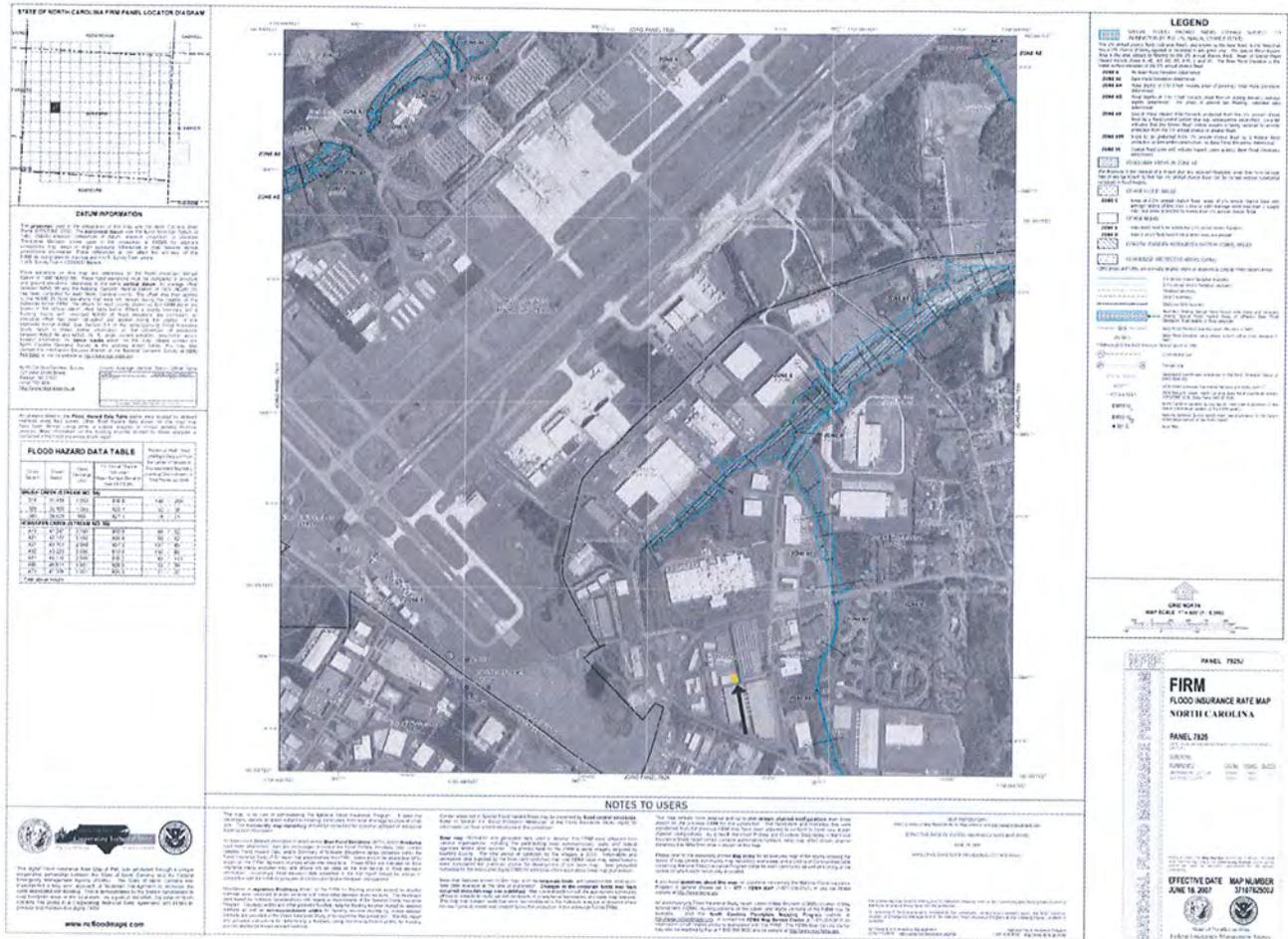
Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties unless the content is exempt by statute or other regulation.

11. Figures 5 and 6: are copies of the FEMA Flood Insurance Floodplains Map for the area, with the site property marked on the map. (Note: Full scale maps are located in accompanying mailing tube)

**Figure 5:** FEMA Flood Insurance Floodplains Map Insert. Property highlighted in yellow with location arrow.



**Figure 6: Higher altitude map insert denoting the property from the FEMA Flood Map.**



12. Provide a letter from the Army Corps of Engineers that addresses the wetlands determination for the property, and compliance with requirements, if applicable.

*The property is zoned industrial and is part of a paved business park adjacent to the Piedmont Triad Airport so no further assessment of the property as a potential wetland is necessary.*

## SECTION 3 – OPERATION PLAN

### 13. Description of the wastes to be accepted.

#### **Regulated Medical Waste, Medical Waste, Biomedical Waste, such as:**

- Pathological waste (human or animal)
- Liquid human and animal waste, including blood, blood products, and body fluids
- Live bacteria, Live viruses, fungus, proteinaceous infectious agents “Prions”
- Cultures and stocks of infectious agents and associated biological products
- Contaminated sharps, syringes, vaccines, surgical wastes
- Media contaminated with trace chemotherapeutic agents, pharmaceuticals, or hormones
- Media contaminated with potentially infectious agents
- Laboratory samples, human and animal tissues, body parts, body fluids
- Soiled bedding, clothing, plasters, bed liners, contaminated housekeeping wastes

#### Healthcare Waste Constituents and Free Liquids:

Typical healthcare waste is comprised of a large volume of absorptive materials, such as cotton, paper, bedding, and patient clothing, which aids in controlling small volumes of free liquids. Ozonator Industries states that the optimum level for the liquid fraction in raw waste (HCW) is 20% by weight. This is the level that Ozonator Industries publishes in their promotional material. It is also the level of moisture on which their verification by ETV (GLOBE Performance Solution) is based. *(see attached letter below from Ozonator dated October 16, 2013.)*

Per the attached letter from Ozonator Industries, liquid content exceeding 20% for any cycle of the Ozonator would require a thickener or drying agent to be added to the feed hopper along with preprocessed waste, to be shredded along with the preprocessed waste. Absorbball or clay based aqueous absorbents similar to kitty litter are recommended as drying agents for this purpose. By co-processing the higher liquid containers (>20% liquid by weight) with clay based absorbents in bags, an effective absorption balance is achieved. Larger volumes of free liquids would require pretreatment using the thickener or drying agent, added directly to the liquid prior to processing to solidify the waste to a suitable level prior to shredding and ozone treatment.

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**Tim McQueen**

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**From:** OZONATOR Industries - Sheldrick <ozonator@sympatico.ca>  
**Sent:** Wednesday, October 16, 2013 6:29 PM  
**To:** Tim McQueen PHDreturn  
**Cc:** Peter Klaptchuk  
**Subject:** OZONATOR - Liquids - documentation  
**Attachments:** Technical Fact Sheet - Ozonator NG-1000 - Canadian ETV Program - 2013-07-17.pdf; Cardiff University HCW test results.pdf; OZONATOR ETV Verified Performance 2016.pdf

**Importance:** High

Tim, Oct. 16, 2013

The optimum level for liquid fraction in raw waste (HCW) is 20% by weight.

This is the level that OZONATOR publishes in our promotional material.

It is also the level of moisture on which our verification by ETV (GLOBE Performance Solution) is based.

Independent testing of treated waste from the OZONATOR process by Cardiff University in Wales has shown that random samples collected at Union Hospital in Terre Haute, Indiana – USA resulted in a moisture content of 20.1% for the waste. (sample May 2011 and test results June 2011) Professor Tony Griffith – Cardiff School of Engineering.

As discussed today, when the amount of liquid available would exceed the 20% level for any load/cycle of the OZONATOR, a thickening agent should be added to the liquid. An agent similar to AbsorbAll can be added to the liquid to coagulated the liquid whereby it would stay suspended in the bulk waste volume of the load to be processed. For example, pails of blood or other liquids could have the thickening agent added to the pail before it is loaded into the waste cart.

Free standing liquids in the treatment chamber will be transferred to the transport bin. This should be avoided. A small amount of agent can eliminate any free standing liquid from collecting in the treatment chamber.

In the event that large volumes of liquid are available for process, the coagulated liquid (after agent is added) can be added to the waste load in combination with the normal waste. Typical healthcare waste is comprised of a large volume of absorbent material that will help suspend the liquid fraction.

The attached OZONATOR certificate and Fact Sheet make reference to the NG-1000 model and apply to the NG-3000 model.

Peter and I are available to support your application.

Kindest regards,  
Ralph

## Trace Chemotherapeutic agents, Pharmaceuticals, and Hormones:

Ozone Waste Solutions does not intend to accept for treatment or treat “stock” quantities of these materials.

Typical healthcare waste may contain trace amounts of chemotherapeutic agents, pharmaceuticals, and hormone residues in clothing, bedding materials, bandages, blood and IV tubing.

But due to the potential presence of “incidental” residues of these agents, Ozone Waste Solutions believes the manufacturer documentation concerning the degradation of these materials in municipal waste water at very low concentrations of ozone demonstrates the effectiveness of ozone to oxidize these materials. The Ozonator NG-3000 treatment process uses a high concentration of ozone up to 10,000 ppm, which increases the oxidative degradation of these minute quantities. Ozone is effectively 25 x more oxidative than Hypochlorous acid (HOCl), 2,500 x more than Hypochlorite (OCl) and 5,000 x more than Chloramine (NH<sub>2</sub>Cl).

Ozonator Industries states below the efficacy of degradation of minute quantities of drug compounds:

### **Ozone**

*“Ozone is a form of oxygen, consisting of three oxygen molecules (O<sub>3</sub>). Unlike diatomic oxygen (O<sub>2</sub>; the breathable oxygen present in the atmosphere), ozone is very unstable, and decays to O<sub>2</sub> within about 30 minutes under normal atmospheric conditions. Ozone is a powerful oxidizing agent. It is able to oxidize a number of molecules including metals (with the exception of gold, platinum, and iridium), nitrogen oxides, carbon, ammonia, and sulfides to name a few. Ozone is of particular value as a disinfectant, as it is able to promote the oxidation of carbon-carbon double bonds (C=C). This type of bond is found in many biological molecules, and in other types of organic compounds, most notably pharmaceuticals. As a result, ozone is effective to kill essentially all pathogens including bacteria, fungi, viruses, as well as prions. Ozone is also effective to promote the degradation of a large number of drug compounds.*

*Dr. Colin D. Rasmussen, Ph.D., LL.B.*

Dr. Rasmussen has a Ph.D. in Cell Biology from Baylor College of Medicine at the Texas Medical Center in Houston, Texas. From 1991 – 1997, he was an Associate Professor of Cell Biology at the University of Alberta, and for part of that time Director of the NCI Molecular Mechanisms in Growth Control Research Group. From 1997 – 2003, he was an Associate Professor of Anatomy & Cell Biology at the University of Saskatchewan. He has extensive experience in biochemistry, molecular biology and cellular biology, as well as experience in immunology and microbiology.

## Ozonator NG-3000 Technology

The OZONATOR technology treats waste with a high concentration of ozone in the order of 5,500 to 9,500 mg/L (parts per million – ppm) to sterilize waste to 6 log 10 reduction (99.9999%) with a dwell time of 900 seconds. All waste is exposed to a high level of ozone for an extended period of time beyond the required dwell time in the waste transport bin. This extended exposure of the already sterilized waste helps break down latex, plastics and other compounds in the waste bin until the ozone naturally reverts back to oxygen in about 30 minutes.

During the OZONATOR waste treatment cycle a small quantity of pure water is injected into the treatment chamber. (approximately 0.5 Liters per load = 1.0 L per cycle) In the presence of water vapor, the oxygen atom produced by the decomposition of ozone will react with a molecule of water to form hydroxyl radicals as in the following equation:  
 $O + H_2O \rightarrow 2HO$  Hydroxyl radicals are very effective in degrading red blood cells and other compounds.

The ozone that the unit requires is generated on-board the OZONATOR unit. The ozone, which is highly effective as a sterilizing agent is used to treat the bio-hazardous waste and then any un-used ozone is converted back to harmless oxygen resulting in “zero” emissions.

*14. The Ozonator will disinfect approximately 20 tons of medical waste per day.*

*15. The proposed service area for the processor is the state of North Carolina and contiguous states.*

*16. The disinfected, post process waste will be shipped in a closed top roll-off box to the Republic Waste landfill in Uwharrie. No recycling will be done at the processing facility.*

*Regulated Medical waste shall be stored no longer than seven calendar days after treatment.*

17. Description of the equipment controls, equipment, scales, structures, tipping floor.

**Equipment controls** consist of a proprietary pc-based processing program which is fully automated and communicates each step of the process to the Ozonator and monitors all process loop controls and sensors. If any sensor fails or exceeds a preset range, the Ozonator stops at that process step until the condition is corrected. Once the condition is corrected the process cycle repeats the treatment cycle from the beginning.

**Process Control Sensors** monitor all facets of the process such as: weights of the feed hopper and waste bin, process cycle ozone concentration, ozone output, process cycle time, shredder torque, time, and sequencing, hydraulic pumps and power units, air locks, plungers, electrical parameters, customer barcode data. Unresolved process conditions are managed online with a contracted programmer who can dial in and access the processing program remotely to correct the condition or make adjustments.

**Ambient ozone** is monitored in the process area in case of a leak and activates both a flashing strobe as well as an audible alarm. The ambient ozone level is set at 0.10 ppm. Backup processing computers are available in case of primary system failure.

**Processing efficacy** is based on the use of biological indicators containing bacillus atropheus spores which are inserted into the Ozonator sterilization chamber through a sampling port.

- 3M 1294 Rapid Readout tests (Monthly Tests) show results within 24 hours of successful qualitative sterilization.
- MesaStrip (third party verification tests). These tests are sent off periodically to a certified microbiology lab and require seven days of incubation to demonstrate successful quantitative sterilization.

The biological indicators are comprised of small adhesive backed strips or a small vented outer vial with an inner sealed vial of nutrient media/indicator dye. Between the inner and outer vials is a small sample of Bacillus atropheus spores. The 3M Attest 290G Auto-reader detects the activity of a naturally occurring enzyme, beta-glucosidase, which is one of the enzymes involved in spore outgrowth and normal vegetative cell function, by reading the fluorescence of the enzyme. Detection of the enzyme indicates a sterilization failure. Upon the conclusion of a processing cycle the biological indicators are removed from the Ozonator sample port and "aired out" to ensure any undegraded ozone is gone. The inner vial is then crushed with a special device to allow the nutrient media to soak the Bacillus atropheus spore sample. The vials are then incubated for 4 hours in the auto-reader. At the end of the 4 hour incubation the auto-reader will register an illuminated "+ or -" to indicate the presence of viable bacteria or adequate sterilization, respectively. The vials are then returned to the auto-reader and incubated for 7 additional days for a color change from blue green to yellow which would indicate the presence of viable bacteria that survived the treatment. The 4 hour rapid test has a greater than or equal to 97% readout reliability.

Incoming loads will off-loaded by forklift into the warehouse and weighed on a certified floor scale prior to staging for processing. No other ancillary equipment will be necessary for processing due to

*the Ozonator being a fully automated processing unit. No tipping floor is utilized in this type of operation.*

18. Describe site security and access control. Access roads must be of all-weather construction. Also describe hours of operation.

*Access roads are constructed of asphalt and considered to be all weather surfaces. Site security will be maintained by limited secured access doorways, perimeter and motion alarms, and security cameras. A contracted security firm will provide surveillance and monitoring of the premises 24 hours per day for unauthorized access or fire.*

19. Description of signs to be posted at the entrance and within the site to direct traffic. Signs must provide a description of the types of waste received, the types of waste prohibited, operating hours, permit number, and emergency contact phone numbers.

*The facility will provide a sign that contains; the name of the facility, the permit number and emergency contact information.*

*There will be one posted at the property entrance with the company logo and receiving hours and a second sign posted at the site door with specific instructions to driver, wastes accepted, and the emergency contact phone number. All loads received will be prescheduled for company contracted drivers only. No other loads will be accepted at any time.*

20. Personnel requirements, qualifications, responsibilities. The plan must indicate that a trained employee must be onsite at all times the site is open, overseeing the loading and unloading of waste.

*Site manager has 25 years of hazardous waste management experience. Operators and Technicians will receive the following training prior to working and again on an annual basis as a refresher: OWS Core Training, OSHA Hazwoper, RCRA Hazardous Waste Training, Medical Waste Training, Blood Borne Pathogens, The Site Safety Plan, Spill Prevention and Counter Control Measures, and Personal Protective Equipment Use.*

*Note: Hazardous waste training is provided to help technicians recognize and ensure no RCRA or DOT regulated items are accepted or processed.*

*The outline below lists the primary topics covered in the OWS Core Training Manual.*

### **OWS Core Training Outline:**

#### **I. Training Overview**

1. Site Safety Plan
2. Site Operation Plan

#### **II. Medical Waste Overview**

1. Types of Medical Waste
2. Medical Waste Terminology
3. North Carolina Medical Waste Regulations
4. Medical Waste Manifests and Required Labeling
5. Medical Waste Packaging

#### **III. Health and Safety**

1. Pathogens
2. Blood Borne Pathogens
3. Treatment Resistant Pathogens
4. Sharps
5. Routes of Exposure
6. Personal Protective Equipment
7. Exposure Controls
8. Work Area Restrictions
9. Personal Hygiene

#### **IV. Disinfection & Sterilization**

1. High Level Disinfectants
2. Surface Cleaning & Housekeeping

3. Surface Disinfection

#### **V. Ozonator NG-3000 Operation**

1. Ozone Overview
2. Ozonator Treatment Process Overview
3. General Safety Precautions
4. Component Diagram
5. Operation Process
6. External Ozone Monitoring
7. Inspections
8. Alarm Codes and Online Assistance
9. Routine Maintenance

#### **VI. Spill Prevention & Counter Control Measures**

1. Spill Kit Contents
2. Spill Cleanup & Containment
3. Post Cleanup Surface Decontamination and Disinfection

#### **VII. EPA & DOT Training**

1. Hazardous Waste Overview
2. DOT Hazard Classes
3. Acceptable wastes vs Not Acceptable wastes for processing.

#### **VIII. Core Competency Assessment Test**

21. Provide a narrative description of the operation from the truck arriving at the site, through all steps of the transfer station/recycling operation, to the point of waste removal. Describe traffic flow, procedures for loading and unloading of waste.

*A prescheduled Truck arriving at the site will be directed to the offloading dock. Truck will be inspected for leaks. Paperwork will be received and inspected prior to opening truck doors. Once the preapproved load is entered into the tracking system "as received"; the doors are opened on the truck and the truck is allowed to back up to the dock. Once wheels are chocked and doors are secured, the facility will open receiving door and inspect the load. After the load is inspected and cleared for offloading, the load is then offloaded and staged for quality control inspection, weighing, barcoding, and destruction. Site doors are then closed and the driver is released with driver copies of paperwork. Once the load is released to process, each pallet is placed on the roller line for final scanning, x-ray, and destruction. Each pallet is rolled into the primary hopper and weighed for each processing cycle. The operator will initiate the Ozonator processing cycle and the primary hopper will move up hydraulically and dump into the secondary feed hopper. The Ozonator pre-shreds the waste through a 4 axle, shear shredder and the shredded waste passes into a sealed treatment chamber for disinfection with concentrated Ozone gas. This cycle takes approximately 20 minutes before being discharged into a sealed vacuum box. The vacuum box will be transported to the landfill when full. Between cycles the Operator will prepare and refill the primary hopper for the next batch. Drivers are company contracted and shipments are prescheduled. Each driver will receive site safety training and be instructed where to enter the site and where to exit. A one way traffic flow plan is designed with safety and efficiency in mind.*

22. Describe the process for accepting, sorting, processing, and storing each type of recyclable. All recyclables, other than concrete, should be stored on a pad or in a covered container. Include the storage size of each recyclable and waste type, and the frequency of removal from the site of each recyclable and waste type. What is the maximum amount of each waste and recyclable that will be stored on the site at any time. What is the combined volume of the maximum amount of wastes and recyclable material that will be stored on the property at any time? Describe the method for ensuring that 100% of the recyclable material will be processed and removed from the facility within one year of receipt.

*No recycling will be done with medical wastes for health and safety reasons. Medical waste will be processed daily as it is received with only enough staged on the floor to meet the days production needs or to fill the production cycles of a holiday weekend. Loads will be scheduled to meet this throughput schedule on a weekly basis and adjusted accordingly. Since medical waste varies in composition, weight, and volume, the receiving schedule will be flexible to make sure wastes are treated and not stored beyond what is necessary to meet the production schedule of the Ozonator. Only preapproved shipments will be accepted.*

23. Describe any operation that will process waste, such as a wood grinder. Chipped or mulched wood waste must be stored covered on a pad or in a covered container.

*Only one operation will take place on site and it is described above where medical waste is processed through the Ozonator for disinfection.*

24. Describe a plan for handling waste loads that contain unacceptable waste. Unacceptable waste must not be added to C&D waste that will be transported to a C&D landfill. Describe storage of unacceptable waste and the frequency of removal of the waste (at least weekly).

*Medical waste streams are profiled in detail prior to approval, acceptance, or shipment. The medical waste generator is required to describe his waste in detail on the profile form. Profile parameters include: name of waste, process of generation, detailed constituents, % composition, physical state, an acknowledgement of a check list denoting everything that is prohibited in the waste, and the proper shipping name for the waste. The medical waste generator signs a certification for the profile stating the waste meets the profile description and is not regulated by the state of generation, the state of North Carolina, or the USEPA. Quality control inspections will be done on suspect waste. Wastes not meeting the profile or containing unacceptable items will be subject to immediate rejection of portion of or the entire load back to the generator.*

25. Describe surface water control features, including run-on and run-off. Describe plan for operation of the facility in wet weather. If the facility is to operate during precipitation events, the tipping pad area must be sheltered from precipitation. It is preferred, but not required, that the tipping floor area be covered for all operations. Provide copy of storm water application and permit, if required.

*The entire processor operation is housed within a building with a polymer sealed floor and spill control diking around the perimeter of the warehouse floor. All processing occurs with the doors closed. We do not have a tipping floor. The liquid content of the waste is typically very low and is shipped in puncture resistant "red bags," packaged within fiberboard boxes, stacked, on pallets. No large quantity liquids (> a few gallons) would be expected at any time. Any spillage would be absorbed with spill pads or absorbent immediately, and fed directly to the Ozonator. The contaminated area would then be disinfected with an appropriate solution to eliminate personnel exposure and prevent further contamination.*

26. Describe the collection, storage, and disposal of leachate, wash water, and contaminated rainfall runoff. Run-off from the tipping floor area and all areas of waste/recyclable storage should be collected and properly treated prior to disposal.

*The entire process is enclosed within a building and is not affected by weather. Any resultant spill or residue or surface decontamination is fed directly to the Ozonator for disinfection. All medical waste received is containerized and palletized. We do not utilize a tipping floor and no recycling is done on site.*

27. Plan for maintaining facility property in a sanitary condition and actions to be taken to minimize noise, vectors, and odors. All waste should be sorted and stored at the end of each operating day. Storage containers should be covered at the end of every operating day and during rain events.

*Managing medical waste requires constant diligence in maintaining a sanitary work space. Any incidental leaks or spills are responded to immediately and disinfected to ensure a safe and sanitary workplace. Proper personal protective equipment is donned and the leak or spill is absorbed using spill pads. The area is then thoroughly sanitized with a strong "high level" disinfectant cleaner before work can continue. All spill generated wastes is fed directly into the Ozonator for disinfection.*

*There are no floor drains on the processing floor. The processing floor is sealed with a concrete sealer and two coats of epoxy polymer to prevent anything from penetrating the floor.*

*A ventilation system has been installed to mitigate the presence of any nuisance odors.*

28. Plan for litter and dust control. Procedures to prevent blowing litter and dust from leaving the onsite management areas and from leaving the property.

*Within a closed building, litter and dust are easily managed using normal housekeeping processes and trash receptacles. Doors will remain secured during processing hours for controlling unauthorized access to production area.*

29. Description of any special waste handling (waste tires, white goods, yard waste).

*No special waste handling or recycling is planned for this operation.*

30. Plan for fire prevention and actions to be taken in the event of an accidental fire.

*Fire extinguishers are located around the processing area in the event of an incipient fire. Larger fires would involve notifying the local 911 call center for outside assistance. As with our Pharmaceutical Business, we would join the NC EPlan and store appropriate documents online for emergency responders' safety and to provide detailed site information.*

31. Describe recordkeeping (daily tonnages of waste received by county of origin, tonnages of each type of recyclable material sent to markets, tonnages of waste sent to a disposal facility, personal

training). The facility must also keep a copy of the permit, operations plan, and site drawings on site at all times.

*Pharmaceutical Dimensions has proprietary software designed to track business activities including loads of medical waste received for disinfection using the Ozonator. We would barcode label and scan all packages received for processing. This tracking would encompass the customer information, shipment information, dates received, amount or weight received, as well as process dates, and invoicing information, and volumes shipped to the landfill. The Site Safety Plan, Emergency Evacuation Plan, Operation Plan, as well as site drawings would always be available on site.*

32. Contingency plans for equipment breakdown, spills, vectors, noise, odors, unusual traffic patterns, long-term power outages, extreme weather events, etc.

*The Ozonator will be maintained by a trained technician who can replace any failed part or make any required repairs. Parts not in stock are available within 24 hours. In the event of an extended outage (> than 12 hours) the machine would be shut down until services are restored or parts are replaced. No further loads would be received or offloaded until operations resumed.*

*Spills will be handled by a Spill Containment Plan. The plan outlines the steps necessary to protect the operator, absorb the spill, and decontaminate the surfaces exposed to the spill. Spill cleanup materials (PPE, pads, wipes, absorbents, disinfectants) can be added to the next batch of waste to be sterilized in the Ozonator.*

*Most extreme weather events will not affect the operation since it takes place inside a warehouse. Backup lighting is in place for power outages. The Ozonator can simply be restarted after the power returns. A backup generator will be considered if local current service is interrupted too frequently. Long term power outages in the summer would require waste to be staged on refrigerated trucks. Winter outages would not be an issue for waste staged on a truck or inside the building.*

SECTION 4 – SEDIMENTATION AND EROSION CONTROL PLAN

- 33. For new processor operations or existing processor operation with proposed construction modifications, provide a copy of the sedimentation and erosion plan as required by local governments and the NC Division of Land Resources. Provide an electronic copy only if the plan is voluminous.

*The new processor operation will be housed within an existing warehouse so no modification of the surrounding land is necessary or planned in the future.*

SECTION 5 – FINANCIAL ASSURANCE

- 34. Financial assurance documentation in accordance with N.C.G.S. 130A-294 (b2) is required for all permits. Submit cost estimates in the application equal to the cost to hire a third party to remove, cleanup, haul, and dispose of a minimum volume of incoming waste plus the maximum amount of materials (waste and recyclables) that the facility plans to store onsite (see #23 in the Operations Plan). This is required in the event of site abandonment or if the site is found to be in substantial non-compliance with state requirements. The facility may be considered in substantial non-compliance if it is found to be storing more waste /recyclables on site that the facility’s operations plan and /or the facility’s financial assurance mechanism covers. The section may require the estimate to be based on a greater volume, depending on the type of operation, the past environmental compliance history of the applicant does not currently operate any solid waste management facilities in North Carolina. After the solid waste section has approved the cost estimate, the financial mechanism must be submitted soon after the permit is issued and/or before the site becomes operational.

*Based on projected operating and processing capabilities, we would expect to have 2 loads of medical waste inside the facility pending processing with an additional two loads received daily to augment processing through weekends. Using this model of 2 loads inside and two additional loads received daily the following cost estimate for Financial Assurance purposes would be as follows:*

<i>4 untreated loads to be destroyed:</i>	<i>\$16,000</i>
<i>Transportation 4 loads to closest incinerator:</i>	<i>\$2000</i>
<i>Labor to load trucks @ one hour/load x 4 loads:</i>	<i>\$50</i>
<i>Residual “post treatment residue” to landfill:</i>	<i>\$1100</i>
<i>Labor to clean facility: 2 Technicians x 8hrs:</i>	<i>\$192</i>
<u><i>Personal protective equipment:</i></u>	<u><i>\$50</i></u>
<i>Total Cost for Financial Assurance estimated:</i>	<i>\$19,392</i>

## SECTION 6 – SIGNATURE PAGES

35. Applicant signature page: *See Appendix 1.*

36. Contract Operator signature page: N/A, we will operate the site.

37. If the landowner of the property is not the applicant, the attached certification form by the land owner is required. *The landowner contact information is listed in Section 1, Item 4. For the signed certification form, see Appendix 2.*

## **SECTION 7 – ENGINEERING DRAWINGS**

For a new Processor operation or an existing Processor operation with proposed construction modifications, provide drawings showing the transfer station/recycling operation building or modifications. Engineering drawings should be prepared and sealed by a NC professional engineer, drawn to scale, and should include:

1. Existing and proposed contours: *None are planned*
2. Property boundaries: *As listed and noted above*
3. Gates/fences or other access control features: *No gates or fences necessary for operation in a closed warehouse.*
4. Utilities (including – sewer and storm water): *No changes in current utilities are planned.*
5. Existing and proposed roads: *No changes to current roads are planned.*
6. Sedimentation basin details: *No sedimentation basin is planned.*
7. Existing surface water features (ditches, ponds, streams, wetlands, etc.): *There are no existing surface waters on the property.*
8. Waste loading and unloading area: *No new construction is planned. Using existing warehouse doors waste will be loaded or offloaded into the building.*
9. Tipping Floor and sorting area: *No tipping floor or sorting area is planned.*
10. Storage areas indicating recyclable and waste type, and types and sizes of containers: *No recycling is planned, containers to be received are puncture resistant “red bags” and cardboard, “fiber,” boxes.*
11. Leachate and runoff collection details: *No leachate or runoff collection areas are planned.*
12. Buildings (existing and proposed) and scales/scale house: *Existing building drawings in Section 1, figures 2 & 3*
13. Concrete foundations/pads and all other ground cover for the site operation: *No new concrete foundations/pads or ground cover is planned.*
14. Distances to wells, residences, wetlands, and water bodies: *No wetlands, water bodies, or wells within 1800 feet of property.*

15. And other physical characteristics of the site

All sides of storage areas for flammable materials/waste should be clear and drivable, to provide vehicular access in the event of a fire. *No flammable storage is planned.*

*No construction is planned for this property since the operation fits inside an industrial warehouse building within an industrial business park. Future Power upgrades and changes to office spaces will be managed by the property management group and certified by local permitting groups. No flammable materials, DOT or EPA regulated chemicals will be stored or used on site in the processor operation. An epoxy floor sealant has been added to protect floor and to prevent any liquid from penetrating the production floor.*

**APPENDIX 3**

**Full size maps are located in the accompanying mail tube.**

**APPENDIX 4**

**Letters from states which have previously approved the technology**

**APPENDIX 5**

**Photograph of the Ozonator located at the application address**