



1414 Riley Industrial Dr. Moberly, MO 65270  
T: +1 (660) 263-7474 F: +1 (660) 263-7577  
[www.vulcandryingsystems.com](http://www.vulcandryingsystems.com)

## Contents

1.	GENERAL SYSTEM DESCRIPTION .....	4
2.	PROCESS DESCRIPTION .....	5
3.	MAIN PROCESS COMPONENTS .....	5
4.	PROCESS SPECIFICATIONS.....	6
5.	PROCESS CONDITIONS .....	7
6.	PROCESS FLOW DIAGRAM .....	8
7.	SUPPORT SERVICES TO THE BUYER.....	9
8.	EQUIPMENT PRICE .....	10
9.	PAYMENT TERMS .....	10
	GENERAL TERMS AND CONDITIONS.....	12



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**Date:** December 31, 2019

**Buyer:** White-Light Farms, LLC.  
751 Leo Hardy Road  
Eolia, MO. 63344

**Seller:** Vulcan Drying Systems, LLC  
1414 Riley Industrial Dr.  
PO Box 783  
Moberly, MO 65270

**WHEREBY, Buyer agrees to buy, and Seller agrees to sell:**

## 1. GENERAL SYSTEM DESCRIPTION

Reconditioned Vulcan Drying Systems Direct Fired Rotary Dryer with Particulate Control System: The following information provided in this proposal outlines the system components, integration and services provided by Vulcan Drying Systems. Our systems are preassembled at the factory complete with system components, piping, instrumentation, wiring, controls and support components. A factory acceptance test is performed prior to shipment to verify manufacturing, operability and some operations and maintenance training. Buyer's participation is encouraged. This system will be constructed primarily with used and reconditioned parts and components.

System consisting of:

### Major Components Drying System

#### Feed System Consisting of

Horizontal feed conveyor

#### Rotary Dryer Consisting of

Stationary Direct Fired Rotary Dryer  
A minimum of 13.29 MMBtu burner  
Combustion Air Fan  
Burner and Fuel Train  
Auxiliary Infiltration Air Blower

#### Solids Discharge System Consisting of

Counter-weighted gravity operated flap gate on dryer discharge breaching

#### Particulate Control Unit consisting of

Approximately 30,000 cfm cyclone with rotary airlock  
Approximately 30,000 cfm Induced Draft Fan  
Ductwork connecting rotary dryer to cyclone and blower



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#### Integration Consisting of

Instruments, piping, pipe supports, wiring and cable support, controls and control panel

#### Support Consisting of

Onsite support available for purchase

#### Options Consisting of

## 2. PROCESS DESCRIPTION

Feed material will be loaded into a horizontal feed screw conveyor via Buyer's incline conveyor. The conveyor transfers the feed material to the rotary dryer.

As feed material is processed in the rotary dryer, vapor is collected for further processing. Dried material is discharged from the dryer through a flap gate to which Buyer will connect its discharge conveyor. In order to keep air temperature low and product temperature at discharge below 120°F an auxiliary infiltration blower is mounted alongside the burner on a ceramic fiber wool lined combustion chamber.

Vapor and particulate collected through the processing of the feed material leaves the dryer through ductwork attached at the top of the dryer's knock out box. Vapor and particulate are carried through the ducting to the cyclone via a draft pulled by induction air fan.

## 3. MAIN PROCESS COMPONENTS

Feed System – Dryer feed conveyor – horizontal screw

Primary Treatment Unit – direct fired carbon steel rotary dryer with feed breaching, flights and discharge knock out box and breaching, dryer powered by an electric motor and gear reducer. A minimum of 13.29 MMBtu burner with fuel train mounted on a ceramic fiber lined combustion chamber along with an auxiliary infiltration blower.

Discharge System – Counter-weighted gravity operated flap gate to feed Buyer's discharge conveyor.

Particulate Control System – ≈29,000 cfm cyclone with discharge airlock along with ductwork and controls.

Induced Draft Fan – electrical fan, spark resistant ≈30,000 cfm

Electrical General – Motor horse powers and speeds are based on 480V/60hz/3-phase power input. Field wiring to be primarily heavy-duty cords.



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Generator or Power Supply – to be supplied by Buyer – Sized for system at 460v and 60Hz

### Notes

- Final sizing of described equipment below will be calculated during design phase of the project.

## 4. PROCESS SPECIFICATIONS

### 1.0 Process Specifications

Table 1.1 Site Conditions

Equipment indoors or outdoors	Outdoors (assumed)
Relative humidity	50% (assumed)

Table 1.2 Process Conditions

Process type	
Material	Chopped Hemp $\leq$ ½ inch
Total Feed rate	5 to 8 wet tons/hr.
Discharge temperature	125°F
Moisture by mass, wet basis	$\leq$ 80% water by mass

Table 1.3 Material Specifications

Material name(s)	Chopped Hemp
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### 2.0 Bulk Solids Handling Equipment Specifications

Table 2.0 Solids Feed & Discharge Equipment

Flow Configuration Feed (tables 2.1)	Horizontal feed conveyor with small hopper
Flow Configuration Discharge (tables 2.2)	Rotary airlock
Materials of construction	Carbon Steel

Table 2.1 Dryer Feed Conveyor

Type	Horizontal screw conveyor
Materials of construction	Carbon Steel

Table 2.2 Dryer Discharge

Type	Gravity operated counter weighted flap gate
Materials of construction	Carbon Steel

Table 2.3 Cyclone Discharge

Type	Rotary airlock
Materials of construction	Carbon Steel



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### 3.0 Primary Treatment Unit Specifications

Table 3.1 Primary Burner

Type	Industrial
Firing rate	≈16 MMBtu/hr
Fuel(s)	Natural gas

Table 3.2 Primary Treatment Unit

Type	Stationary Direct rotary dryer
Materials of construction	Carbon steel
Size	≈8'x50'

### 4.0 Particulate Control Equipment Specifications

Table 4.1 Particulate Control

Major equipment	Ductwork → Cyclone with rotary airlock → Induced air blower fan
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Table 4.2A Cyclone

Type	≈29,000 cfm
Materials of construction	Carbon Steel

Table 4.2B Ductwork

Type	Square
Materials of construction	Carbon Steel

Table 4.2C Discharge Airlock for Cyclone

Materials of construction	Carbon Steel
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Table 4.3 Induced Draft Fan

Capacity	≈29,000 scfm
Materials of construction	Carbon Steel

## 5. PROCESS CONDITIONS

Material	Chopped Hemp ≤ ½ inch
Total Feed Rate	5 to 8 wet tons/hr.
Feed Temperature	60°F
Moisture by mass, wet basis	80% water
Heat Requirement	≈13.29 MMBtu/hr
Fuel Type	Natural Gas
Discharge Moisture	10-12%



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## 6. PROCESS FLOW DIAGRAM

