WRT-INDIO, LLC
62-150 GENE WELMAS DRIVE
MECCA, CALIFORNIA 92254

CABAZON RESOURCE RECOVERY PARK

SYNTHETIC MINOR PERMIT APPLICATION

prepared by

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JUNE 22, 2016

WRT-INDIO, LLC
62-150 GENE WELMAS DRIVE
MECCA, CALIFORNIA 92254

CABAZON RESOURCE RECOVERY PARK

SYNTHETIC MINOR PERMIT APPLICATION

APPLICATION FOR NEW CONSTRUCTION

FORM NEW

OMB Control No. 2060-0003
Approval expires 04/30/2017

United States Environmental Protection Agency
Program
Address
Phone
Fax
Web address

Reviewing Authority
Program
Address
Phone
Fax
Web address

FEDERAL MINOR NEW SOURCE REVIEW PROGRAM IN INDIAN COUNTRY

Application for New Construction
(Form NEW)

Please check all that apply to show how you are using this form:

Proposed Construction of a New Source
Proposed Construction of New Equipment at an Existing Source
Proposed Modification of an Existing Source
Other - Please Explain

Please submit information to:

[Reviewing Authority
Address
Phone]

A. GENERAL SOURCE INFORMATION

1. (a) Company Name WRT Indio LLC (b) Operator Name Same		2. Source Name WRT Indio LLC	
3. Type of Operation Recycling, Waste Management		4. Portable Source? Yes No X 5. Temporary Source? Yes No X	
6. NAICS Code 562219		7. SIC Code 4953	
8. Physical Address (home base for portable sources) 62-150 Gene Welmas Drive Mecca, CA 92254			
9. Reservation*	10. County*Riverside	11a. Lat* 33.5958	11b. Long* -116.0843
12a. Quarter Quarter Section* NW ¼ of NE 1/4	12b. Section* 6	12c. Township* T7S	12d. Range* R93

*Provide all proposed locations of operation for portable sources

B. PREVIOUS PERMIT ACTIONS (Provide information in this format for each permit that has been issued to this source. Provide as an attachment if additional space is necessary)

Source Name on the Permit WRT Indio LLC
Permit Number (xx-xxx-xxxxx-xxxx.xx) N/A
Date of the Permit Action September 22, 2009

Source Name on the Permit
Permit Number (xx-xxx-xxxxx-xxxx.xx)
Date of the Permit Action

Source Name on the Permit
Permit Number (xx-xxx-xxxxx-xxxx.xx)
Date of the Permit Action

Source Name on the Permit
Permit Number (xx-xxx-xxxxx-xxxx.xx)
Date of the Permit Action

Source Name on the Permit
Permit Number (xx-xxx-xxxxx-xxxx.xx)
Date of the Permit Action

C. CONTACT INFORMATION

Company Contact Matthew Mullen	Title General Manager
Mailing Address 62-150 Gene Welmas Drive Mecca, CA 92254	
Email Address mattmullen@westenvironment.com	
Telephone Number 760-396-0222	Facsimile Number 760-396-4300
Operator Contact (if different from company contact) Same	Title
Mailing Address	
Email Address	
Telephone Number	Facsimile Number
Source Contact Matthew Mullen	Title General Manager
Mailing Address 62-150 Gene Welmas Drive Mecca, CA 92254	
Email Address mattmullen@westenvironment.com	
Telephone Number 760-396-0222	Facsimile Number 760-396-4300
Compliance Contact Matthew Mullen	Title General Manager
Mailing Address 62-150 Gene Welmas Drive Mecca, CA 92254	
Email Address mattmullen@westenvironment.com	
Telephone Number 760-396-0222	Facsimile Number 760-396-4300

D. ATTACHMENTS

Include all of the following information (see the attached instructions)

FORM SYNMIN - New Source Review Synthetic Minor Limit Request Form, if synthetic minor limits are being requested.

Narrative description of the proposed production processes. This description should follow the flow of the process flow diagram to be submitted with this application.

Process flow chart identifying all proposed processing, combustion, handling, storage, and emission control equipment.

A list and descriptions of all proposed emission units and air pollution-generating activities.

Type and quantity of fuels, including sulfur content of fuels, proposed to be used on a daily, annual and maximum hourly basis.

Type and quantity of raw materials used or final product produced proposed to be used on a daily, annual and maximum hourly basis.

Proposed operating schedule, including number of hours per day, number of days per week and number of weeks per year.

A list and description of all proposed emission controls, control efficiencies, emission limits, and monitoring for each emission unit and air pollution generating activity.

Criteria Pollutant Emissions - Estimates of Current Actual Emissions, Current Allowable Emissions, PostChange Uncontrolled Emissions, and Post-Change Allowable Emissions for the following air pollutants: particulate matter, PM_{10}, $PM_{2.5}$, sulfur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compound (VOC), lead (Pb) and lead compounds, fluorides (gaseous and particulate), sulfuric acid mist (H_2SO_4), hydrogen sulfide (H_2S), total reduced sulfur (TRS) and reduced sulfur compounds, including all calculations for the estimates.

These estimates are to be made for each emission unit, emission generating activity, and the project/source in total.

Modeling - Air Quality Impact Analysis (AQIA)

ESA (Endangered Species Act)

NHPA (National Historic Preservation Act)

E. TABLE OF ESTIMATED EMISSIONS

The following tables provide the total emissions in tons/year for all pollutants from the calculations required in Section D of this form, as appropriate for the use specified at the top of the form.

E(i) - Proposed New Source

Pollutant SEE TABLE 1	Potential Emissions (tpy)	Proposed Allowable Emissions (tpy)	
PM			PM - Particulate Matter PM_{10} - Particulate Matter less than 10 microns in size $PM_{2.5}$ - Particulate Matter less than 2.5 microns in size SOx - Sulfur Oxides NOx - Nitrogen Oxides CO - Carbon Monoxide VOC - Volatile Organic Compound Pb - Lead and lead compounds Fluorides - Gaseous and particulates H_2SO_4 - Sulfuric Acid Mist H_2S - Hydrogen Sulfide TRS - Total Reduced Sulfur RSC - Reduced Sulfur Compounds
PM_{10}			
$PM_{2.5}$			
SO_x			
NO_x			
CO			
VOC			
Pb			
Fluorides			
H_2SO_4			
H_2S			
TRS			
RSC			

Emissions calculations must include fugitive emissions if the source is one the following listed sources, pursuant to CAA Section 302(j):

(a) Coal cleaning plants (with thermal dryers);
(b) Kraft pulp mills;
(c) Portland cement plants;
(d) Primary zinc smelters;
(e) Iron and steel mills;
(f) Primary aluminum ore reduction plants;
(g) Primary copper smelters;
(h) Municipal incinerators capable of charging more than 250 tons of refuse per day;
(i) Hydrofluoric, sulfuric, or nitric acid plants;
(j) Petroleum refineries;
(k) Lime plants;
(l) Phosphate rock processing plants;
(m) Coke oven batteries;
(n) Sulfur recovery plants;
(o) Carbon black plants (furnace process);
(p) Primary lead smelters;
(q) Fuel conversion plants;
(r) Sintering plants;
(s) Secondary metal production plants;
(t) Chemical process plants
(u) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;
(v) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
(w) Taconite ore processing plants;
(x) Glass fiber processing plants;
(y) Charcoal production plants;
(z) Fossil fuel-fired steam electric plants of more that 250 million British thermal units per hour heat input, and
(aa) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

TABLE 1 - WESTERN ENVIRONMENTAL, LLC - DRYING SYSTEM EMISSIONS

WOOD COMBUSTION	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS)		EMISSION FACTOR lb/mmBtu
AIR POLLUTANT EMITTED	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled
PARTICULATE MATTER (PM)	2.66	3.45	13.34	58.45	0.417
PARTICULATE MATTER<10 MICRONS (PM10)	2.62	3.41	12.06	52.84	0.377
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	2.62	3.41	10.46	45.83	0.327
SULFUR DIOXIDE (SO2)	0.8	1.04	0.8	3.5	0.025
NITROGEN OXIDES (NOx)	15.68	20.38	15.68	68.68	0.49
CARBON MONOXIDE (CO)	19.2	24.96	19.2	84.1	0.6
VOLATILE ORGANIC COMPOUNDS (VOC)	0.54	0.71	0.54	2.38	0.017
LEAD	0.0015	0.002	0.0015	0.0067	4.8E-05

KUBOTA DIESEL ENGINE EMISSIONS	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMISSIONS (BEFORE CONTROLS/LIMITS)		EMISSION FACTOR lb/hp-hr
AIR POLLUTANT EMITTED	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled
PARTICULATE MATTER (PM)	0.19	0.3	0.19	0.84	0.0022
PARTICULATE MATTER<10 MICRONS (PM10)	0.19	0.3	0.19	0.84	0.0022
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	0.19	0.3	0.19	0.84	0.0022
SULFUR DIOXIDE (SO2)	0.04	0.06	0.04	0.15	0.000405
NITROGEN OXIDES (NOx)	2.71	4.25	2.71	11.85	0.031
CARBON MONOXIDE (CO)	0.58	0.92	0.58	2.55	0.00668
VOLATILE ORGANIC COMPOUNDS (VOC)	0.22	0.35	0.22	0.96	0.00251

DRYER EMISSIONS	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMISSIONS (BEFORE CONTROLS/LIMITS)		EMISSION FACTOR lbs/hr/ton
AIR POLLUTANT EMITTED	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled
PARTICULATE MATTER (PM)	9	11.7	1500	1950	60
PARTICULATE MATTER<10 MICRONS (PM10)	9	11.7	1500	1950	60
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	9	11.7	1500	1950	60
SULFUR DIOXIDE (SO2)					
NITROGEN OXIDES (NOx)					
CARBON MONOXIDE (CO)					
VOLATILE ORGANIC COMPOUNDS (VOC)					
LEAD					
25 tons per hour at 20% solids, with 15% carry-through from dryer to scrubber. 80% scrubber CE and 97% baghouse CE.					

SYSTEM EMISSIONS	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMISSIONS (BEFORE CONTROLS/LIMITS)		EMISSION FACTOR lbs/hr/ton	Major Source Limit
AIR POLLUTANT EMITTED	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled	tons/yr
PARTICULATE MATTER (PM)	11.85	15.45	1513.53	2009.29	60.42	70
PARTICULATE MATTER<10 MICRONS (PM10)	11.81	15.41	1512.25	2003.68	60.38	70
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	11.81	15.41	1510.65	1996.67	60.33	100
SULFUR DIOXIDE (SO2)	0.84	1.10	0.84	3.65	0.03	100
NITROGEN OXIDES (NOx)	18.39	24.63	18.39	80.53	0.52	25
CARBON MONOXIDE (CO)	19.78	25.88	19.78	86.65	0.61	100
VOLATILE ORGANIC COMPOUNDS (VOC)	0.76	1.06	0.76	3.34	0.02	25
LEAD	0.002	0.002	0.002	0.007	4.80E-05	100

D. ATTACHMENTS

D1. New Source Review Synthetic Minor Limit Request Form (Form SYNMIN)

OMB Control No. 2060-0003
Approval expires 04/30/2017

United States Environmental Protection Agency Program Address Phone Fax Web address	*Reviewing Authority* *Program* *Address* *Phone* *Fax* *Web address*

FEDERAL MINOR NEW SOURCE REVIEW PROGRAM IN INDIAN COUNTRY

Application For Synthetic Minor Limit
(Form SYNMIN)

Please submit information to:

[Reviewing Authority
Address
Phone]

A. GENERAL INFORMATION

Company Name WRT Indio LLC	Source Name WRT Indio LLC
Company Contact or Owner Name Matthew Mullen	Title General Manager
Mailing Address 62-150 Gene Welmas Drive, Mecca, California 92254	
Email Address mattmullen@westenvironment.com	
Telephone Number 760-396-0222	Facsimile Number 760-396-4300

B. ATTACHMENTS

For each criteria air pollutant, hazardous air pollutant and for all emission units and air pollutant generating activities to be covered by a limitation, include the following:

Item 1 - The proposed limitation and a description of its effect on current actual, allowable and the potential to emit.

Item 2 - The proposed testing, monitoring, recordkeeping, and reporting requirements to be used to demonstrate and assure compliance with the proposed limitation.

Item 3 - A description of estimated efficiency of air pollution control equipment under present or anticipated operating conditions, including documentation of the manufacturer specifications and guarantees.

Item 4 - Estimates of the Post-Change Allowable Emissions that would result from compliance with the proposed limitation, including all calculations for the estimates.

Item 5 - Estimates of the potential emissions of Greenhouse Gas (GHG) pollutants:

B. Attachments

Item 1 The proposed limitation and a description of its effect on current actual, allowable and the potential to emit.

WRT proposes the following limitations on the biosolids drying process to provide enforceable restrictions to ensure that emissions are less than the major source thresholds for the area.

Maximum biosolids processing rate	25 tons/hr
Biosolids moisture content	+/-80%
Dryer operating temperature range	250°F to 350°F
Biomass/wood fuel combustion (palm fronds and/or clean construction wood)	2 tons/hr at 8000 btu/lb
Heat input	32 MMBTU/Hr
Wet scrubber control efficiency	80%
Wet scrubber flow rate	minimum 20 GPM @ 60 PSI
Fabric filter baghouse control efficiency -	97.0%
Processed sludge output temperature	250°F
Processed sludge output	10 tons/hr
Annual operating hours - thermal dryer	2600
Annual operating hours - Kubota engine	2700

Item 2 The proposed testing, monitoring, record keeping, and reporting requirements to be used to demonstrate and assure compliance with the proposed limitation.

WRT proposes the following testing, monitoring, record keeping, and reporting requirements to establish enforceable limits to ensure that facility-wide emissions are less than the major source thresholds for the area.

Maintain status as a synthetic minor source with facility-wide controlled criteria pollutant emissions of less than the major source thresholds per consecutive 12-month period. Particulate Matter (PM) - 70 Particulate matter<10 microns (PM10) - 70 Particulate matter<2.5 microns (PM2.5) - 100 Sulfur Dioxide (SO2) - 100 Nitrogen Oxides (NOx) - 25 Carbon Monoxide (CO) - 100 Volatile Organic Compounds (VOC) - 25 Lead - 100
Maintain status as a minor source of Hazardous Air Pollutants (HAPS) with emissions of an single HAP of <10 tons/year and <25 tons/year of all HAPS.
Document changes in process or operations that result in increases or decreases in emissions of regulated pollutants.
Develop and maintain a procedure for determining whether process or equipment additions or modifications require a permit modification prior to the initiation of the change or any construction related to the change.
Document that the sulfur content of diesel fuel burned in the Kubota engine (EU-03) does not exceed 15 ppm using supplier certification or testing.
Record monthly and annual operating hours of Kubota engine and document limitation of total operating hour to <2700 hours per consecutive 12 month period.
Equip the Kubota engine with a non-resettable hour meter.
Maintain records of the type and amount of the liquid fuel used in the Kubota engine.
Maintain documentation from the engine manufacturer certifying that the Kubota engine complies with the Tier 2 emissions standards.
Document periodic maintenance of the biomass drying system in accordance with manufacturer's equipment recommendations.
Document that qualified facility personnel have conducted a visual external integrity inspection of the pollution control equipment at least quarterly.

Maintain records of annual air pollution control equipment inspection per specification of manufacturer.
Document the daily, monthly and annual processing, in tons, of biosolids dried in the biosolids drying system.
Record daily, monthly and annual operating hours of biosolids drying system and document limitation of total operating hour to <2600 hours per consecutive 12 month period.
Prepare and submit annual emissions report covering each permitted device by April 15 of the following year.
Develop and maintain a procedure for determining whether process or equipment additions or modifications require a permit modification prior to the initiation of the change or any construction related to the change.
Establish and maintain a plan for the identification and control of fugitive PM emissions.
Record daily, monthly and annual operating hours of the biomass combustion unit and document limitation of total operating hours to <2600 hours per consecutive 12 month period.
Maintain daily records of the type and amount, in tons, of the biomass fuels used in the biomass combustion unit to demonstrate compliance with the 2 ton per hour biomass fuel limit for the device.

Item 3 A description of estimated efficiency of air pollution control equipment under present or anticipated operating conditions, including documentation of the manufacturer specifications and guarantees.

In addition to limitations on the processing rate and hours of operation, WRT proposes to operate two air pollution control devices at all times while drying biosolids or operating the biomass combustion unit. The two air pollution control devices limit emissions of particulate matter (PM) generated by EU-01 and EU-02. The layout of the system and the control equipment is shown in Figure 2.

Both the combustion of biomass and the drying of biosolids have the potential to generate PM emissions due to the combustion system air flow through the system. The combustion system air flow provides the process drying heat at an inlet temperature of approximately 800°F at 4500 CFM. The low velocity is applied to minimize entrainment of particulate in the thermal dryer discharge. Biomass combustion emissions have been estimated using AP-42 emission factors as defined in D8. The biosolids drying emissions are based on mass balance assuming that up to 15% of the biosolids are entrained in the drying system air flow exiting the rotary dryer (EU-02).

The drying system air flow is ducted to a atomized spray wet scrubber (CD-1) to remove PM from the air stream and to quench/cool the dryer gasses to <350°F. The wet scrubber operates at 20 gpm at 60 PSI and is estimated to operate at 80% control efficiency. The drying system gasses are then ducted to a fabric filter baghouse (CD-2). For the purpose of this permit application, the baghouse PM control efficiency is assumed to be a minimum of 97% of PM prior to discharge through the process stack. The baghouse contain 1024 fabric filter bags with a rated flow of 39,649 CFM and a 4:1 air to cloth ratio.

The baghouse, fabric filter control efficiency test data from the manufacturer an the scrubber spray nozzle information is presented in Attachment D7.

Item 4 Estimates of the Post-Change Allowable Emissions that would result from compliance with the proposed limitation, including all calculations for the estimates.

Emission estimates for the proposed biosolids drying system are presented in Table 1, Section D8. A summary of the estimated emissions from the proposed system, after controls and limitations, is presented below.

SYSTEM EMISSIONS	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		Major Source Limit
AIR POLLUTANT EMITTED	lb/hr	tons/yr	tons/yr
PARTICULATE MATTER (PM)	11.85	15.45	70
PARTICULATE MATTER<10 MICRONS (PM10)	11.81	15.41	70
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	11.81	15.41	100
SULFUR DIOXIDE (SO2)	0.84	1.10	100
NITROGEN OXIDES (NOx)	18.39	24.63	25
CARBON MONOXIDE (CO)	19.78	25.88	100
VOLATILE ORGANIC COMPOUNDS (VOC)	0.76	1.06	25
LEAD	0.002	0.002	100

Item 5 Estimates of the potential emissions of Greenhouse Gas (GHG) pollutants.

The potential emission of greenhouse gasses (GHG) have been calculated in accordance with the greenhouse gas factors based on EPA Mandatory Reporting Rule Approach (40CFR Part 98) and are shown in Table 3 in Section D8.

D2. Proposed Production Process

WRT-Indio, LLC (WRT) is proposing to operate a thermal drying system to sterilize and reduce the moisture content of exceptional quality (EQ) biosolids from 80% water by weight to 20% water by weight. The sterilization ensure that bacterial contaminants are destroyed and the reduction in water content allows for efficient transport and handling of the materials.

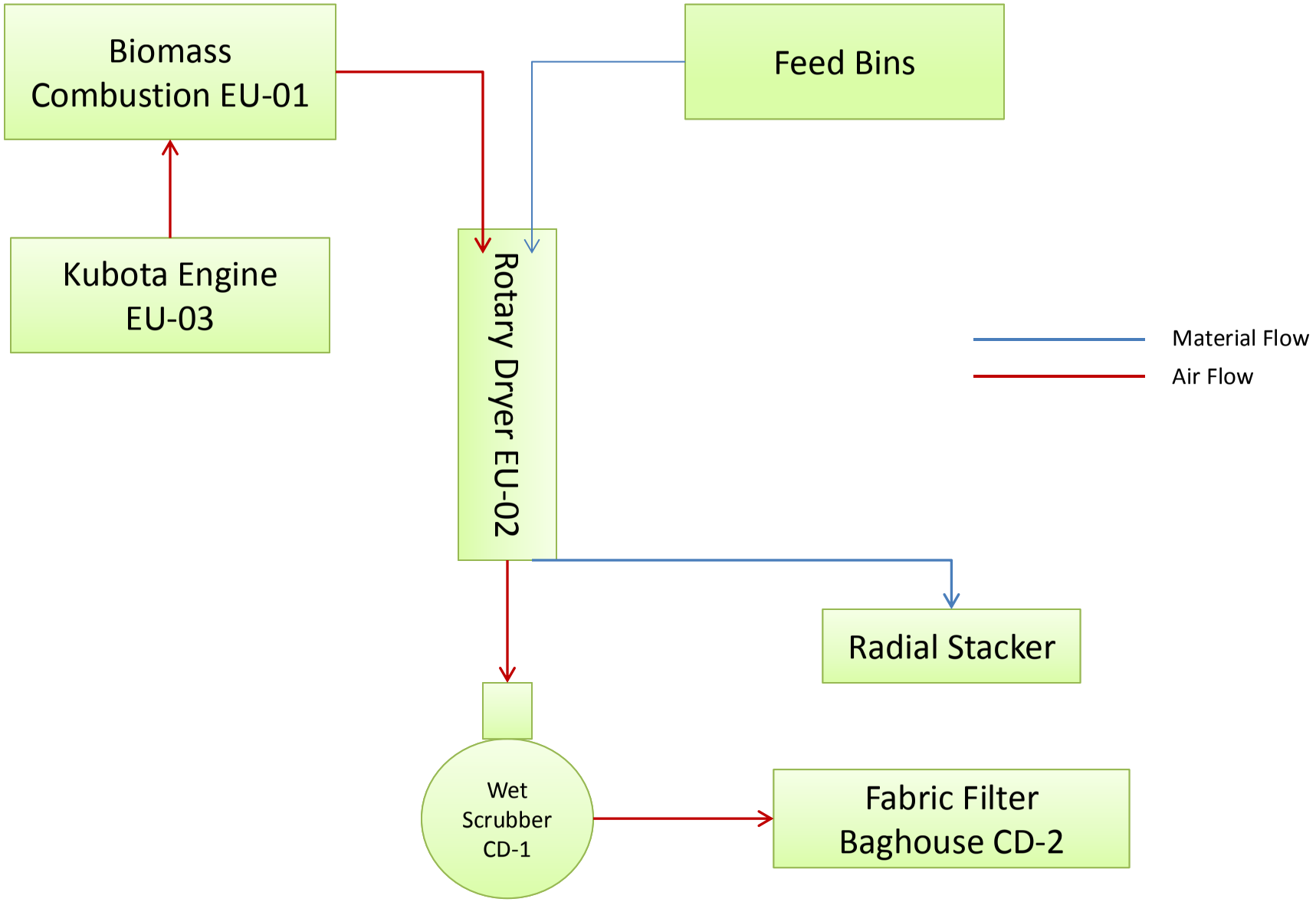
The proposed system will be located at 62-150 Gene Welmas Drive Mecca, CA 92254 within the industrial park on tribal land of the Cabazon Band of Mission Indians. A site locus is shown in Figure 1.

The drying system consists of a biomass combustion unit as the heat source, a biosolids feed unit, a rotary dryer, a wet scrubber and a fabric filter baghouse for the control of particulate emissions. The biomass combustion unit will burn palm fronds and clean construction lumber as fuel. The system will combust 2 tons per hour (32 MMBTU/hr) of biomass and the rotary dryer will process up to 25 tons per hour of biosolids. The dryer will operate within a temperature range of 250°F to 350°F to reduce the water content of the materials. The system will produce approximately 10 tons per hour of treated material with a 20% moisture content.

A process flow diagram for the system is presented in Figure 2.

Figure 1: **WRT-Indio, LLC Site Locus**

Figure 2: Biomass Combustion Unit and Biosolids Dryer



D3. Proposed Emission Units and Air Pollution-generating Activities

Emission Units

The proposed bio-solids drying operation consists of the following three emission units:

EU-01 - A two (2) ton per hour (32 MMBTU/hr) biomass combustion unit that will burn clean palm fronds and construction lumber for heat recovery. The combustion unit is a Model S-327 manufactured by Air Burners, Inc that is rated for a maximum mass processing rate of 10 tons per hour (160 MMBTU/hr).

EU-02 - A 25 ton per hour rotary dryer manufactured by Astec Industries, Model PPTU-840. The unit is 7 feet in diameter and 35 feet long. The heat source for the drying process is EU-01.

EU-03 - This emissions unit is a Kubota V3300-T-ES diesel engine. The engine drive a fan to supply combustion air to EU-01. The stationary engine is certified to EPA Tier 2 standards and will combust ultra-low sulfur diesel fuel.

Air Pollution-Generating Activities

The biomass combustion unit, EU-01, is proposed to combust 2 tons per hour of biomass for heat recovery and will generate emissions in the form of particulate matter (PM) and by-products of combustion. The combustion system generates approximately 32 MMBTU/hr of process heat based on a standard BTU value of 8000 BTU/lb of dry wood. EU-01 requires approximately 4500 CFM of combustion air to burn 2 tons per hour of biomass. This flow is produced by the fan on the Kubota engine and is vented to the thermal dryer. Estimated emissions are presented in Section D8 and summarized below.

Wood Combustion	Actual Emissions (After Controls / Limits)	
Air Pollutant Emitted	Lb/hr	Tons/yr
Particulate Matter (PM)	2.66	3.45
Particulate Matter<10 Microns (PM10)	2.62	3.41
Particulate Matter<2.5 Microns (PM2.5)	2.62	3.41
Sulfur Dioxide (SO2)	0.8	1.04
Nitrogen Oxides (NOx)	15.68	20.38
Carbon Monoxide (CO)	19.2	24.96
Volatile Organic Compounds (VOC)	0.54	0.71
Lead	0.0015	0.002

The thermal dryer (EU-02) is proposed to operate at a maximum processing rate of up to 25 tons per hour of biosolids. The material averages 80% moisture and 20% solids. The drying process produces

emissions of water and PM. The reduction of moisture from 80% to 20% produces 30,000 lbs/hr of water vapor. The rotary dryer is also estimated to entrain particulate matter in the air stream, estimated at 15% of the solids, or 3000 lbs/hr, by weight. The estimated emissions of EU-02 are presented in Section D8 and summarized below.

Thermal Dryer Emissions	Actual Emissions (After Controls / Limits)	
Air Pollutant Emitted	Lb/hr	Tons/yr
Particulate Matter (PM)	9	11.7
Particulate Matter<10 Microns (PM10)	9	11.7
Particulate Matter<2.5 Microns (PM2.5)	9	11.7
Sulfur Dioxide (SO2)		
Nitrogen Oxides (NOx)		
Carbon Monoxide (CO)		
Volatile Organic Compounds (VOC)		
Lead		

EU-03 is a stationary engine used to produce combustion air flows. The engine is rated at 87.3 HP and burns 36.6 lbs per hour of fuel (5.08 gal). The stationary engine is certified to EPA Tier 2 standards. Estimated emissions are presented in Section D8 and summarized below.

Kubota Diesel Engine Emissions	Actual Emissions (After Controls / Limits)	
Air Pollutant Emitted	Lb/hr	Tons/yr
Particulate Matter (PM)	0.19	0.3
Particulate Matter<10 Microns (PM10)	0.19	0.3
Particulate Matter<2.5 Microns (PM2.5)	0.19	0.3
Sulfur Dioxide (SO2)	0.04	0.06
Nitrogen Oxides (NOx)	2.71	4.25
Carbon Monoxide (CO)	0.58	0.92
Volatile Organic Compounds (VOC)	0.22	0.35

D4. Type and Quantity of Fuels

WRT proposes to use two fuels in the biosolids drying system. The biomass combustion unit (EU-01) will burn palm fronds and/or clean construction lumber. The palm fronds are available directly from landscaping operations and agricultural sources to be burned for energy recovery. The fuel has a estimated heat value of 8000 BTU/Lb. The operations is proposing to burn up to 2 tons per hour and yield a heat input of 32 MMBTU/Hr. Annual biomass fuel usage is projected at up to 5,200 tons. A profile form for the approval and shipment of biomass fuels to the WRT facility is found in Appendix A.

The Kubota engine will burn ultra low sulfur diesel fuel at a rate of 5.08 gallon per hour and 13,716 gallon per year. The sulfur content is a maximum of 15 ppm.

D5. Raw Materials and Final Product

The proposed biosolids drying operation will be limited to the processing of Exceptional Quality (EQ) biosolids from permitted waste water treatment facilities. The materials will enter the facility at approximately 80% by weight liquids and 20% solids. The maximum processing rate is up to 25 tons per hour or 600 tons in a 24 hour day. The maximum proposed annual processing rate is 65,000 tons.

The finished product consists of 10 tons per hour of sterilized biosolids at 20% moisture.

D6. Proposed Operating Schedule

The biosolids drying system is proposed to be operated up to 24 hours per day, five (5) days per week, with a maximum annual production rate up to 25 tons per hour for 2600 hours per year. The Kubota engine, EU-03, is proposed to operate up to 2700 hours per year to allow for short cool-down of the biomass combustion unit (EU-01).

D7. Emission Controls

In addition to limitations on the processing rate and hours of operation, WRT proposes to operate two air pollution control devices at all times while drying biosolids or operating the biomass combustion unit. The two air pollution control devices limit emissions of particulate matter (PM) generated by EU-01 and EU-02. The layout of the system and the control equipment is shown in Figure 2.

Both the combustion of biomass and the drying of biosolids have the potential to generate PM emissions due to the combustion air flow through the system. Biomass combustion emissions have been estimated using AP-42 emission factors as defined in D8. The biosolids drying emissions are based on mass balance assuming that up to 15% of the biosolids are entrained in the drying system air flow exiting the rotary dryer (EU-02).

The drying system air flow is ducted to a atomized spray wet scrubber (CD-1) to remove PM from the air stream and to quench/cool the dryer gasses to <350˚F. The wet scrubber operates at 20 gpm at 60 PSI and is estimated to operate at 80% control efficiency. The drying system gasses are then ducted to a fabric filter baghouse (CD-2). For the purpose of this permit application, the baghouse PM control efficiency is assumed to be a minimum of 97% of PM prior to discharge through the process stack. The baghouse contain 1024 fabric filter bags with a rated flow of 39,649 CFM and a 4:1 air to cloth ratio.

The fabric filter control efficiency test data from the manufacturer an the scrubber spray nozzle information is presented in Attachment D7.

D8. Emission Estimation for the Proposed Process

The WRT facility does not currently operate under an air permit.

Facility-wide emissions from the proposed biosolids drying operation have been estimated using AP-42 emission factors for biomass combustion and mass balance estimates for the thermal dryer. The theoretical potential to emit, based on 8760 hours of operation, and the controlled/limited estimated actual emission, are presented in Tables 1, 2 and 3 below. The facility is requesting limitations to enable it to operate as a synthetic minor source and the proposed emission are summarized below in relation to the major source thresholds for the area.

SYSTEM EMISSIONS	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		Major Source Limit
AIR POLLUTANT EMITTED	lb/hr	tons/yr	tons/yr
PARTICULATE MATTER (PM)	11.85	15.45	70
PARTICULATE MATTER<10 MICRONS (PM10)	11.81	15.41	70
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	11.81	15.41	100
SULFUR DIOXIDE (SO2)	0.84	1.10	100
NITROGEN OXIDES (NOx)	18.39	24.63	25
CARBON MONOXIDE (CO)	19.78	25.88	100
VOLATILE ORGANIC COMPOUNDS (VOC)	0.76	1.06	25
LEAD	0.002	0.002	100

TABLE 1 - WRT INDIO, LLC - DRYING SYSTEM EMISSIONS

WOOD COMBUSTION	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS)		EMISSION FACTOR lb/mmBtu
AIR POLLUTANT EMITTED	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled
PARTICULATE MATTER (PM)	2.66	3.45	13.34	58.45	0.417
PARTICULATE MATTER<10 MICRONS (PM10)	2.62	3.41	12.06	52.84	0.377
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	2.62	3.41	10.46	45.83	0.327
SULFUR DIOXIDE (SO2)	0.8	1.04	0.8	3.5	0.025
NITROGEN OXIDES (NOx)	15.68	20.38	15.68	68.68	0.49
CARBON MONOXIDE (CO)	19.2	24.96	19.2	84.1	0.6
VOLATILE ORGANIC COMPOUNDS (VOC)	0.54	0.71	0.54	2.38	0.017
LEAD	0.0015	0.002	0.0015	0.0067	4.8E-05

KUBOTA DIESEL ENGINE EMISSIONS	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMISSIONS (BEFORE CONTROLS/LIMITS)		EMISSION FACTOR lb/hp-hr
AIR POLLUTANT EMITTED	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled
PARTICULATE MATTER (PM)	0.19	0.3	0.19	0.84	0.0022
PARTICULATE MATTER<10 MICRONS (PM10)	0.19	0.3	0.19	0.84	0.0022
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	0.19	0.3	0.19	0.84	0.0022
SULFUR DIOXIDE (SO2)	0.04	0.06	0.04	0.15	0.000405
NITROGEN OXIDES (NOx)	2.71	4.25	2.71	11.85	0.031
CARBON MONOXIDE (CO)	0.58	0.92	0.58	2.55	0.00668
VOLATILE ORGANIC COMPOUNDS (VOC)	0.22	0.35	0.22	0.96	0.00251

DRYER EMISSIONS	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMISSIONS (BEFORE CONTROLS/LIMITS)		EMISSION FACTOR lbs/hr/ton
AIR POLLUTANT EMITTED	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled
PARTICULATE MATTER (PM)	9	11.7	1500	1950	60
PARTICULATE MATTER<10 MICRONS (PM10)	9	11.7	1500	1950	60
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	9	11.7	1500	1950	60
SULFUR DIOXIDE (SO2)					
NITROGEN OXIDES (NOx)					
CARBON MONOXIDE (CO)					
VOLATILE ORGANIC COMPOUNDS (VOC)					
LEAD					
25 tons per hour at 20% solids, with 15% carry-through from dryer to scrubber. 80% scrubber CE and 97% baghouse CE.					

SYSTEM EMISSIONS	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMISSIONS (BEFORE CONTROLS/LIMITS)		EMISSION FACTOR lbs/hr/ton	Major Source Limit
AIR POLLUTANT EMITTED	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled	tons/yr
PARTICULATE MATTER (PM)	11.85	15.45	1513.53	2009.29	60.42	70
PARTICULATE MATTER<10 MICRONS (PM10)	11.81	15.41	1512.25	2003.68	60.38	70
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	11.81	15.41	1510.65	1996.67	60.33	100
SULFUR DIOXIDE (SO2)	0.84	1.10	0.84	3.65	0.03	100
NITROGEN OXIDES (NOx)	18.39	24.63	18.39	80.53	0.52	25
CARBON MONOXIDE (CO)	19.78	25.88	19.78	86.65	0.61	100
VOLATILE ORGANIC COMPOUNDS (VOC)	0.76	1.06	0.76	3.34	0.02	25
LEAD	0.002	0.002	0.002	0.007	4.80E-05	100

TABLE 2 - WRT INDIO, LLC - DRYING SYSTEM HAZARDOUS/TOXIC AIR POLLUTANT EMISSIONS					
WOOD COMBUSTION					
	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS				**EMISSION FACTOR**
					lb/mmBtu
TOXIC AIR POLLUTANT	**CAS Num.**	**lb/hr**	**lb/day**	**lb/yr**	**uncontrolled**
Acetaldehyde (TH)	75070	0.0266	0.637	232.666	0.00083
Acrolein (TH)	107028	0.128	3.07	1121.28	0.004
Arsenic & Compounds (TH)	ASC	0.000704	0.0169	6.167	2.2E-05
Benzene (TH)	71432	0.134	3.23	1177.344	0.0042
Benzo(a)pyrene (T)	50328	8.32E-05	0.002	0.729	2.6E-06
Beryllium metal (un-reacted) (Also include in BEC) (T/H)	7440417	3.52E-05	0.000845	0.308	1.1E-06
Cadmium Metal (elemental un-reacted) –(Add w/CDC) (T/H)	7440439	0.000131	0.00315	1.149	4.1E-06
Carbon tetrachloride (TH)	56235	0.00144	0.0346	12.614	4.5E-05
Chlorine (TH)	7782505	0.0253	0.607	221.453	0.00079
Chlorobenzene (TH)	108907	0.00106	0.0253	9.251	3.3E-05
Chloroform (TH)	67663	0.000896	0.0215	7.849	2.8E-05
Di(2-ethylhexyl)phthalate (DEHP) (TH)	117817	1.5E-06	3.61E-05	0.0132	4.7E-08
Ethylene dichloride (1,2-dichloroethane) (TH)	107062	0.000928	0.0223	8.129	2.9E-05
Soluble Chromate Cmpds, as Chrome (VI) (TH)	SOLCR6	0.000112	0.00269	0.981	3.5E-06
Formaldehyde (TH)	50000	0.141	3.38	1233.408	0.0044
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (T)	57653857	5.73E-10	1.37E-08	0	1.79E-11
Hydrogen chloride (hydrochloric acid) (TH)	7647010	0.608	14.6	5326.08	0.019
Manganese & compounds (TH)	MNC	0.0512	1.23	448.512	0.0016
Mercury, vapor (Include in Mercury&Compds)(T/H)	7439976	0.000112	0.00269	0.981	3.5E-06
Methyl chloroform (TH) (1,1,1 trichloroethane)	71556	0.000992	0.0238	8.69	3.1E-05
Methyl ethyl ketone (T)	78933	0.000173	0.00415	1.514	5.4E-06
Methylene chloride (TH) (dichloromethane)	75092	0.00928	0.223	81.293	0.00029
Nickel metal (Component of Nickel & Compounds) (T/H)	7440020	0.00106	0.0253	9.251	3.3E-05
Pentachlorophenol (TH)	87865	1.63E-06	3.92E-05	0.014	5.1E-08
Perchloroethylene (tetrachloroethylene) (TH)	127184	0.00122	0.0292	10.652	3.8E-05
Phenol (TH)	108952	0.00163	0.0392	14.296	5.1E-05
Polychlorinated biphenyls (TH)	1336363	2.61E-07	6.26E-06	0.00228	8.15E-09
Styrene (TH)	100425	0.0608	1.46	532.608	0.0019
Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH)	1746016	2.75E-10	6.6E-09	2.41E-06	8.6E-12
Toluene (TH)	108883	0.0294	0.707	257.894	0.00092
Trichloroethylene (TH)	79016	0.00096	0.023	8.41	3E-05
Trichlorofluoromethane (CFC 111) (T)	75694	0.00131	0.0315	11.493	4.1E-05
Vinyl chloride (TH)	75014	0.000576	0.0138	5.046	1.8E-05
Xylene (TH)	1330207	0.0008	0.0192	7.008	2.5E-05
Highest HAP (Hydrogen chloride (hydrochloric acid)	7647010	0.608	14.592	5326.08	0.019
Total HAPs		1.24	29.76	10862.4	
KUBOTA DIESEL ENGINE EMISSIONS					
	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS				**EMISSION FACTOR**
					lb/hp-hr
TOXIC AIR POLLUTANT	**CAS Num.**	**lb/hr**	**lb/day**	**lb/yr**	**uncontrolled**
Acetaldehyde (H,T)	75070	0.000469	0.0112	1.27	5.37E-06
Acrolein (H,T)	107028	5.65E-05	0.00136	0.153	6.48E-07
Arsenic unlisted compounds (H,T)	ASC-Other	2.44E-06	5.87E-05	0.0066	2.8E-08
Benzene (H,T)	71432	0.00057	0.0137	1.54	6.53E-06
Benzo(a)pyrene (H,T)	50328	1.15E-07	2.76E-06	0.00031	1.32E-09
Beryllium metal (unreacted) (H,T)	7440417	1.83E-06	4.4E-05	0.00495	2.1E-08
1,3-Butadiene (H,T)	106990	2.39E-05	0.000573	0.0645	2.74E-07
Cadmium metal (elemental unreacted) (H,T)	7440439	1.83E-06	4.4E-05	0.00495	2.1E-08
soluble chromate compounds, as chromium (VI) equivalent	SOLCR6	1.83E-06	4.4E-05	0.00495	2.1E-08
Formaldehyde (H,T)	50000	0.000721	0.0173	1.95	8.26E-06
Manganese unlisted compounds (H,T)	MNC-Other	3.67E-06	8.8E-05	0.0099	4.2E-08
Mercury vapor (H,T)	7439976	1.83E-06	4.4E-05	0.00495	2.1E-08
Nickel metal (H,T)	7440020	1.83E-06	4.4E-05	0.00495	2.1E-08
Toluene (H,T)	108883	0.00025	0.006	0.675	2.86E-06
Xylene (H,T)	1330207	0.000174	0.004176	1.52424	2E-06
Highest HAP (Formaldehyde)	50000	0.000721	0.0173	1.95	4.2E-08
Total HAPs		0.00235	0.0564	20.586	
Sum All HAPS (Annual Lbs)		**1.24**	**29.82**	**10882.99**	**5.44 Tons/Year**

TABLE 3 - WRT INDIO, LLC - GREENHOUSE GAS EMISSIONS

WOOD COMBUSTION

GREENHOUSE GAS EMISSIONS INFORMATION (FOR EMISSIONS INVENTORY PURPOSES) - CONSISTENT WITH EPA MANDATORY REPORTING RULE (MRR) METHOD

	ACTUAL EMISSIONS		POTENTIAL EMISSIONS	
	EPA MRR CALCULATION METHOD: TIER 1			
GREENHOUSE GAS	metric tons/yr	metric tons/yr, CO2e	metric tons/yr	metric tons/yr, CO2e
CARBON DIOXIDE (CO2) - (BIOGENIC EMISSIONS*)	7,501.75	zero *	25275.13	zero *
METHANE (CH4)	2.56	53.7	8.63	180.93
NITROUS OXIDE (N2O)	0.336	104	1.13	350.40
	TOTAL	157.87		531.33

KUBOTA DIESEL ENGINE EMISSIONS

GREENHOUSE GAS EMISSIONS INFORMATION (FOR EMISSIONS INVENTORY PURPOSES) - CONSISTENT WITH EPA MANDATORY REPORTING RULE (MRR) METHOD

DISTILLATE #2	ACTUAL EMISSIONS		POTENTIAL EMISSIONS	
GREENHOUSE GAS EMITTED	EPA MRR CALCULATION METHOD: TIER 1			
	metric tons/yr	metric tons/yr, CO2e	metric tons/yr	metric tons/yr, CO2e
CARBON DIOXIDE (CO2)	140.08	140.08	454.48	454.48
METHANE (CH4)	0.00568	0.119	0.018	0.386
NITROUS OXIDE (N2O)	0.00114	0.352	0.004	1.142
	TOTAL	140.56		456.01

* BIOGENIC CO2 has 0 CO2e

Greenhouse Gas Factors Based on EPA Mandatory Reporting Rule Approach (40CFR Part 98) - http://www.epa.gov/climatechange/emissions/ghgrulemaking.html

A. CO2 from Table C-1: 93.8 kg CO2/mm Btu

B. CH4 from Table C-2: 0.03 kg CH4/MMBtu

C. N2O from Table C-2: 0 kg N2O/MMBtu

TABLE 1 - WRT INDIO, LLC - DRYING SYSTEM EMISSIONS

WOOD COMBUSTION	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS)		EMISSION FACTOR lb/mmBtu
AIR POLLUTANT EMITTED	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled
PARTICULATE MATTER (PM)	2.66	3.45	13.34	58.45	0.417
PARTICULATE MATTER<10 MICRONS (PM10)	2.62	3.41	12.06	52.84	0.377
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	2.62	3.41	10.46	45.83	0.327
SULFUR DIOXIDE (SO2)	0.8	1.04	0.8	3.5	0.025
NITROGEN OXIDES (NOx)	15.68	20.38	15.68	68.68	0.49
CARBON MONOXIDE (CO)	19.2	24.96	19.2	84.1	0.6
VOLATILE ORGANIC COMPOUNDS (VOC)	0.54	0.71	0.54	2.38	0.017
LEAD	0.0015	0.002	0.0015	0.0067	4.8E-05

KUBOTA DIESEL ENGINE EMISSIONS	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMISSIONS (BEFORE CONTROLS/LIMITS)		EMISSION FACTOR lb/hp-hr
AIR POLLUTANT EMITTED	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled
PARTICULATE MATTER (PM)	0.19	0.3	0.19	0.84	0.0022
PARTICULATE MATTER<10 MICRONS (PM10)	0.19	0.3	0.19	0.84	0.0022
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	0.19	0.3	0.19	0.84	0.0022
SULFUR DIOXIDE (SO2)	0.04	0.06	0.04	0.15	0.000405
NITROGEN OXIDES (NOx)	2.71	4.25	2.71	11.85	0.031
CARBON MONOXIDE (CO)	0.58	0.92	0.58	2.55	0.00668
VOLATILE ORGANIC COMPOUNDS (VOC)	0.22	0.35	0.22	0.96	0.00251

DRYER EMISSIONS	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMISSIONS (BEFORE CONTROLS/LIMITS)		EMISSION FACTOR lbs/hr/ton
AIR POLLUTANT EMITTED	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled
PARTICULATE MATTER (PM)	9	11.7	1500	1950	60
PARTICULATE MATTER<10 MICRONS (PM10)	9	11.7	1500	1950	60
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	9	11.7	1500	1950	60
SULFUR DIOXIDE (SO2)					
NITROGEN OXIDES (NOx)					
CARBON MONOXIDE (CO)					
VOLATILE ORGANIC COMPOUNDS (VOC)					
LEAD					
25 tons per hour at 20% solids, with 15% carry-through from dryer to scrubber. 80% scrubber CE and 97% baghouse CE.					

SYSTEM EMISSIONS	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMISSIONS (BEFORE CONTROLS/LIMITS)		EMISSION FACTOR lbs/hr/ton	Major Source Limit
AIR POLLUTANT EMITTED	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled	tons/yr
PARTICULATE MATTER (PM)	11.85	15.45	1513.53	2009.29	60.42	70
PARTICULATE MATTER<10 MICRONS (PM10)	11.81	15.41	1512.25	2003.68	60.38	70
PARTICULATE MATTER<2.5 MICRONS (PM2.5)	11.81	15.41	1510.65	1996.67	60.33	100
SULFUR DIOXIDE (SO2)	0.84	1.10	0.84	3.65	0.03	100
NITROGEN OXIDES (NOx)	18.39	24.63	18.39	80.53	0.52	25
CARBON MONOXIDE (CO)	19.78	25.88	19.78	86.65	0.61	100
VOLATILE ORGANIC COMPOUNDS (VOC)	0.76	1.06	0.76	3.34	0.02	25
LEAD	0.002	0.002	0.002	0.007	4.80E-05	100

TABLE 2 - WRT INDIO, LLC - DRYING SYSTEM HAZARDOUS/TOXIC AIR POLLUTANT EMISSIONS					
WOOD COMBUSTION					
	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS				**EMISSION FACTOR**
					lb/mmBtu
TOXIC AIR POLLUTANT	**CAS Num.**	**lb/hr**	**lb/day**	**lb/yr**	**uncontrolled**
Acetaldehyde (TH)	75070	0.0266	0.637	232.666	0.00083
Acrolein (TH)	107028	0.128	3.07	1121.28	0.004
Arsenic & Compounds (TH)	ASC	0.000704	0.0169	6.167	2.2E-05
Benzene (TH)	71432	0.134	3.23	1177.344	0.0042
Benzo(a)pyrene (T)	50328	8.32E-05	0.002	0.729	2.6E-06
Beryllium metal (un-reacted) (Also include in BEC) (T/H)	7440417	3.52E-05	0.000845	0.308	1.1E-06
Cadmium Metal (elemental un-reacted) –(Add w/CDC) (T/H)	7440439	0.000131	0.00315	1.149	4.1E-06
Carbon tetrachloride (TH)	56235	0.00144	0.0346	12.614	4.5E-05
Chlorine (TH)	7782505	0.0253	0.607	221.453	0.00079
Chlorobenzene (TH)	108907	0.00106	0.0253	9.251	3.3E-05
Chloroform (TH)	67663	0.000896	0.0215	7.849	2.8E-05
Di(2-ethylhexyl)phthalate (DEHP) (TH)	117817	1.5E-06	3.61E-05	0.0132	4.7E-08
Ethylene dichloride (1,2-dichloroethane) (TH)	107062	0.000928	0.0223	8.129	2.9E-05
Soluble Chromate Cmpds, as Chrome (VI) (TH)	SOLCR6	0.000112	0.00269	0.981	3.5E-06
Formaldehyde (TH)	50000	0.141	3.38	1233.408	0.0044
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (T)	57653857	5.73E-10	1.37E-08	0	1.79E-11
Hydrogen chloride (hydrochloric acid) (TH)	7647010	0.608	14.6	5326.08	0.019
Manganese & compounds (TH)	MNC	0.0512	1.23	448.512	0.0016
Mercury, vapor (Include in Mercury&Compds)(T/H)	7439976	0.000112	0.00269	0.981	3.5E-06
Methyl chloroform (TH) (1,1,1 trichloroethane)	71556	0.000992	0.0238	8.69	3.1E-05
Methyl ethyl ketone (T)	78933	0.000173	0.00415	1.514	5.4E-06
Methylene chloride (TH) (dichloromethane)	75092	0.00928	0.223	81.293	0.00029
Nickel metal (Component of Nickel & Compounds) (T/H)	7440020	0.00106	0.0253	9.251	3.3E-05
Pentachlorophenol (TH)	87865	1.63E-06	3.92E-05	0.014	5.1E-08
Perchloroethylene (tetrachloroethylene) (TH)	127184	0.00122	0.0292	10.652	3.8E-05
Phenol (TH)	108952	0.00163	0.0392	14.296	5.1E-05
Polychlorinated biphenyls (TH)	1336363	2.61E-07	6.26E-06	0.00228	8.15E-09
Styrene (TH)	100425	0.0608	1.46	532.608	0.0019
Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH)	1746016	2.75E-10	6.6E-09	2.41E-06	8.6E-12
Toluene (TH)	108883	0.0294	0.707	257.894	0.00092
Trichloroethylene (TH)	79016	0.00096	0.023	8.41	3E-05
Trichlorofluoromethane (CFC 111) (T)	75694	0.00131	0.0315	11.493	4.1E-05
Vinyl chloride (TH)	75014	0.000576	0.0138	5.046	1.8E-05
Xylene (TH)	1330207	0.0008	0.0192	7.008	2.5E-05
Highest HAP (Hydrogen chloride (hydrochloric acid)	7647010	0.608	14.592	5326.08	0.019
Total HAPs		1.24	29.76	10862.4	
KUBOTA DIESEL ENGINE EMISSIONS					
	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS				**EMISSION FACTOR**
					lb/hp-hr
TOXIC AIR POLLUTANT	**CAS Num.**	**lb/hr**	**lb/day**	**lb/yr**	**uncontrolled**
Acetaldehyde (H,T)	75070	0.000469	0.0112	1.27	5.37E-06
Acrolein (H,T)	107028	5.65E-05	0.00136	0.153	6.48E-07
Arsenic unlisted compounds (H,T)	ASC-Other	2.44E-06	5.87E-05	0.0066	2.8E-08
Benzene (H,T)	71432	0.00057	0.0137	1.54	6.53E-06
Benzo(a)pyrene (H,T)	50328	1.15E-07	2.76E-06	0.00031	1.32E-09
Beryllium metal (unreacted) (H,T)	7440417	1.83E-06	4.4E-05	0.00495	2.1E-08
1,3-Butadiene (H,T)	106990	2.39E-05	0.000573	0.0645	2.74E-07
Cadmium metal (elemental unreacted) (H,T)	7440439	1.83E-06	4.4E-05	0.00495	2.1E-08
soluble chromate compounds, as chromium (VI) equivalent	SOLCR6	1.83E-06	4.4E-05	0.00495	2.1E-08
Formaldehyde (H,T)	50000	0.000721	0.0173	1.95	8.26E-06
Manganese unlisted compounds (H,T)	MNC-Other	3.67E-06	8.8E-05	0.0099	4.2E-08
Mercury vapor (H,T)	7439976	1.83E-06	4.4E-05	0.00495	2.1E-08
Nickel metal (H,T)	7440020	1.83E-06	4.4E-05	0.00495	2.1E-08
Toluene (H,T)	108883	0.00025	0.006	0.675	2.86E-06
Xylene (H,T)	1330207	0.000174	0.004176	1.52424	2E-06
Highest HAP (Formaldehyde)	50000	0.000721	0.0173	1.95	4.2E-08
Total HAPs		0.00235	0.0564	20.586	
Sum All HAPS (Annual Lbs)		**1.24**	**29.82**	**10882.99**	**5.44 Tons/Year**

ATTACHMENT D7

PROCESS EQUIPMENT SPECIFICATIONS

EU-01

EU-02

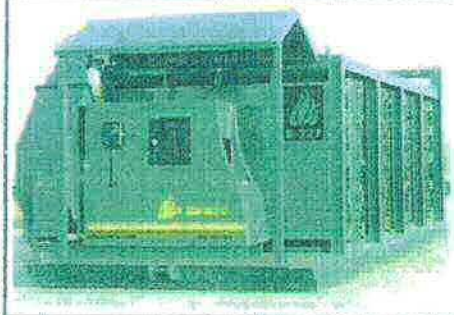
EU-03

CD-1

CD-2

EU-01

FIRE BOX SPECIFICATIONS S-327



General: A self-contained, completely assembled above ground Air Curtain Burner (air curtain incinerator or FireBox) with a refractory lined burn-container for portable and permanent (stationary) applications. Designed for the high temperature burning of forest slash, land clearing debris, green waste, storm debris, and other waste streams in compliance with the requirements of US EPA 40CFR60.

Shipped from the factory completely assembled ready for immediate use and does not require disassembly for relocation. The firebox is also used for disaster recovery and Homeland Security contingencies and for certain MSW disposal applications. Electrically powered version available for permanent (stationary) installations.

1	Power	Four cylinder Turbo Diesel Engine Kubota Model V3300-T-ES 87 HP, 65 KW, with engine mounted power take-off	
2	Burn Container (Firebox)	4" (102 mm) thick refractory panels filled with proprietary thermal ceramic material; Two full height rear doors; Two ignition holes	
3	Safety Systems	Engine over temperature shut down; Loss of cooling fluid shutdown; Loss of oil pressure shutdown	
4	Instrument Panel	Key switch, tachometer, hour meter, fuel gauge, oil pressure and water temperature indicators with safety shutdown feature and throttle; Lockable instrument panel	
5	Air Supply	Custom heavy duty fan	
6	Fuel Tank	65 Gallon (246 L) minimum fuel tank capacity	
7	Transportation & Set-up	Shipped completely assembled; Ready for immediate use; Lifting pads provided for crane lifting	
8	Options	Ash clean-out rake; Front deck security enclosure; Ember screen; Electric motor; Heat recovery; Rough-terrain removable dolly, Electric power generation (PG FireBox Series)	
9	Average Through-put	6-10 Tons per Hour (Average – See Note)	
10	Fuel Consumption	Approx. 3.5 Gal/Hr (13.3 L/Hr)	
11	Weight	54,600 lbs (24,800 kg)	
13	Dimensions	Overall Size L × W × H	Fire Box L × W × H
		37' 4" × 11' 10" × 9' 7" (11.40m × 3.6m × 2.9m)	27' 2"× 8' 5" ×8' 1" (8.3m × 2.6m × 2.46m)

Note: Achievable through-put depends on several variables, especially the nature of the waste material, the burn chamber temperature and the loading rate. All weights and dimensions are approximate and metric conversions are rounded. Subject to change without notice.

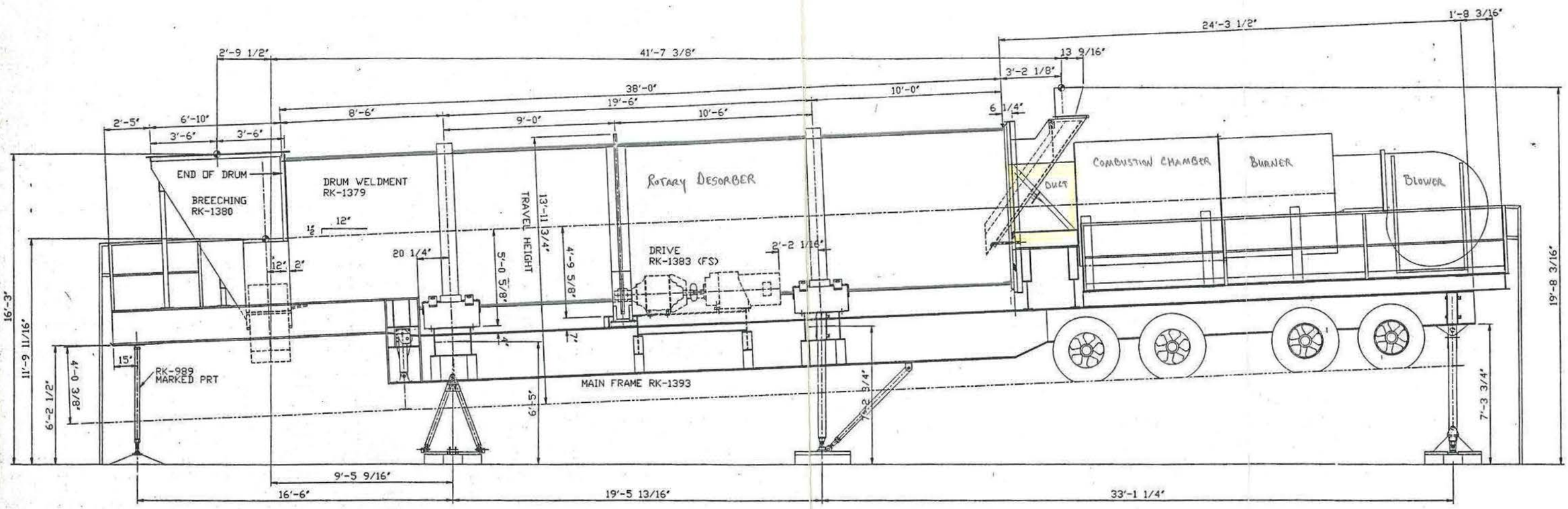
AIR BURNERS, INC.
4390 Cargo Way, Palm City, FL 34990
Phone 772-220-7303 - FAX 772-220-7302
E-mail: info@airburners.com - www.airburners.com

Rev. 02.2012

SERIAL # S27FBN05231

EU-02

FAXED 3/25/98



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1	DICHARGE & DRIVE TO FS		DJJ	11 29 93

ASTEC INDUSTRIES, INC.
P.O. BOX 72787 • 4101 JEROME AVENUE • CHATTANOOGA, TN 37407

CUSTOMER

PART NAME: PTU ELEVATION

MACHINE: PTU

DWN	CHKD	APPR	DATE
DANIEL J JONES			11 16 93

JOB NO	SHEET	SCALE	DWG NO	REV
93 162	SIMILAR TO DWG. RK-558	3/8" = 1'	RK-1423	1

RK-1423

EU-03

Kubota Diesel Engine V3300/V3300-T

Introduction | Model V3300 | Model V3300-T | Kubota Diesel Engine Listing

Specifications

No. of Cylinders		4
Bore x Stroke	mm (in)	98.0 x 110.0 (3.86 x 4.33)
Displacement	L (cu.in.)	3.318 (202.53)
Combustion System		E-TVCS
Intake System		Turbo charged
Cooling System		Radiator cooling
Starter Capacity	V-A	12-2.5
Alternator Capacity	V-A	12-60
Dry Weight with SAE Flywheel & Housing	kg (lbs)	280 (617.0)
No Load High Idling Speed	rpm	2800
No Load Low Idling Speed	rpm	700-750
Direction of Rotation		Counterclockwise (viewed from flywheel side)
Governing		Centrifugal flyweight high speed governor
Fuel		Diesel fuel No. 2-D (ASTM D975)

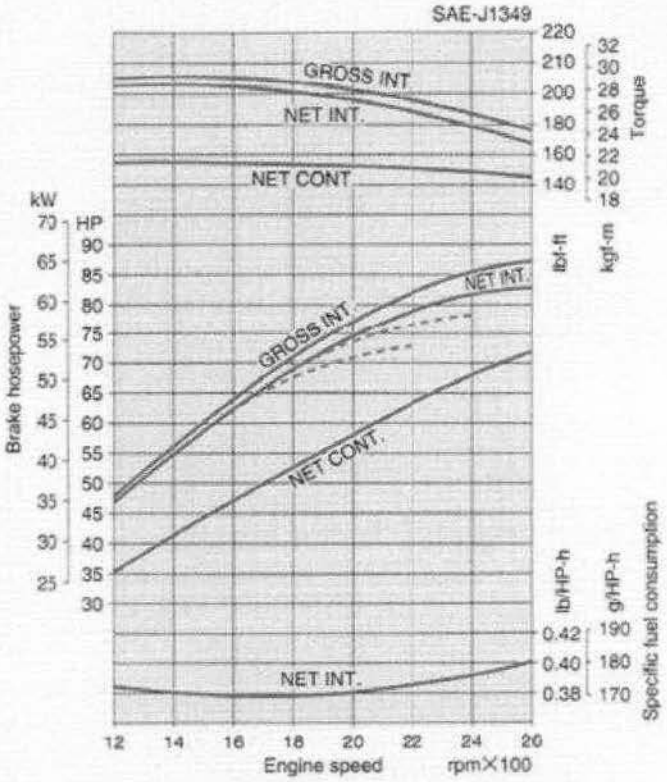
Output

Gross Intermitent	kW (HP)/rpm	65.2 (87.4)/2600
Net Intermitent	kW (HP)/rpm	61.9 (83.0)/2600

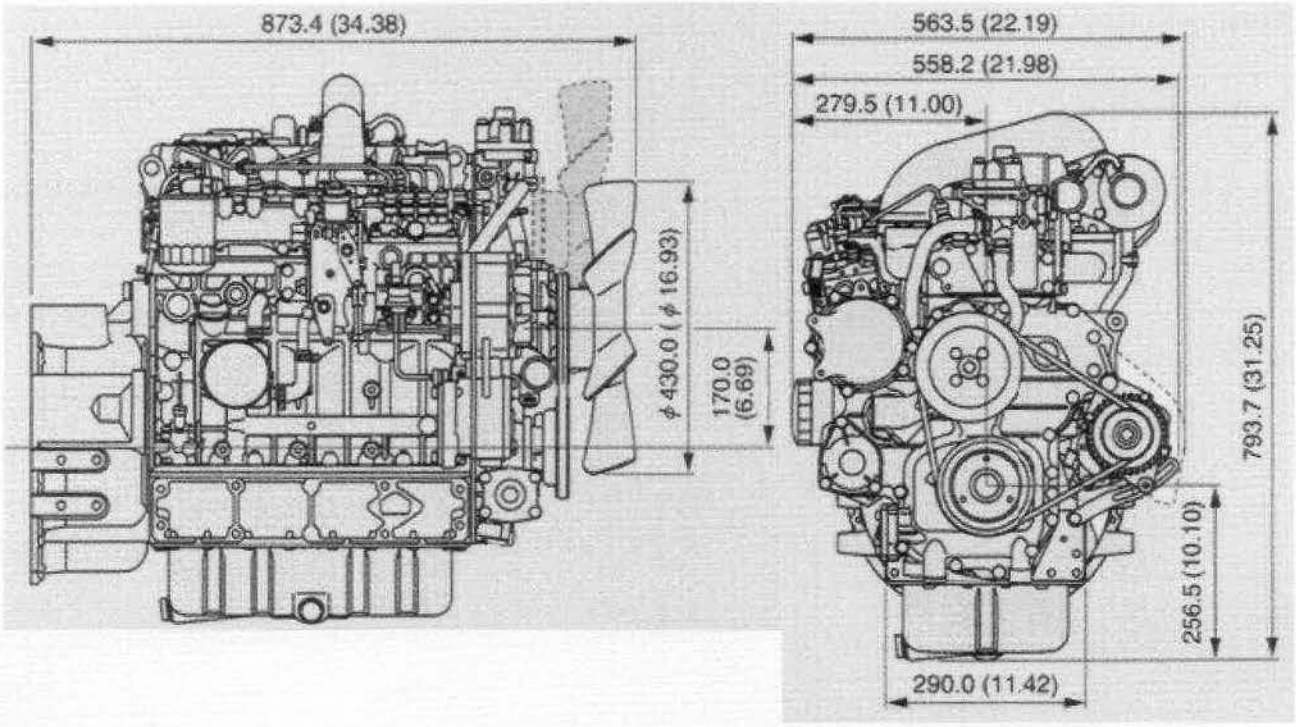
Net Continuous	kW (HP)/rpm	53.8 (72.1)/2600

*Specifications are subject to change without notice. *Dry weight is according to Kubota's standard specification. When specification varies, the weight will vary accordingly.

Performace Curve

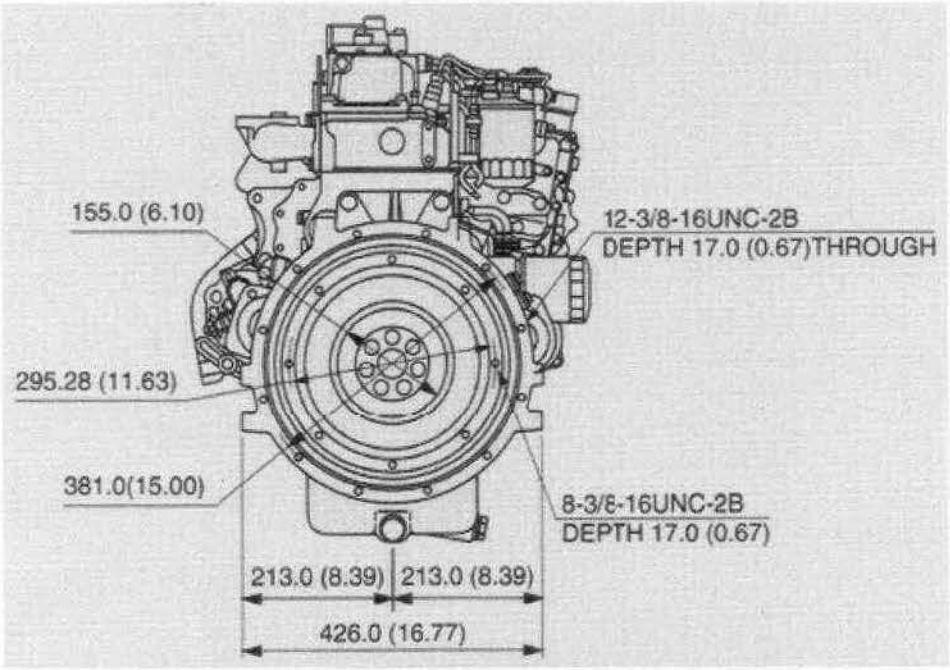


Dimensions mm (inch)



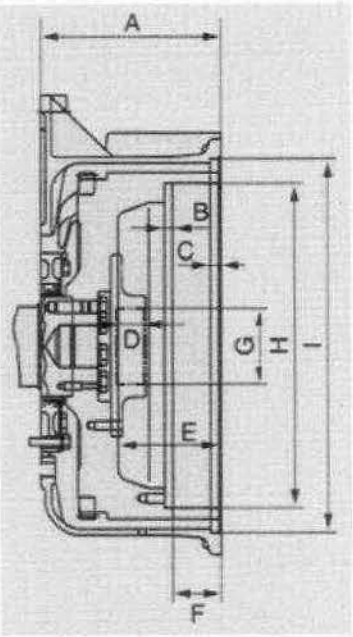
SAE Flywheel and Housing: mm (inch)

SAE No.4 Housing



Clutch No.10 Flywheel

A	171.5 (6.75)
B	8.0 (0.31)
C	10.0 (0.39)
D	28.0 (1.10)
E	100.1 (3.94)
F	45.8 (1.80)
G	$\phi 72.0^{+0.030}_{0}$ (ø2.8346-2.8458)
H	$\phi 314.32H8^{+0.081}_{0}$ (ø12.378-12.3780)
I	$\phi 361.95H8^{+0.089}_{0}$ (ø14.2500-14.2535)



Introduction | Model V3300 | Model V3300-T | Kubota Diesel Engine Listing

DieselEngineMotor.Com Home | Generators | Parts | Privacy Policy

CD-1

SpiralJet® Spray Nozzles, Standard and Extra Large Free Passage Spray

Features and Benefits

- Solid cone-shaped spray pattern with round impact area.
- Maximum liquid throughput for a given pipe size.
- Maximum free passage design minimizes clogging on HHSJX.
- Compact size enables easy installation or retrofit on most pipe systems.

HHSJ

Threaded/hex
Brass or 316 Stainless Steel
1/4" to 2" NPT or BSPT (M)

HHSJ

Threaded/flats
Cast 316 Stainless Steel
1/4" to 4" NPT or BSPT (M)

HHSJ

Threaded/round
PVC or PTFE
1/4" to 4" NPT or BSPT (M)

HHSJX

Threaded/hex
Brass
3/8" to 2" NPT or BSPT (M)

HHSJX

Threaded/flats
Cast 316 Stainless Steel
3/8" to 2" NPT or BSPT (M)

HHSJX

Threaded/round
PVC or Polypropylene
3/8" to 2" NPT or BSPT (M)

Optimization Tips

• See page B2 for optimization tips.

Applications

- Aerating
- Chemical processing
- Fire suppression/prevention
- Gas scrubbing, cooling
- Washing/rinsing

See Also

- Accessories
  - Adjustable ball fittings
  - Check valves
  - Pressure gauges
  - Pressure regulators
  - Pressure relief valves
  - Solenoid valves
  - Split-eyelet connectors
  - Strainers

Performance Data

HHSJ

*At the stated pressure in psi.

Inlet Conn. (in.)	Spray Angle at 10 psi (°)					Capacity Size	Orifice Dia. Nom. (in.)	Max. Free Passage Dia. (in.)	Capacity (gallons per minute)*				
	60	90	120	150	170				10	20	40	100	400
1/4						07	.094	.094	.70	.99	1.4	2.2	4.4
						13	.125	.125	1.3	1.8	2.6	4.1	8.2
						20	.156	.125	2.0	2.8	4.0	6.3	12.6
3/8						07	.094	.094	.70	.99	1.4	2.2	4.4
						13	.125	.125	1.3	1.8	2.6	4.1	8.2
						20	.156	.125	2.0	2.8	4.0	6.3	12.6
						30	.188	.125	3.0	4.2	6.0	9.5	19.0
						40	.219	.125	4.0	5.7	8.0	12.6	25
						53	.250	.125	5.3	7.5	10.6	16.8	34
						82	.313	.125	8.2	11.6	16.4	26	52
1/2						120	.375	.188	12.0	17.0	24	38	76
						164	.438	.188	16.4	23	33	52	104
						210	.500	.188	21	30	42	66	133
3/4						210	.500	.188	21	30	42	66	133
1						340	.625	.250	34	48	68	108	215
						470	.750	.250	47	66	94	149	297
1-1/2						640	.875	.313	64	91	128	202	405
						820	1.000	.313	82	116	164	259	519
						960	1.125	.313	96	136	192	304	607
2						1400	1.375	.438	140	198	280	443	885
						1780	1.500	.438	178	252	356	563	1126
3						2560	1.750	.563	256	362	512	810	1619
						3360	2.000	.563	336	475	672	1063	2125
4						5250	2.500	.625	525	742	1050	1660	3320

HHSJX

*At the stated pressure in psi.

Inlet Conn. (in.)	Spray Angle at 10 psi (°)		Capacity Size	Orifice Dia. Nom. (in.)	Max. Free Passage Dia. (in.)	Capacity (gallons per minute)*				
	90	120				10	20	40	100	400
3/8			30	.188	.188	3.0	4.2	6.0	9.5	19.0
			40	.219	.219	4.0	5.7	8.0	12.6	25
			53	.250	.250	5.3	7.5	10.6	16.8	34
			82	.313	.313	8.2	11.6	16.4	26	52
1/2			120	.375	.375	12.0	17.0	24	38	76
			164	.438	.438	16.4	23	33	52	104
3/4			210	.500	.500	21	30	42	66	133
1			340	.625	.625	34	48	68	108	215
			470	.750	.750	47	66	94	149	297
1-1/2			640	.875	.875	64	91	128	202	405
			820	1.000	1.000	82	116	164	259	519
			960	1.125	1.125	96	136	192	304	607
2			1400	1.375	1.375	140	198	280	443	885
			1780	1.500	1.500	178	252	356	563	1126

Maximum Free Passage Diameter is the maximum diameter as listed of foreign matter that can pass through the nozzle without clogging.

SpiralJet® Spray Nozzles, Standard and Extra Large Free Passage Spray

Dimensions and Weights

Standard	Nozzle Type	Inlet Conn. (in.)	Length (in.)	Hex. (in.)	Net Weight (oz.)
	HHSJ (M)	1/4	2-1/8	9/16	1
		3/8	2-3/8	11/16	1-3/4
		1/2	3-1/8	7/8	3-1/2
		3/4	3-7/16	1-1/16	5-3/8
		1	4-9/16	1-3/8	10
		1-1/2	6-3/4	2	27
		2	6-7/8	2-1/2	35
		3	11-7/8	3-3/4	92
		4	9	4-1/2	10-1/4 lbs.
	HHSJX (M)	3/8	2-3/4	7/8	3
		1/2	3-3/8	1-1/16	4-1/2
		3/4	4-5/8	1-3/8	8
		1	5-1/8	1-3/4	18
		1-1/2	6-3/4	2	30
		2	11	3	88

Based on largest/heaviest version of each type.

Materials

Material	Material Code	Nozzle Type	
		HHSJ	HHSJX
Bar Stock:			
Brass	(none)		
Polypropylene	PP		
Polyvinyl Chloride	PVC		
PTFE	TEF		
Cast:			
316 Stainless Steel	SS		

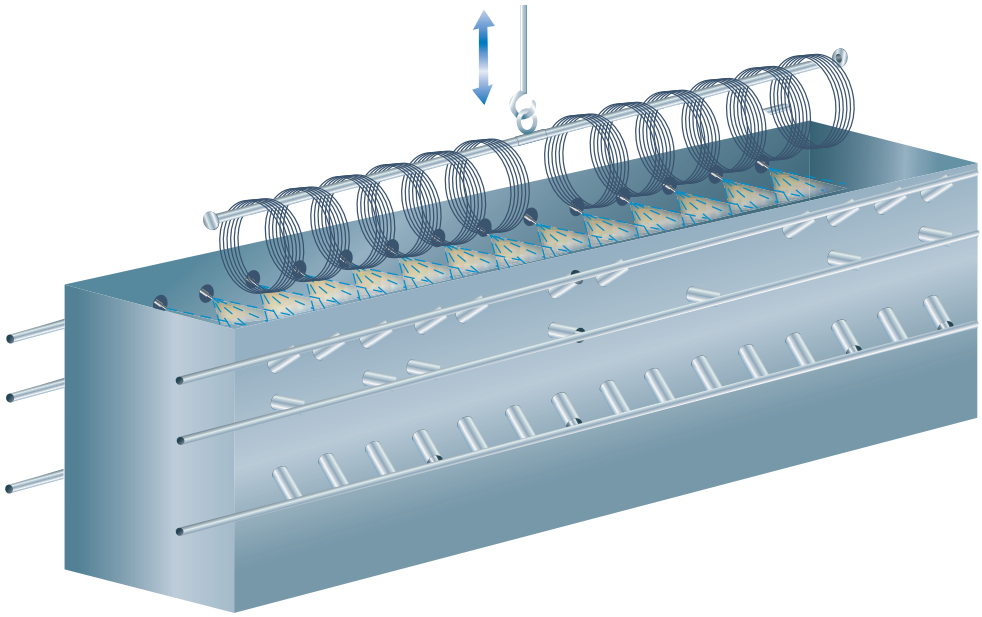
Other materials available upon request.

Ordering Info

STANDARD SPRAY NOZZLE

1/4	HHSJ	– SS	120	07
Inlet Conn.	Nozzle Type	Material Code	Spray Angle	Capacity Size
3/8	HHSJX	– SS	120	30
Inlet Conn.	Nozzle Type	Material Code	Spray Angle	Capacity Size

BSPT connections require the addition of a "B" prior to the inlet connection.



SpiralJet spray nozzles used to rinse wire coils in pickling line.

CD-2

VIII. PORTABLE PULSE JET BAGHOUSE, MODEL PBH-40:SR, FOR 40,000 CFM DRAFT SYSTEM WITH A 4:1 AIR-TO-CLOTH RATIO.

GENERAL:

Final gas treatment will be accomplished by a highly portable baghouse system which filters the exhaust air stream for particulates. Baghouse is transported while fully assembled and requires no erection other than duct connections, plug-in cable connections and tilt-up of handrails.

Highly portable baghouse has 1024 bags for 4:1 air-to-cloth ratio at 39,649 acfm.

VIII. PORTABLE PULSE JET BAGHOUSE, MODEL PBH-40:SR, FOR 40,000 CFM DRAFT SYSTEM WITH A 4:1 AIR-TO-CLOTH RATIO CONT.

4-5/8" diameter x 8' long P-84 bags insure top quality bag material to give excellent dust release and long life.

P-84 bags are designed with snap-band fit. Zinc-coated cages are of drop-in design with built-in venturis that save time when changeout or inspection of bags is necessary.

Interior of the baghouse has a synthetic chemical coating, designed with excellent heat and acid resistance, to reduce potential for metal corrosion from condensation.

Baghouse walls are made of 1/4" thick steel plate with formed stiffeners to give longer life, improve operating conditions at higher operating pressures and reduce long range leaks.

Knock-out of larger particles, and uniform air distribution, is accomplished with an oversized entrance chamber built into baghouse.

Tube sheet is made of heavy reinforced steel plate for rigid bag support. Tube sheet is seal welded to eliminate leaks.

High and low temperature controls protect the bags during start up and plant operation. If temperature reaches high set point, the burners shut down. If temperature goes down to low set point, an alarm alerts the operator.

One (1) 50 HP screw compressor is provided for operation of baghouse and heat exchanger. Unit is air cooled and has an aftercooler with 200 gallon reservoir. Compressor capacity is 226 cfm @ 125 psig; includes a suction air filter, relief valve pressure gauge, a push button stop/start control, and belt guard.

A high pressure backward curve blade fan for high exhaust efficiency includes two (2) 125 HP motors, drive, one auto-transformer starter and one across-the-line starter. Motors are standard straight wound.

Three (3) 12" gathering screws move collected dust to a 12" cross screw with a 12" rotary air lock. 5 HP shaft mounted drives include positive displacement indicators.

Baghouse has a ladder for access to the top and guardrails for safety and convenient access.

VIII. PORTABLE PULSE JET BAGHOUSE, MODEL PBH-40:SR, FOR 40,000 CFM DRAFT SYSTEM WITH A 4:1 AIR-TO-CLOTH RATIO CONT.

Exhaust stack is 30' from grade and has sampling ports built-in for stack testing.

Baghouse fan, air compressor and rotary airlock are all factory installed on the baghouse.

Exhaust fan inlet is equipped with an automatic quick action radial inlet damper with electric actuator for precise control of system air-flow. Draft is controlled via a suction tube signal from the burner end of the drum measuring the negative pressure. This signal opens and closes the damper, precisely controlling the system draft.

High temperature shut-off is built-in to protect the bags during a high temperature condition.

Bags and cages are factory installed from the top.

All power and control wiring for the baghouse is complete and in conduit located on the unit.

Plant power panel is mounted to the frame of the baghouse. This central location means shorter and fewer cables to pull in the field.

Connecting ductwork to heat exchanger system is round and has telescoping flanges for easy fit-up in the field.

Dual 11:00 x 22.5 tires with Dayton wheels are mounted on triple axles.

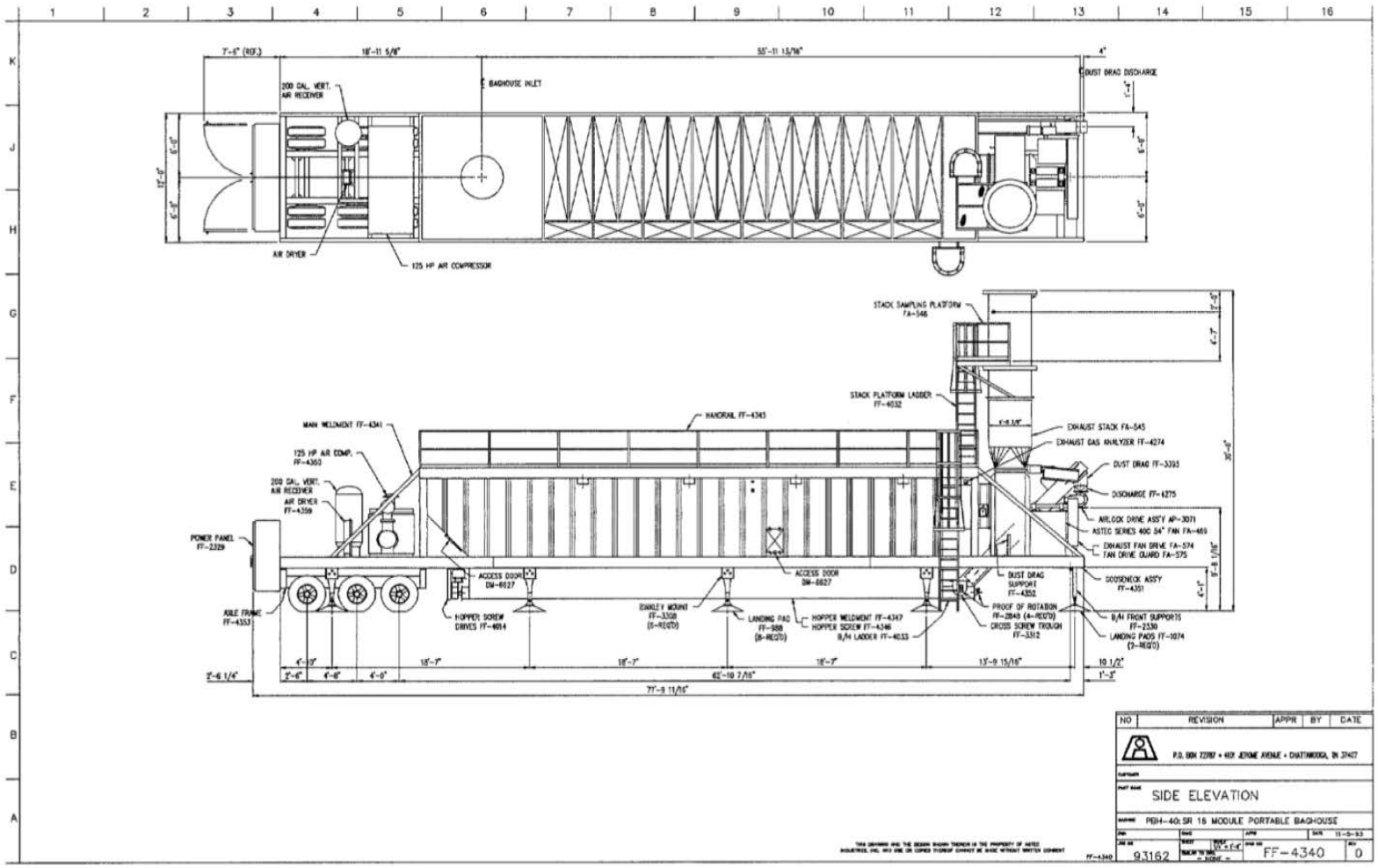
Air bag suspension system gives the smoothest possible ride to protect equipment on the road and aids in erection by allowing leveling of the baghouse before putting weight on the legs.

Air brakes, stop and turn signals, king pin and glad hands provide safe portability.

Landing jacks are provided for easier tractor hook-up and disconnect as well as allowing temporary parking of the baghouse between moves without blocking the gooseneck.

A 12" diameter screw auger system continually moves fines from the baghouse to the processed material discharge system.

Telescoping support legs are equipped with steel plate foundation pads.



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P.O. BOX 72787 • 402 JEROME AVENUE • CHATTANOOGA, TN 37407

SIDE ELEVATION

PBH-40; SR 16 MODULE PORTABLE BAGHOUSE

JOB NO. 93162	SCALE 1/4"=1'-0"	DWG NO. FF-4340	REV. 0

FF-4340

Southern Felt

FELT SPECIFICATION SHEET

PRODUCT SPECIFICATION SHEET: 2477 **DATE : 3/10/2016**

STYLE : AXFL-13.5-US
DESCRIPTION :
13.5 OZ/YD2 FIBERLOX ARAMID NEEDLEFELT WITH A SINGE ONE SIDE FINISH.

CONSTRUCTION: UNSUPPORTED NEEDLEFELT.
FINISH: HEATSET, SINGED ONE SIDE.

WEIGHT (OPSY)	THICKNESS (INCHES)	AIR FLOW RANGE (CFM)
13.00 - 14.50	0.070 - 0.090	25 - 45

STRENGTH : MULLEN : 450 PSI. MIN.
WARP TENSILE : 150 LBS. MIN.
FILL TENSILE : 150 LBS. MIN.
ELONGATION : BOTH DIRECTIONS : 3 % MAX. (LBS. - 2")

SHRINKAGE : BOTH DIRECTIONS : 3 % MAX. @ 450 DEGREES F FOR 2 HOURS

RESISTIVITY: < 0 @ 0 VOLTS

Lydall®
Industrial Filtration Americas

TESTING OF BAGHOUSE FILTRATION PRODUCTS

SOUTHERN FELT SUMMARY OF RESULTS AT 6.6/1

DATE: 11/01/04

RUN ID.	**134-R2**
FABRIC DESIGNATION	**NX-13.5/5-US-1**
MANUFACTURER	**Southern Felt**
DUST FEED	**Pural NF**

VERIFICATION TEST RESULTS

Mean Outlet Particle Conc. PM 2.5 (gr/dscf)	0.0000582
Mean Outlet Particle Conc. Total mass (gr/dscf)	0.0000582
Initial Residual Pressure Drop (in. w.g.)	1.07
Change in Residual Pressure Drop (in. w.g.)	0.24
Average Residual Pressure Drop (in. w.g.)	1.22
Mass Gain of Filter Sample (g)	1.81
Average Filtration Cycle Time (s)	112
Number of Pulses	193

RESIDUAL PRESSURE DROP

At Start of:	
Conditioning Period (in. w.g.)	0.06
Recovery Period (in. w.g.)	0.96
Performance Test Period (in. w.g.)	1.07

REMOVAL EFFICIENCY (%)

Dust Conc (gr/dscf)	7.95	
PM 2.5	99.99905	*
Total Mass	99.99927	**

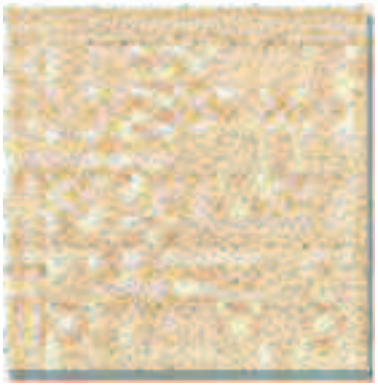
* (Dust Concentration * 0.7735) - PM
Dust Concentı

** Dust Concentration - Tota
Dust Concentration

STANDARD FILTER
CORPORATION
Phone: 760.929.8559 • 1.800.634.8537 • Fax: 760.929.1901 • www.standardfilter.com
5928 Balfour Court • Carlsbad, California 92008

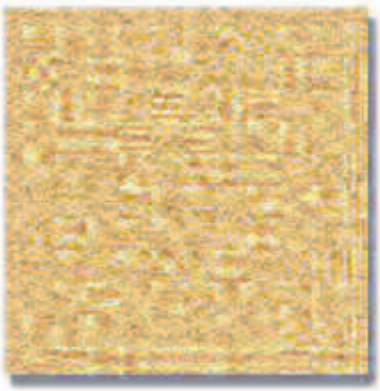
High Temperature Materials

CONEX®/NOMEX® FELT (Aramid)



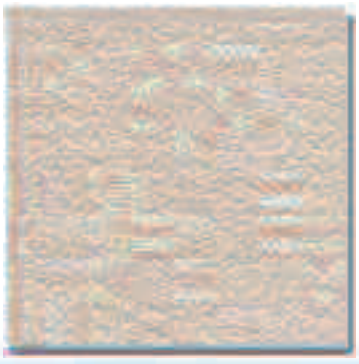
Recommended continuous operation temperature:	400°F
Maximum (short time) operation temperature:	425°F
Supports combustion:	No
Biological resistance (bacteria, mildew):	No Effect
Resistance to alkalies:	Good
Resistance to mineral acids:	Fair
Resistance to organic acids:	Fair+
Resistance to oxidizing agents:	Poor
Resistance to organic solvents:	Good+
Available weights:	10 oz. - 22 oz.

P84® FELT/POLYIMIDE



Recommended continuous operation temperature:	475°F
Maximum (short time) operation temperature:	500°F
Supports combustion:	No
Biological resistance (bacteria, mildew):	No Effect
Resistance to alkalies:	Fair
Resistance to mineral acids:	Good+
Resistance to organic acids:	Good+
Resistance to oxidizing agents:	Good+
Resistance to organic solvents:	Excellent
Available weights:	14 oz. - 18 oz.

RYTON® FELT/PPS



Recommended continuous operation temperature:	375°F
Maximum (short time) operation temperature:	400°F
Supports combustion:	No
Biological resistance (bacteria, mildew):	No Effect
Resistance to alkalies:	Excellent
Resistance to mineral acids:	Excellent
Resistance to organic acids:	Excellent
Resistance to oxidizing agents:	Fair
Resistance to organic solvents:	Excellent
Available weights:	16 oz. - 18 oz.

STANDARD FILTER CORPORATION

Phone: 760.929.8559 • 1.800.634.8537 • Fax: 760.929.1901 • www.standardfilter.com
5928 Balfour Court • Carlsbad, California 92008

High Temperature Material Specifications

14 oz. CONEX®

STYLE	*CX14SS*
PRIMAR Y APPLICA TIONS	DRY FILTRATION
PROPER TY	U.S. SYSTEM
FIBER CONTENT	100% ARAMID
CONSTRUCTION	NEEDLE PUNCHED, SCRIM-SUPPOR TED
WEIGHT	14 OZ./SQ YD. NOM.
THICKNESS	0.065"- 0.085"
FINISH	SINGED
MULLEN	400 PSI MIN.
PERMEABILITY	25 - 40 CFM @ 0.5"W.G.
TEMPERA TURE	400°F CONTINUOUS TO 425°F SURGE

16 oz. CONEX®

STYLE	*CX16SS*
PRIMAR Y APPLICA TIONS	DRY FILTRATION
PROPER TY	U.S. SYSTEM
FIBER CONTENT	100% ARAMID
CONSTRUCTION	NEEDLE PUNCHED, SCRIM-SUPPOR TED
WEIGHT	16 OZ./SQ YD. NOM.
THICKNESS	0.070" - 0.090"
FINISH	SINGED
MULLEN	500 PSI MIN.
PERMEABILITY	20 - 30 CFM @ 0.5" W.G.
TEMPERA TURE	400°F CONTINUOUS TO 425°F SURGE

14 oz. NOMEX®

STYLE	*NX14SS*
PRIMAR Y APPLICA TIONS	DRY FILTRATION
PROPERTY	U.S. SYSTEM
FIBER CONTENT	100% DUPONT ARAMID
CONSTRUCTION	NEEDLE PUNCHED, SCRIM-SUPPOR TED
WEIGHT	14 OZ./SQ YD. NOM.
THICKNESS	0.055"- 0.075"
FINISH	SINGED
MULLEN	350 PSI MIN.
PERMEABILITY	25 - 35 CFM @ 0.5" W.G.
TEMPERA TURE	400°F CONTINUOUS TO 425°F SURGE

16 oz. NOMEX®

STYLE	*NX16SS*
PRIMAR Y APPLICA TIONS	DRY FILTRATION
PROPERTY	U.S. SYSTEM
FIBER CONTENT	100% DUPONT ARAMID
CONSTRUCTION	NEEDLE PUNCHED, SCRIM-SUPPOR TED
WEIGHT	16 OZ./SQ YD. NOM.
THICKNESS	0.060"- 0.080"
FINISH	SINGED
MULLEN	400 PSI MIN.
PERMEABILITY	20 - 35 CFM @ 0.5" W.G.
TEMPERA TURE	400°F CONTINUOUS TO 425°F SURGE

14 oz. P84®

STYLE	*P814SS*
PRIMAR Y APPLICA TIONS	DRY FILTRATION
PROPER TY	U.S. SYSTEM
FIBER CONTENT	100% P84
CONSTRUCTION	NEEDLE PUNCHED, SCRIM-SUPPOR TED
WEIGHT	14 OZ./SQ YD. NOM.
THICKNESS	0.080"- 0.100"
FINISH	SINGED
MULLEN	350 PSI MIN.
PERMEABILITY	25 - 45 CFM @ 0.5"W.G.
TEMPERA TURE	475°F CONTINUOUS TO 500°F SURGE

14 oz. RYTON®

STYLE	*R Y16SS*
PRIMAR Y APPLICA TIONS	DRY FILTRATION
PROPER TY	U.S. SYSTEM
FIBER CONTENT	100% RYTON
CONSTRUCTION	NEEDLE PUNCHED, SCRIM-SUPPOR TED
WEIGHT	16 OZ./SQ YD. NOM.
THICKNESS	0.055"- 0.080"
FINISH	SINGED
MULLEN	380 PSI MIN.
PERMEABILITY	25 - 45 CFM @ 0.5"W.G.
TEMPERA TURE	375°F CONTINUOUS TO 400°F SURGE

All specifications subject to change in order to improve product performance.

APPENDIX A

BIOMASS PROFILE: GENERATOR MATERIAL SHEET

GENERATOR MATERIAL SHEET

(Please carefully read instructions before completing this form. Please Print in Ink or Type)

1. Billing Information

1. Billing Party Name:
2. Mailing Address:
3. Contact:
4. Phone:
5. Fax:

2. Generator Information

1. Generator Name:			
2. Generator Site Address:			
3. City:	***Country:***	***State:***	***Zip:***
4. Generator US EPA Identification Number:			***SIC Code No.***
5. Generator Mailing Address (if Different):			
6. City:	***Country:***	***State:***	***Zip:***
7. Generator Contact Name:			
8. Phone Number:		***9. Fax Number:***	

3. Material Properties and Composition

10. (A) Material Generation:
10. (B) Is the material considered US EPA HAZARDOUS WASTE (40 CFR Part 261)?
11. (a) Material Name:
11. (b) US DOT Proper Shipping Name:

12. Physical State	***□ Chipped □ Not Chipped***
13. Method of Shipment	***□ Roll Off □ End Dump □ Other Explain***
14: Estimated Volume:	***Cubic Yards _____ Tons _____***
15: Is this material suitable and intended for Energy Recovery:	***□ Yes □ No If Yes _____ BTU/Lb _____ Wt% Moisture***

4. Characteristic Components

Does this material contain regulated concentrations of listed hazardous wastes defined by § 40 CFR 261.31.261.32.261.33 including RCRA F Listed Solvents	***Yes or No***
Does this material contain any PCB's halogens or dioxins?	***Yes or No***
Is this a regulated Toxic Material as defined by State or Federal Regulations	***Yes or No***
Does this material exhibit any characteristics of Radioactivity as defined by State or Federal Regulations?	***Yes or No***
Does this material contain any Infectious or Medical Waste as defined by State or Federal Regulations?	***Yes or No***
If this material is intended for Energy Recovery, does it contain any treated or painted wood or other debris?	***Yes or No***

Payment on this project is due net 30 days, unless agreed otherwise in writing. Certificates will be issued once payment for the above job is paid in full. Client/generator will be responsible for all the collection fees and late payment charges. WRT reserves the right to test all inbound loads for possible odor before acceptance. By signing this profile, the Client is confirming that the material can and will be used for energy recovery and is not considered a waste.

Generator Certification

I hereby certify that all information submitted in this and all attached documents contain true and accurate descriptions of the material. All relevant information regarding known or suspected hazards in possession of the generator has been disclosed. I authorize Waste Reduction Technologies LLC. to obtain a sample from any material shipment for purposes of identifying the material. If this certification is made by a broker, the undersigned signs as authorized agent of the generator and has confirmed the information contained in the Material Sheet from information provided by the generator and additional information as it has determined to be reasonably necessary.

_____ _____ _____

Signature Printed (or typed) name and title Date