

BIOREFINING PROCESS SITE PRE-AUDIT FORM

Audit Date: _____

Auditor Name: _____

Auditor Title: _____

Phone: _____ Fax: _____

Email: _____

Customer Name: _____

Street: _____

City: _____ State: _____ Zip Code: _____

Shipping Address

Street: _____

City: _____ State: _____ Zip Code: _____

Contact Person: _____

Title: _____

Phone: _____ Fax: _____

Email: _____



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Plant Specifications — Section 1

Engineering Design	<input type="checkbox"/> ICM <input type="checkbox"/> Delta-T <input type="checkbox"/> Vogelbusch <input type="checkbox"/> Katzen <input type="checkbox"/> Lurgi <input type="checkbox"/> Praj <input type="checkbox"/> Other
Actual Yearly Production of Ethanol (Million Liter/Year)	
Feed Stock in Use	<input type="checkbox"/> Corn <input type="checkbox"/> Milo <input type="checkbox"/> Corn/Milo Blend <input type="checkbox"/> Wheat <input type="checkbox"/> Sugar Beet/Cane <input type="checkbox"/> Cellulosic <input type="checkbox"/> Other
Propagation Process	<input type="checkbox"/> Batch <input type="checkbox"/> Continuous <input type="checkbox"/> Semi-Continuous <input type="checkbox"/> Other
Comments Related to Propagation Process	
Fermentation Process	<input type="checkbox"/> Batch <input type="checkbox"/> Continuous <input type="checkbox"/> Semi-Continuous <input type="checkbox"/> Other
Comments Related to Fermenter Process	
Yeast Type/Supplier	

Antimicrobial Program — Section 2

Antimicrobial Program (Current)	<input type="checkbox"/> Antibiotics <input type="checkbox"/> Hops Acid <input type="checkbox"/> FermaSure <input type="checkbox"/> ClO ₂ Generated <input type="checkbox"/> Other <input type="checkbox"/> None
Antimicrobial Addition Points	<input type="checkbox"/> Propagator <input type="checkbox"/> Fermenter <input type="checkbox"/> Other (specify) _____
Propagator – Quantity Added	
Propagator – Dosing Frequency/Program	
Fermenter – Quantity Added	
Fermenter – Dosing Frequency/Program	
Other Points of Addition (Please Explain)	
Primary Desired Opportunity for Optimization	
Other Comments Related to Current Antimicrobial Program	

Propagation — Section 3

Number of Propagation Tanks	
Propagator Build Procedure	
Propagation Volume (gal)	
Propagation Time (Hr)	
Other Comments Related to Propagation Process	



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Fermentation Process (General) — Section 4

Fermenter Fill Procedure	
Fermenter Fill Time (Hr)	
Fermentation Time to Drop (Hr)	
Liquefaction pH	
Fermentation pH Profile	
pH at End of Fermentation	
Backset %	
Mash Flow Rate (gpm)	
Mash Solids (%)	
Mash Density (lbs/gal)	

Oil Extraction (For Plants Using Corn Only) — Section 5

# of Extraction Separators	
Separator Type Installed	
Separation Temperature (°F)	
Syrup Flow (gph)	
Syrup Solids (%)	
Average Corn Oil Production per Day (gpd)	
Type of Corn Oil Extraction Agent Used (Vendor/Type)	
Average Dosage of Corn Oil Extraction Agent (lbs/day)	
Flush Cycle Protocol (Disk Stack Only)	
COE Injection Point in Use (Please Describe, Add Drawing if Needed)	
Requested Optimization (Lower Cost, Increased Oil Production, Improved Oil Quality, Etc.) Please Explain.	



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Scale Inhibitor (Evaporation) — Section 6

Type of Evaporation Plant in Use (Please Describe Principle and Number of Passes.)	<input type="checkbox"/> Falling Film <input type="checkbox"/> Rising Film <input type="checkbox"/> Reboiler <input type="checkbox"/> Other
Thin Stillage Flow (gpm)	
Solid Level in Thin Stillage (%)	
Syrup Flow from Last Evaporation Stage (gph)	
Syrup Solids (%)	
Is There Currently a Scale Control Program in Place?	
If Yes – Supplier/Product	
Type of Deposit	
Main Deposit Area	
Is There a Chemical Analysis of the Deposit Available?	
Dosing Point(s) in Use (Please Describe)	
Dosing Regime in Place (Quantity and Dosing Point(s) in Use)	
Ownership of Dosing Equipment (Plant/Vendor)	
C.I.P. Protocol in Place (Please Describe Applied Chemistry and Cleaning Frequency)	
Are Hydroblasts in Sync with Scheduled Plant Shutdown?	
Hydroblast Protocol and Frequency	
Requested Optimization (Lower Cost, Improved Scale Control, etc.) Please Explain	
Other Comments	



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C.I.P. (Clean in Place) — Section 7

Number of C.I.P. Tanks	
C.I.P. Procedure (Describe Cycle)	
Caustic Soda (NaOH) Protocol	
Acid Clean Protocol	
Acid Type in Use	
Disinfection Cycle	<input type="checkbox"/> Temperature (°F) <input type="checkbox"/> Concentration (%) <input type="checkbox"/> Cycle Time (Min)
Disinfectant in Use	
Other Comments	

VOC Abatement — Section 8

Air Permit Date	
VOC Product Utilized	
Is Hydrogen Peroxide Utilized?	<input type="checkbox"/> Yes <input type="checkbox"/> No



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Application Point Information — Section 9

Number of Fermenters: _____

Number of Yeast Prop Tanks: _____

Fermenter #1

Size of Fermenter: _____ gal
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FNPT
Distance from Piping Rail:
Linear: _____ ft
Vertical: _____ ft

Fermenter #5

Size of Fermenter: _____ gal
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FNPT
Distance from Piping Rail:
Linear: _____ ft
Vertical: _____ ft

Fermenter #2

Size of Fermenter: _____ gal
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FNPT
Distance from Piping Rail:
Linear: _____ ft
Vertical: _____ ft

Fermenter #6

Size of Fermenter: _____ gal
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FNPT
Distance from Piping Rail:
Linear: _____ ft
Vertical: _____ ft

Fermenter #3

Size of Fermenter: _____ gal
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FNPT
Distance from Piping Rail:
Linear: _____ ft
Vertical: _____ ft

Fermenter #7

Size of Fermenter: _____ gal
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FNPT
Distance from Piping Rail:
Linear: _____ ft
Vertical: _____ ft

Fermenter #4

Size of Fermenter: _____ gal
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FNPT
Distance from Piping Rail:
Linear: _____ ft
Vertical: _____ ft

Fermenter #8

Size of Fermenter: _____ gal
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FNPT
Distance from Piping Rail:
Linear: _____ ft
Vertical: _____ ft



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Application Point Information — Continued

Yeast Prop #1

Size of Prop Tank: _____ gal
 Continuous Batch
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FPT
Distance from Piping Rail:
 Linear: _____ ft
 Vertical: _____ ft

Yeast Prop #2

Size of Prop Tank: _____ gal
 Continuous Batch
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FPT
Distance from Piping Rail:
 Linear: _____ ft
 Vertical: _____ ft

C.I.P Tank

Size of Tank: _____ gal
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FPT
Distance from Equipment Skid Location:
 Linear: _____ ft
 Vertical: _____ ft

Heat Exchanger (Mash Cooler) Train A

Flow Rate _____ gph
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1.5 in. FPT
Distance from Equipment Skid Location:
 Linear: _____ ft
 Vertical: _____ ft

Heat Exchanger (Mash Cooler) Train B

Flow Rate _____ gph
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1.5 in. FPT
Distance from Equipment Skid Location:
 Linear: _____ ft
 Vertical: _____ ft

Cook Water Tank

Size of Tank: _____ gal
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FPT
Distance from Equipment Skid Location:
 Linear: _____ ft
 Vertical: _____ ft

Incoming Water Supply

Potable Water? Yes No
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FPT
Nominal Flow: _____ gph
Distance from Equipment Skid Location:
 Linear: _____ ft
 Vertical: _____ ft
Gals of Water Used Per Day: _____
Cost Per Gal: _____

Additional Injection Point

Name: _____
Location: _____
Pressure at Injection Point: _____ psi
Size of Injection Point Required: 1 in. FPT
Distance from Equipment Skid Location:
 Linear: _____ ft
 Vertical: _____ ft

Other Info: _____

Description: _____



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Equipment Specifications — Section 10

Motive Flow Water Source: City Well Water Other (Please Specify)

Piping Size of Water Source: _____

Water Source Pressure (psi): _____

Water Temperature (°F): _____

Are there any available cooling tower water supply/return taps? Yes No

Tap Size: _____

Type or Valve Material: _____

Heat Exchanger Cooling Water Source: City Cooling Tower Water

Piping Size of Water Source: _____

Water Source Pressure (psi): _____

Water Temperature (°F): _____

Electrical

Power Available? Yes No

Voltage: _____

Distance of Power Source for Equipment Location: _____

Equipment Location — Section 11

Equipment Skid Install Location: _____

Dimensions of the Proposed Install Location: _____

Doorway Access from Unloading Area: Height _____ Width _____

Distance from Unloading Area to the Equipment Install Location: _____ ft

Contact Person for all Deliveries:

Name: _____

Phone: _____

Precursor Chemical: _____

Distance from Precursor Chemical: _____

Distance from Planned Location for
Chemical Bulk Storage Tank Location: _____



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Safety Information — Section 12

Warning Signs in Place? Yes No
Type: _____

Safety Shower/Eyewash Available? Yes No
In Good Working Order? Yes No
Distance From the Generator: _____m

Does Customer Have the Proper MSDS Sheets? Yes No

Approval — Section 13

Auditor: _____

Print: _____ Date: _____

Customer Representative: _____

Print: _____ Date: _____



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