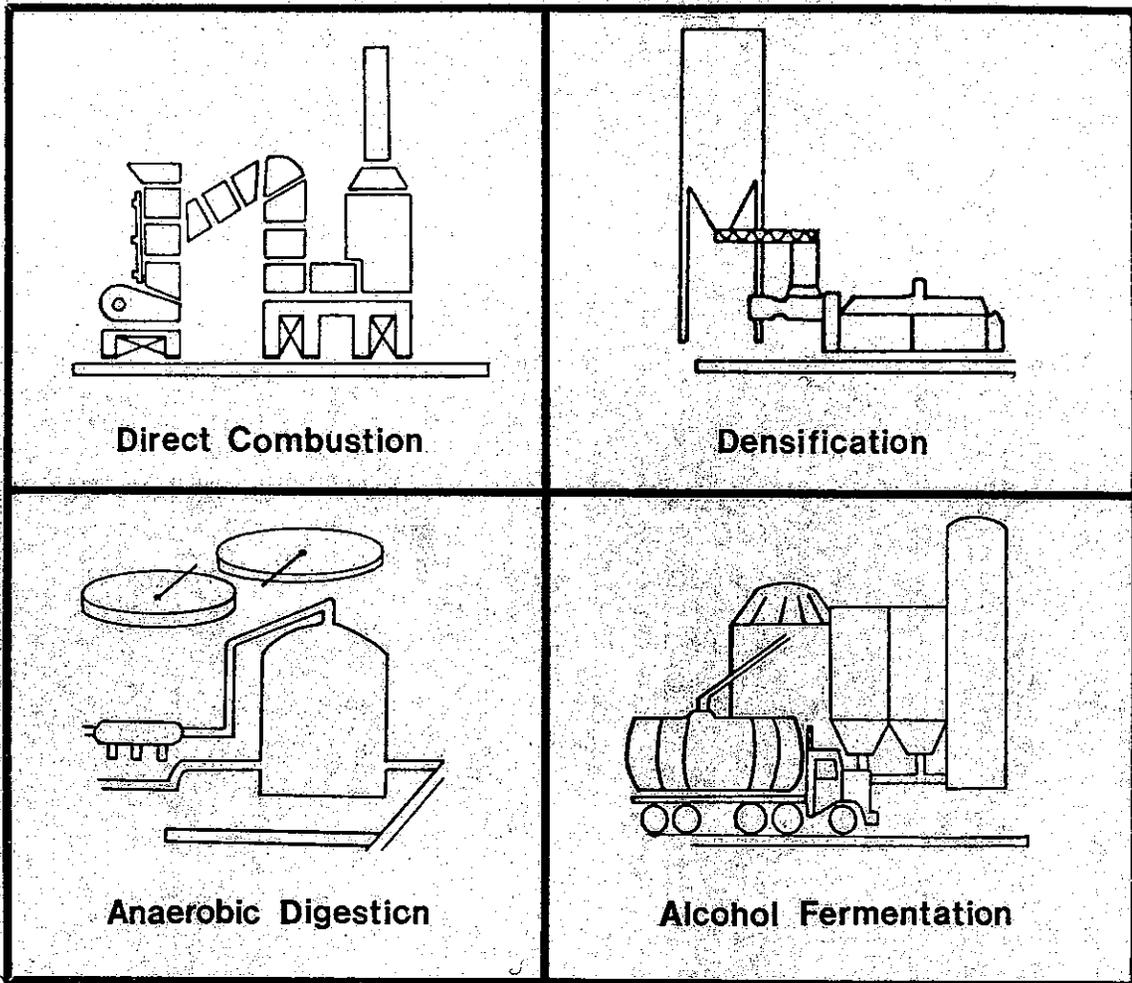


Idaho Directory of Biomass Energy Facilities



Direct Combustion

Densification

Anaerobic Digestion

Alcohol Fermentation



**Idaho Department of Water Resources
Bureau of Energy Resources**

Boise, Idaho

March 1987

IDAHO DIRECTORY OF
BIOMASS ENERGY FACILITIES

Prepared by

Jeff Peppersack

Gerry Galinato

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IDAHO DEPARTMENT OF WATER RESOURCES

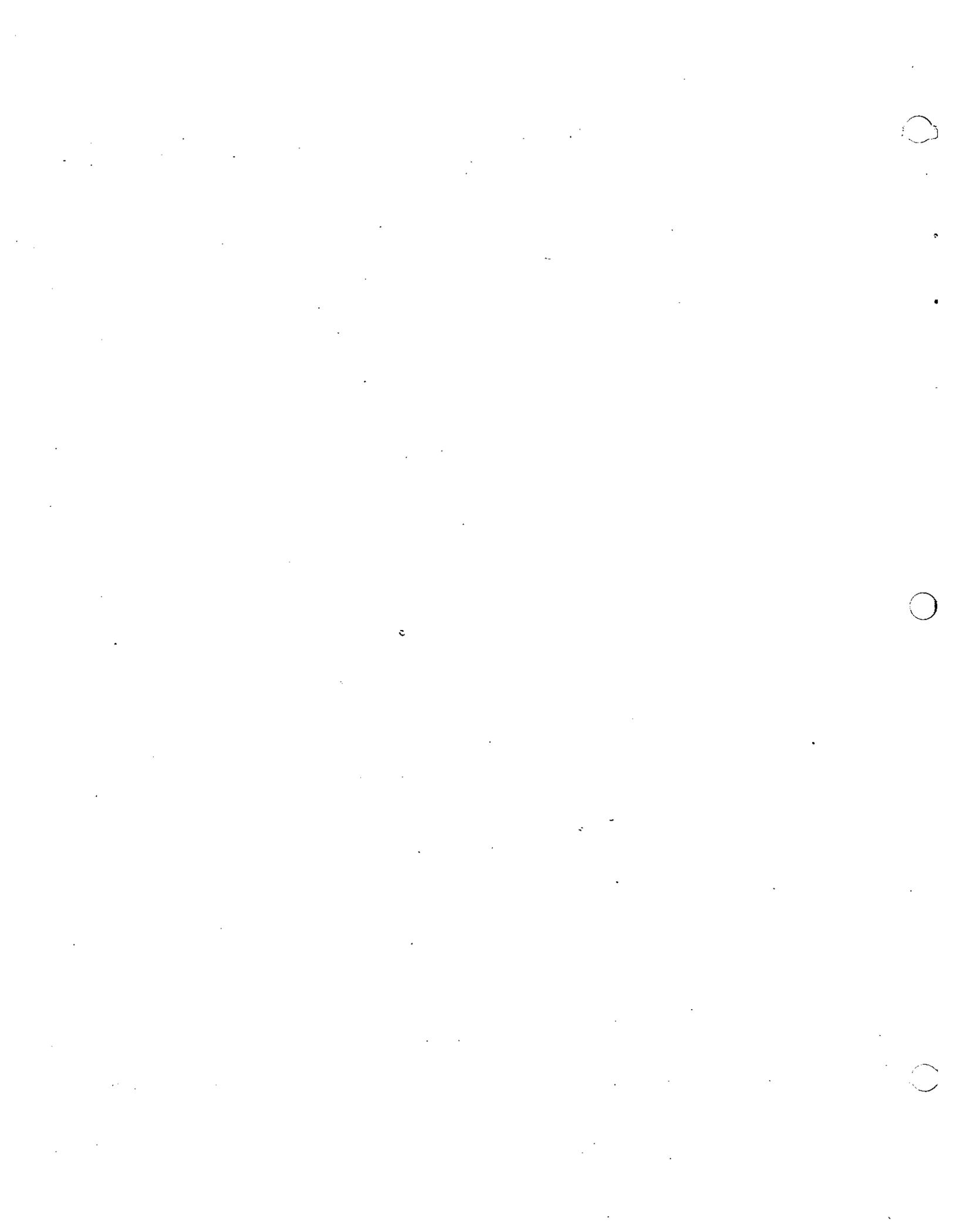
A. Kenneth Dunn
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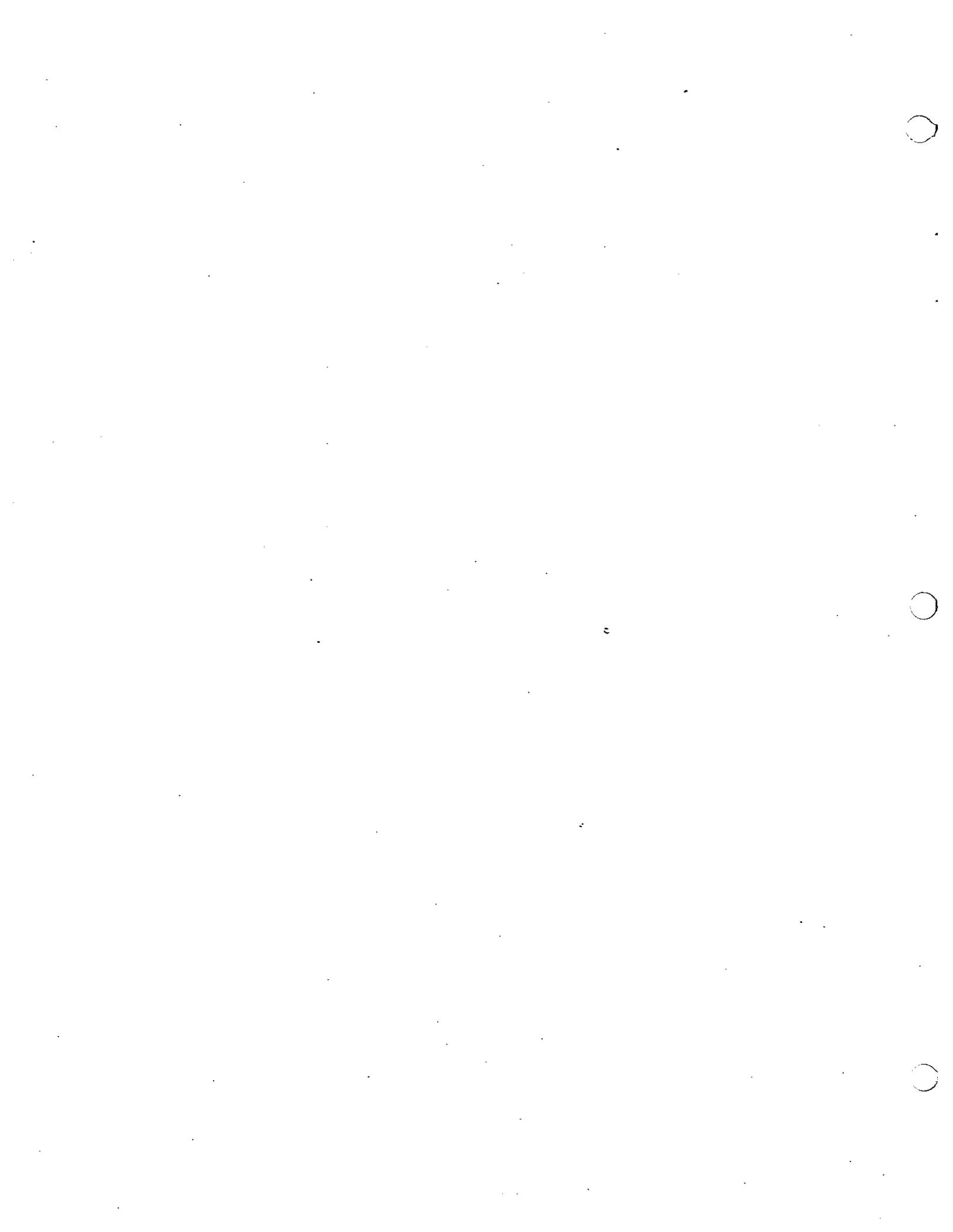
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Bioenergy Program
03-81-102



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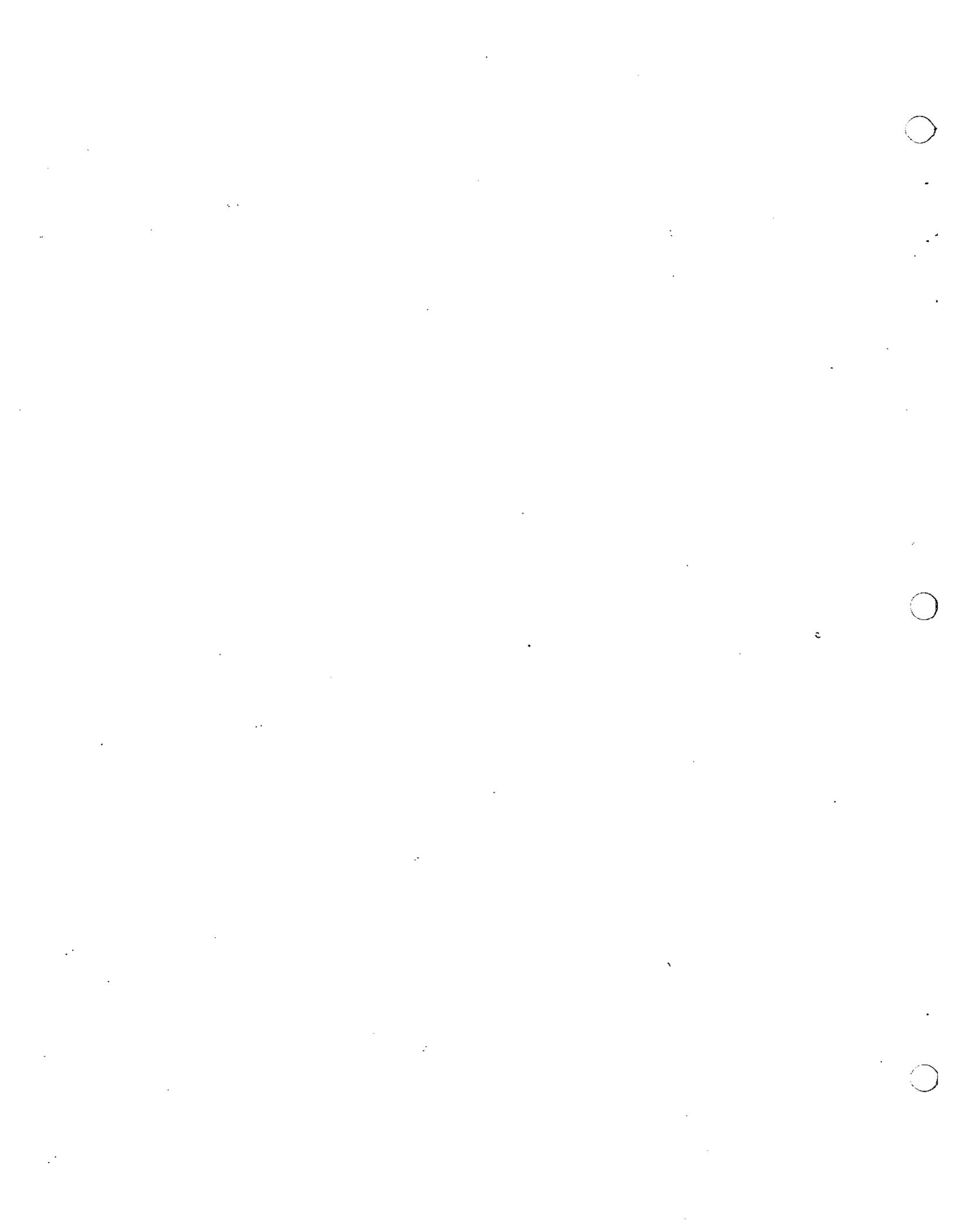
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ACKNOWLEDGEMENT

The Idaho Department of Water Resources would like to acknowledge the cooperation of those firms that provided information concerning their facility for use in this directory of bioenergy facilities. Special thanks are also due Craig Chase, Bonneville Power Administration Consultant, who provided a technical review of this report.

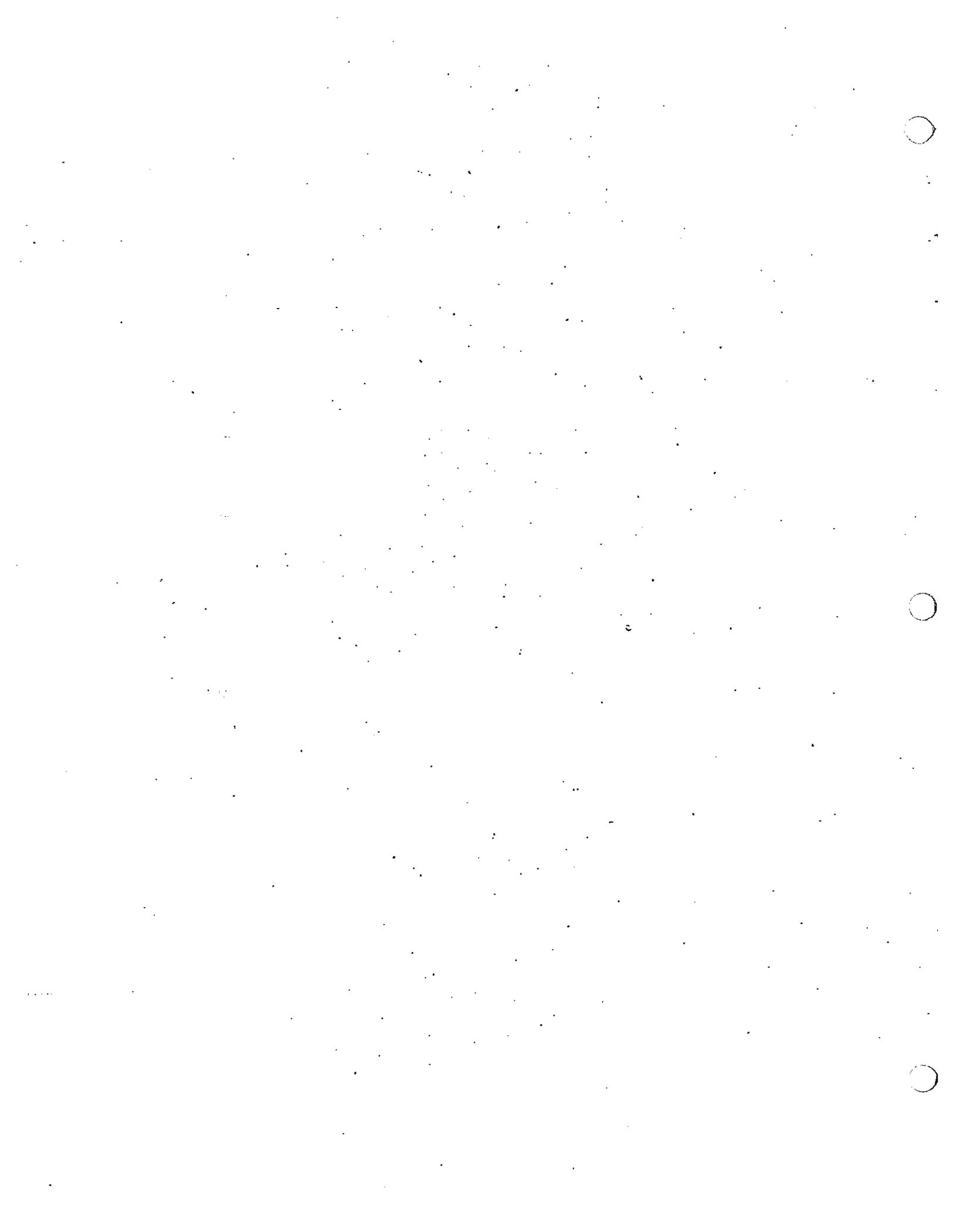
This directory was prepared by the staff of the Idaho Department of Water Resources, Bureau of Energy Resources, with funds provided by the U. S. Department of Energy, through the Pacific Northwest and Alaska Regional Bioenergy Program administered by the Bonneville Power Administration.



PREFACE

This report is a directory of biomass energy facilities operating in Idaho. It will provide preliminary information and contacts for organizations and individuals wishing to pursue the development of bioenergy systems. While every effort was made to include all bioenergy projects operating in Idaho, it is possible that some projects, not known during the preparation of this directory, were omitted. The Department plans to update this directory, subject to availability of federal funds. Firms that are not listed and want to be included in the next update of this publication should write to:

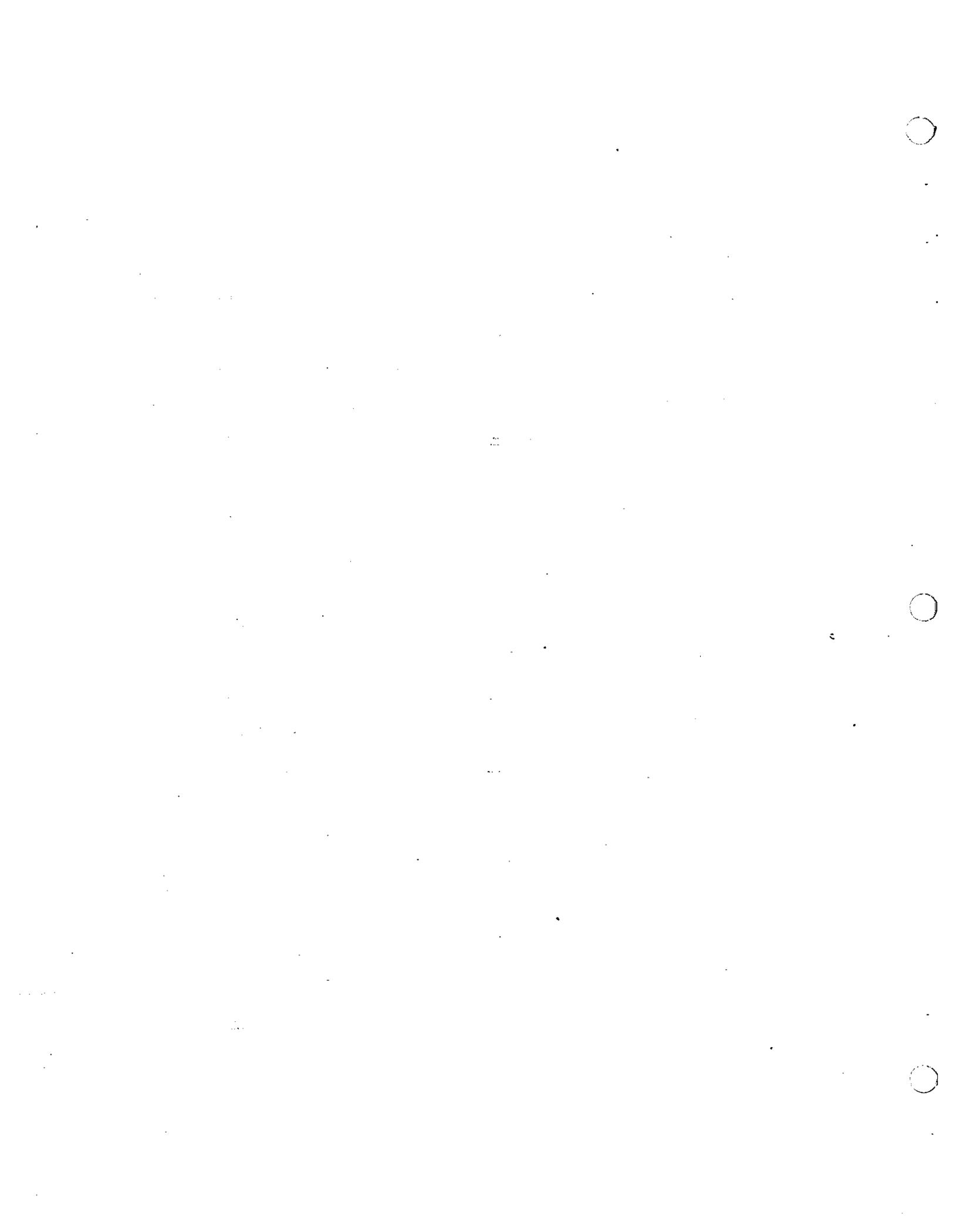
Program Manager, Bioenergy Program
Bureau of Energy Resources
Idaho Department of Water Resources
Boise, ID 83720



IDAHO DIRECTORY OF
BIOMASS ENERGY FACILITIES

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I. INTRODUCTION

Background

From all indications, the biomass resource base in Idaho is significant. To date the magnitude and composition of biomass supplies have not been fully documented. However, efforts are being made to make a comprehensive assessment of these biomass resources on a county-by-county basis. Biomass resources include forest and forest industry residues, agricultural residues, livestock wastes, municipal and industrial sewage and solid wastes.

The Idaho Department of Water Resources is presently participating in the Pacific Northwest and Alaska Regional Bioenergy Program. The regional program was initially conceived as a means to facilitate the exchange of ideas and technical knowledge in bioenergy resource development and to provide funding for demonstration of cost effective resource projects. In pursuit of these goals, the program has designated funds for state bioenergy activities including cogeneration using biomass. This funding opportunity provides an opportunity to assess Idaho's biomass resources and also provides an impetus for promoting biomass resource planning and development in the State of Idaho. The main objective of the state's biomass program is to encourage expeditious use of biomass as an alternative source of energy. Such use must be environmentally and economically competitive with other forms of fuel.

Purpose of the Directory

The purpose of this directory is to provide information on specific bioenergy facilities, along with contacts, so that persons or organizations interested in bioenergy conversions could obtain the information necessary for the proper planning and development of energy recovery projects using wood, agricultural and municipal wastes. In addition to the potential biomass end users, other individuals and entities could benefit from this directory such as consultants, engineers, equipment vendors and energy resource planners.

Content of the Directory

This directory is a compilation of bioenergy projects in the State of Idaho. It is felt that a comprehensive listing is presented here of all known bioenergy projects currently processing or utilizing biomass resources for energy production. This directory is divided into categories based on the various bioenergy utilization or process technologies (discussed in Section II - Biomass Fuel Processing and Conversion Technologies) found in Idaho. These categories are solid fuel processing, direct combustion (wood and MSW), biogas production, and ethanol production.

It was difficult to compile an initial listing of facilities utilizing direct combustion of wood since there was no centralized location to obtain this information. An initial list of industries with relatively large boilers using wood

was developed using the National Emissions Data System (NEDS) of the U. S. Environmental Protection Agency and information from the Air Quality Bureau of the Idaho Department of Health and Welfare. However, small to medium-sized boilers burning wood pellets are not generally included in this listing. The Idaho Department of Labor and Industrial Services maintains an individual file of all insured boilers in the state, but the information is limited and not necessarily up to date concerning fuel type.

Other firms using wood were identified from a boiler survey (non-wood and wood users) of 600 schools, 48 hospitals and also by direct contact with wood fuel suppliers and existing wood users. Those firms that are in the advanced stages of constructing bioenergy projects, such as the University of Idaho, are also included in the directory.

The list of wood combustion facilities was broken down into the industrial, commercial and institutional sectors. The industrial sector is broken down further into forest product and non-forest product facilities and the institutional sector was divided into schools, hospitals and other types of users. A total of 55 facilities using wood-fired systems have been identified, including 35 in the industrial sector; 6 in commercial and 14 in the institutional sector. A listing of these systems is presented in Section III - Listing of Installed Biomass Energy Facilities, and also provides the general location, fuel type and end use for each facility.

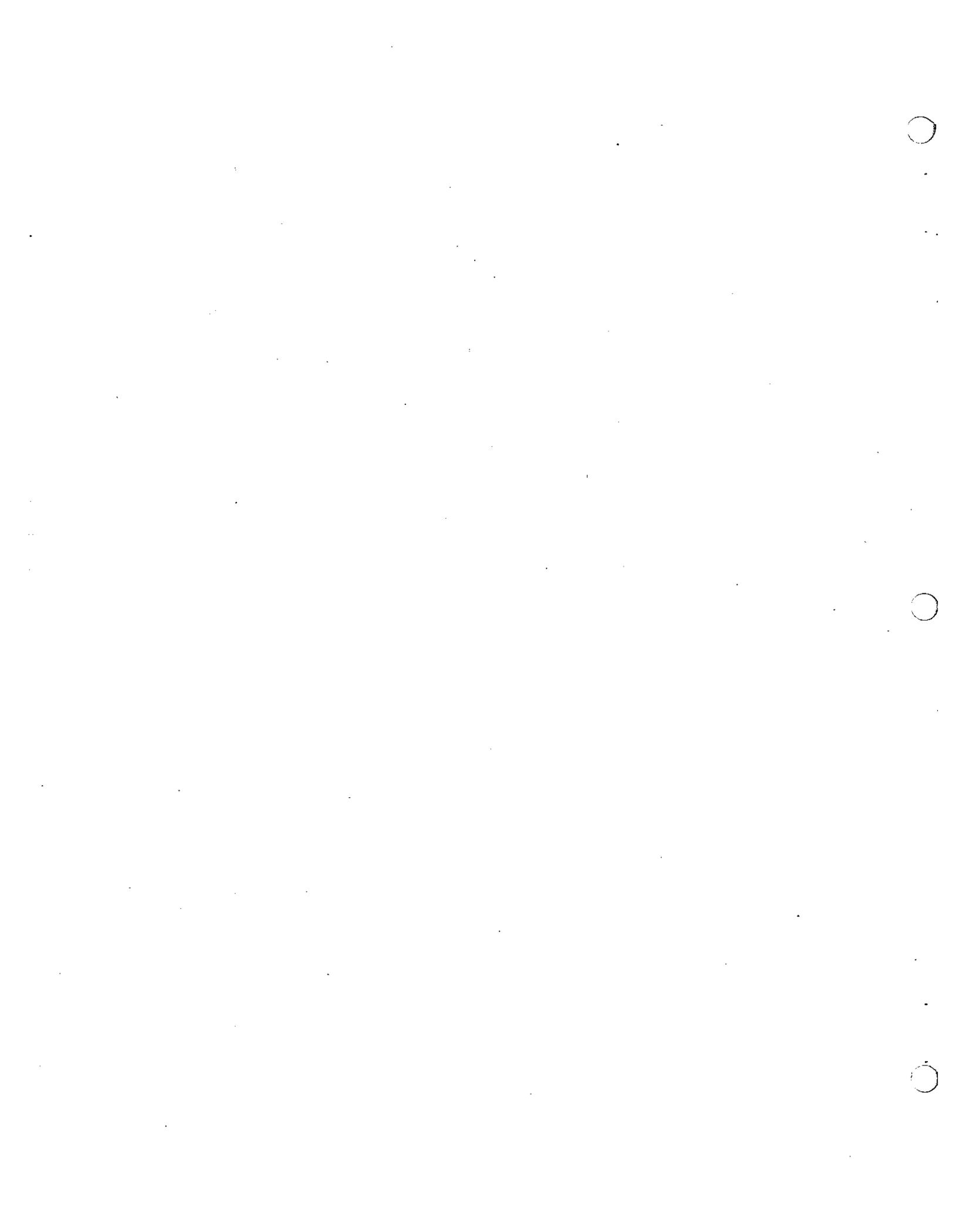
A survey of the wood-fired energy facilities was conducted during the first quarter of 1986. One of the objectives of that survey, was to identify the characteristics of the boiler/energy systems in Idaho that use wood for energy and to identify the characteristics of wood fuel and its end uses. The result of that survey is presented in the report entitled, "Survey of Wood-Fired Energy Systems in the State of Idaho," prepared by the Idaho Department of Water Resources in November, 1986.

The other objective of that survey was to obtain general information on the operating parameters for each facility. This information was used in presenting a brief summary for each facility as shown in Section IV - Description of Biomass Energy Facilities. Additional information presented in that section was obtained by direct contact with the firms. Each firm was asked for permission to print the summary information concerning their facilities.

The other bioenergy projects operating in the state were easily identified since there are only a few of them operating in the state. There is only one MSW energy recovery facility, two (2) ethanol production plants, eight (8) biogas production facilities and five (5) solid fuel processing facilities. All of the biogas production facilities are operated in conjunction with municipal wastewater treatment plants. These facilities were initially identified during a survey of municipal wastewater systems in Idaho under a separate study. Approximately thirteen (13) commer-

cial alcohol production facilities were identified by the Department during the early 1980's. However, at present, only two alcohol production plants are known to be in commercial operation in the state. Among the five (5) solid fuel processing facilities, three are densification facilities in commercial operation producing wood pellets, one is a densification plant producing firelogs for commercial and residential applications, and one is a wood fuel processing facility scheduled to be on line in April of 1987.

It should be noted that not all of the installed biomass energy facilities listed in Section III have summary information presented in Section IV. Only those that responded to the questionnaire and those that responded to direct contacts for additional information and permission were included in Section IV.



II. BIOMASS FUEL PROCESSING AND CONVERSION TECHNOLOGIES

The purpose of this section is to describe briefly the various fuel processing and conversion technologies used by the bioenergy facilities listed in this directory. There are a number of biomass resource types that can serve as inputs to the industry. These resources can include forest and forest industry residues, agricultural residues, livestock wastes, and municipal and industrial sewage and solid wastes.

Solid Fuel Processing

Raw biomass resources, such as timber residual material, are generally processed into a dry, uniform material to increase the efficiency of combustion. The process usually involves grinding, screening and drying. The material can be compressed into pellets, logs, briquettes or cubes for ease in transport and storage. The processed fuel is generally used as fuel for boilers (furnaces) in industrial, commercial and institutional installations and converted to energy by direct combustion.

Direct Combustion/Incineration

Direct combustion/incineration is the burning of material by direct heat (thermal oxidation). This is the most common method of recovering energy from biomass resources. Direct combustion of biomass resources ranges from burning wood in fireplaces and stoves to the burning of den-

sified biomass to produce process heat or steam. It could also include incineration of municipal solid wastes to recover energy. The heat of combustion is transferred by a boiler system to produce process heat or steam for power generation. All of the biomass energy systems listed in the directory, using wood resources as an input, use direct combustion for energy recovery. The forest product industries generally use the energy for process drying and the non-forest industries and other sectors use it primarily for space heating.

Anaerobic Digestion

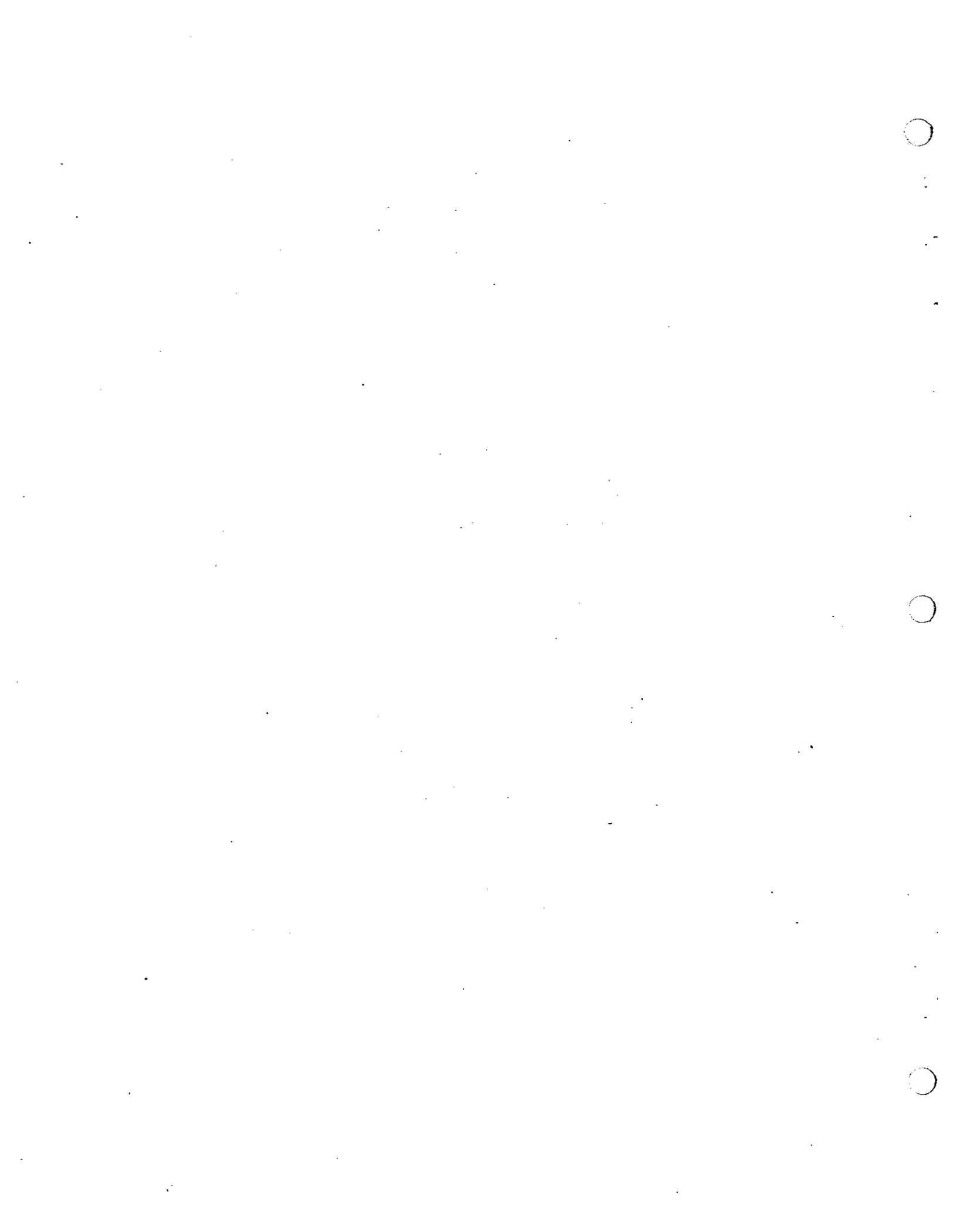
Anaerobic digestion degrades the input resource into combustible material called "biogas". Livestock manure and municipal and industrial sewage are the more common inputs for this process. As mentioned earlier, all the biogas production facilities listed in this directory are operated in conjunction with the treatment of municipal wastewater. This process is employed in wastewater treatment facilities to reduce the organic content and help stabilize undesirable pollutants associated with wastewater sludge. Anaerobic digestion takes place by allowing the sludge to remain in a large vessel called an anaerobic digester for a selected time where biological conversion processes take place in the absence of oxygen.

First the complex materials are converted to simple organic materials. Then these organic materials are

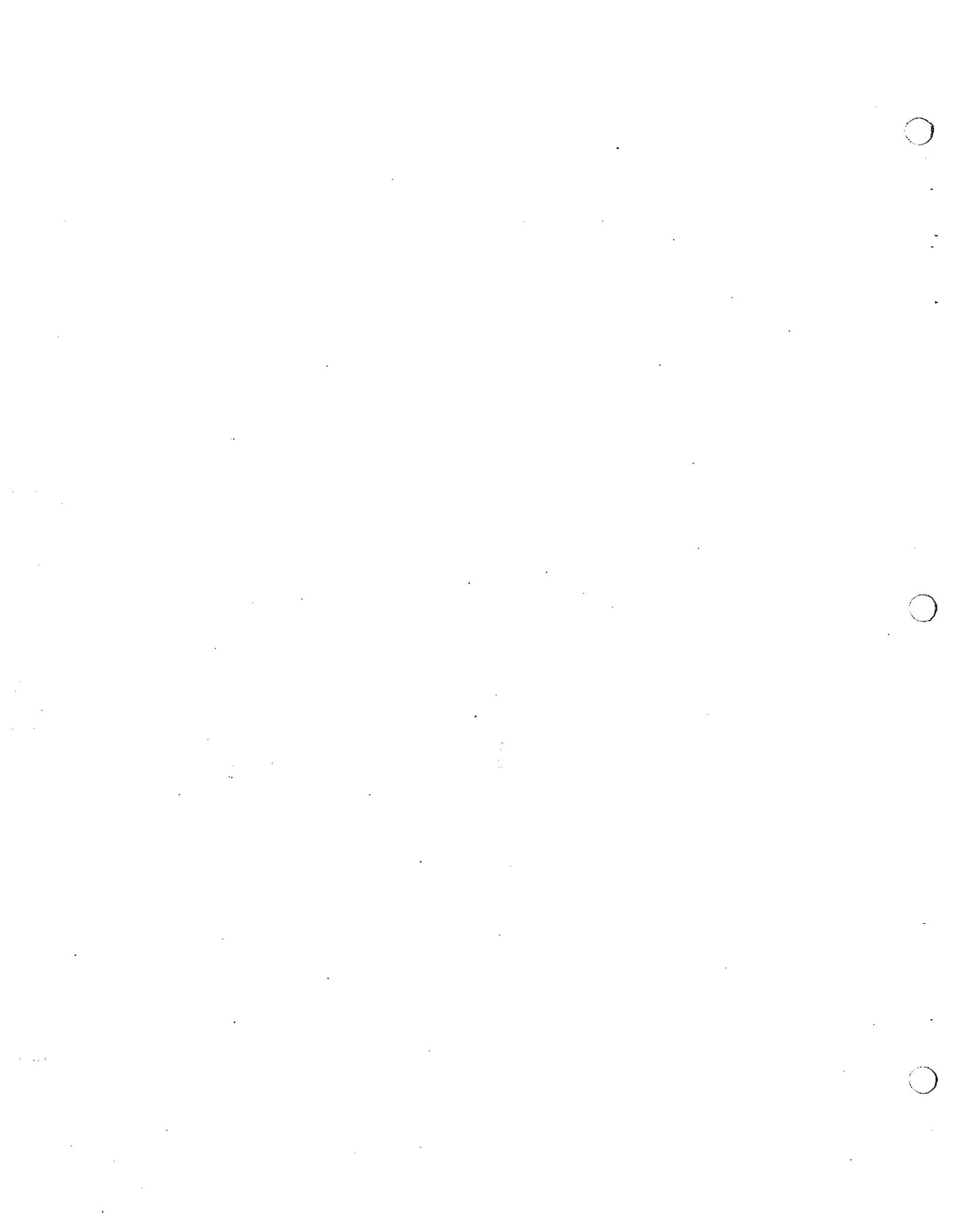
converted to volatile acids through the actions of acid-forming bacteria. Finally, methane-forming bacterium converts the volatile materials to methane (CH₄) and carbon dioxide (CO₂). The biogas produced as a result of this operation can be used as fuel to fire a boiler for a heating system or as fuel for an internal combustion engine for electrical generation or other mechanical applications. The heat value of biogas generally ranges from 400 to 700 Btu/scf.

Alcohol Fermentation

Fuel alcohol is produced by converting starch to sugar, fermenting the sugar to alcohol, then separating the alcohol water mixture by distillation. A variety of feedstocks containing sugar, starch or cellulose can be converted to alcohol. The most common feedstocks used in Idaho are potatoes, barley and wheat. Ethanol, also called ethyl alcohol or grain alcohol, is the alcohol product of fermentation that could be used for various industrial purposes including alternative fuel for internal combustion engines. Straight ethanol can be burned in a spark ignition engine with minor modifications. Diesel engines can also be modified to burn ethanol through dual fuel system. The most common use of ethanol is to blend 10 percent ethanol (anhydrous) with 90 percent unleaded gasoline to produce a fuel mixture called gasohol. This is done to boost the gasoline's octane rating.



III. LISTING OF INSTALLED BIOMASS ENERGY FACILITIES



WOOD COMBUSTION FACILITIES
INDUSTRIAL

FOREST PRODUCT FIRMS

<u>Name</u>	<u>Location</u>	<u>Fuel Type</u>	<u>End Use*</u>
Bennett Lumber Prod., Inc.	Princeton	hogged fuel**	S,P
Boise Cascade Corp.	Emmett	hogged fuel	S,P,C
Clearwater Forest Industries	Kooskia	hogged fuel	P
DAW Forest Prod. Co.	Coeur d'Alene	hogged fuel	S,P
	Oldtown	hogged fuel	S,P
Gen State Lumber Co.	Juliaette	hogged fuel	NA
Idaho Forest Industries, Inc.	Coeur d'Alene	hogged fuel	S,P
	Dearmond	hogged fuel	NA
	St. Anthony	hogged fuel	NA
Idaho Veneer Co.	Post Falls	hogged fuel	NA
Idapine Mills, Inc.	Grangeville	hogged fuel	S,P
Kamiah Mills	Kamiah	hogged fuel	NA
Konkolville Lumber Co., Inc.	Orofino	hogged fuel	S,P
Louisiana Pacific Corp.	Moyie Springs	hogged fuel	NA
	Post Falls	hogged fuel	NA
	Sandpoint	hogged fuel	P
Merritt Bros. Lumber Co.	Priest River	hogged fuel	P
Northwest Timber Co.	Coeur d'Alene	hogged fuel	NA
Potlatch Corp.	Coeur d'Alene	hogged fuel	P
	Lewiston	hogged fuel	S,P,C
	Pierce	hogged fuel	S,P
	Post Falls	hogged fuel	NA
	St. Maries	hogged fuel	P
Pacific Crown Timber Prod.Inc.	Plummer	hogged fuel	NA
Princeton Lumber Co.	Princeton	hogged fuel	NA
Regulus Stud Mill Inc.	St. Maries	hogged fuel	NA
Riley Creek Lumber Co.	Laclede	hogged fuel	S,P
Shearer Lumber Prod., Inc.	Elk City	hogged fuel	S,P
Tamarack Energy Partnership	New Meadows	hogged fuel	C
W-I Forest Prod. Inc.	Bonnors Ferry	hogged fuel	P
	Coeur d'Alene	hogged fuel	P
	Colburn	hogged fuel	NA
	Sandpoint	hogged fuel	NA
Wood Power, Inc.	Plummer	hogged fuel	

NON-FOREST PRODUCT FIRMS

<u>Name</u>	<u>Location</u>	<u>Fuel Type</u>	<u>End Use</u>
Basic American Foods	Blackfoot	hogged fuel**	P

* S=Space Heating, P=Process Steam, C=Cogeneration, NA=Data Unavailable

**Hogged fuel includes wood wastes such as sawdust, planer shavings and other mill wastes.

STOPPED IN 1977

WOOD COMBUSTION FACILITIES
COMMERCIAL*

<u>Name</u>	<u>Location</u>	<u>Fuel Type</u>	<u>End Use**</u>
Barnett-Thompson Chevrolet	Orofino	wood pellet	S,W
The Centre', Inc.	Orofino	wood pellet	S
Hughes Greenhouse	Post Falls	wood pellet	S
LaGrace Apartments	Sandpoint	wood pellet	S,W***
Rapid Lightning Ranch	Sandpoint	wood pellet	S
Country Haus Rest & Vlg. Mtl.	Cottonwood	wood pellet	S,W

* Refers to service related industries such as hotels, restaurants, retail trade.
 ** S=space heating, W=domestic water heating
 *** Indoor swimming pool

WOOD COMBUSTION FACILITIES
INSTITUTIONAL*

SCHOOLS

<u>Name</u>	<u>Location</u>	<u>Fuel Type</u>	<u>End Use**</u>
Craigmont High School	Craigmont	wood pellet	S
Elk River Elementary School	Elk River	cord wood	S
Frederick Post Elem. School	Post Falls	wood pellet	S
Orofino Elementary School	Orofino	wood pellet	S
Orofino Jr. High School	Orofino	wood pellet	S
Pioneer Elementary School	Salmon	hogged fuel	S,W
Prairie Elementary School	Cottonwood	wood pellet	S,W
Prairie High School	Cottonwood	wood pellet	S,W
Rocky Mountain Academy	Bonnars Ferry	wood pellet	S,W
Salmon Jr. High School	Salmon	hogged fuel	S,W
Salmon High School	Salmon	hogged fuel	S,W
University of Idaho***	Moscow	processed fuel	S

HOSPITALS

St. Mary's Hospital	Cottonwood	wood pellet	S,W
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OTHERS

Sandpoint Baptist Church	Sandpoint	wood pellet	S,W
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* Includes schools, hospitals and public buildings
 ** S=space heating, W=domestic water heating
 *** Under Construction

SOLID FUEL PROCESSING FACILITIES

<u>Name</u>	<u>Location</u>	<u>Fuel Type</u>	<u>End Use*</u>
Coeur d'Alene Fiber Fuels**	Coeur d'Alene	proces wd fuel	S,W
Idaho Timber Corporation	Boise	wood pellet	S,W
Jensen Lumber Co.	Ovid	wood pellet	S
Lignetics of Idaho	Sandpoint	wood pellet	S,W
North Idaho Energy Logs	Moyie Springs	comp wd log	S

*S=space heating, W=domestic water heating

**Scheduled to be on line 4/15/87

MSW COMBUSTION FACILITIES

<u>Name</u>	<u>Location</u>	<u>Fuel Type</u>	<u>End Use*</u>
Cassia County Waste to Energy Facility <i>Stopped operating in 1992</i>	Heyburn	raw refuse	P

*P=process steam

BIOGAS PRODUCTION FACILITIES

<u>Name</u>	<u>Location</u>	<u>Feed Stock</u>	<u>End Use*</u>
Boise West WWTP			S,P,C
American Falls WWTP	American Falls	W**	S,P
Blackfoot WWTP	Blackfoot	W	S,P
Boise-Lander St. WWTP	Boise	W	S,P,C
Coeur d'Alene WWTP	Coeur d'Alene	W	S,P
Nampa Wastewater Division	Nampa	W	S,P
Pocatello WWTP	Pocatello	W	S,P
Preston WWTP	Preston	W	S,P
Soda Springs WWTP	Soda Springs	W	S,P
IDAHO FALLS WWTP			S,P

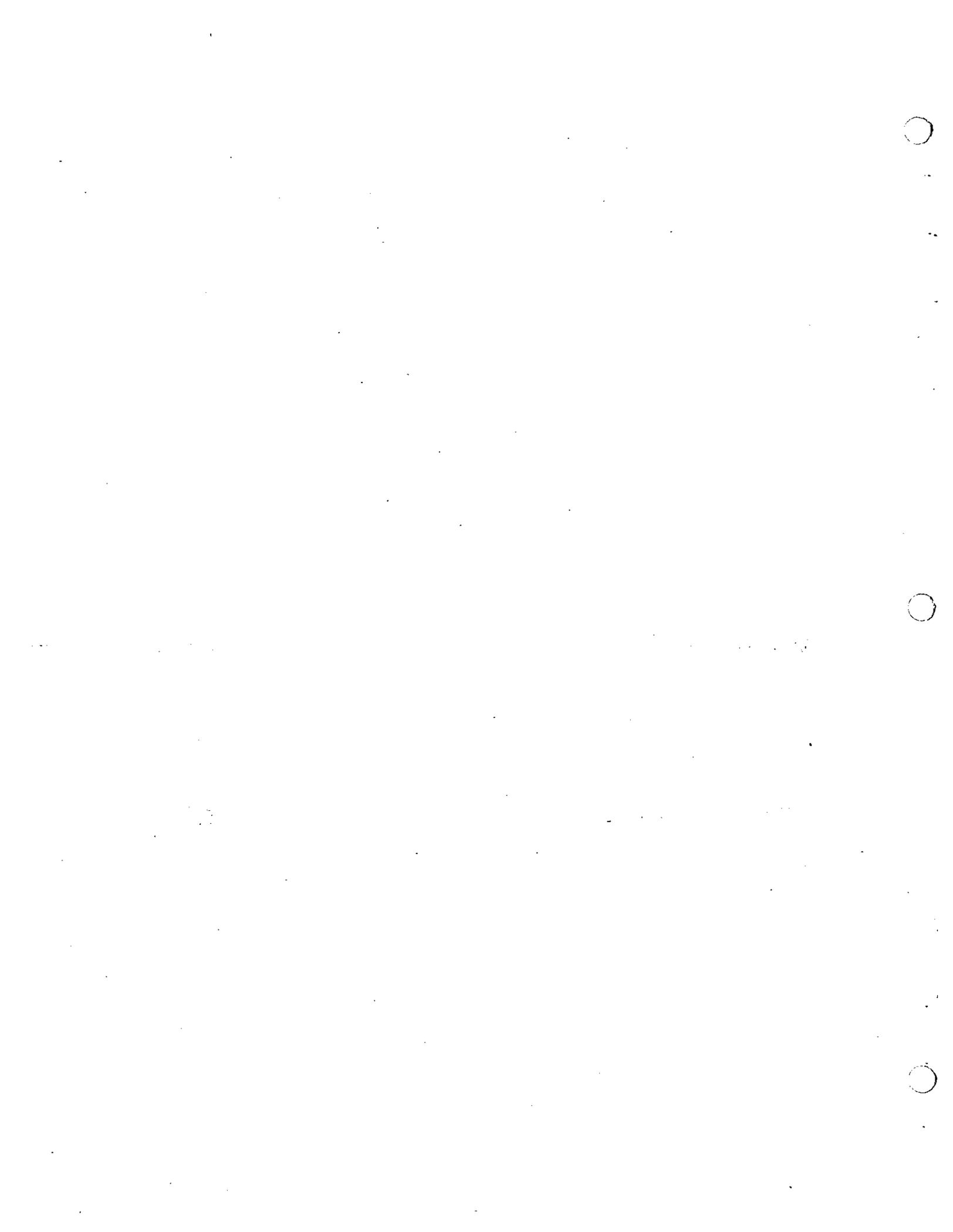
*S=space heating, P=process heat (for digester), C=cogeneration, E=engine fuel

**W=municipal wastewater

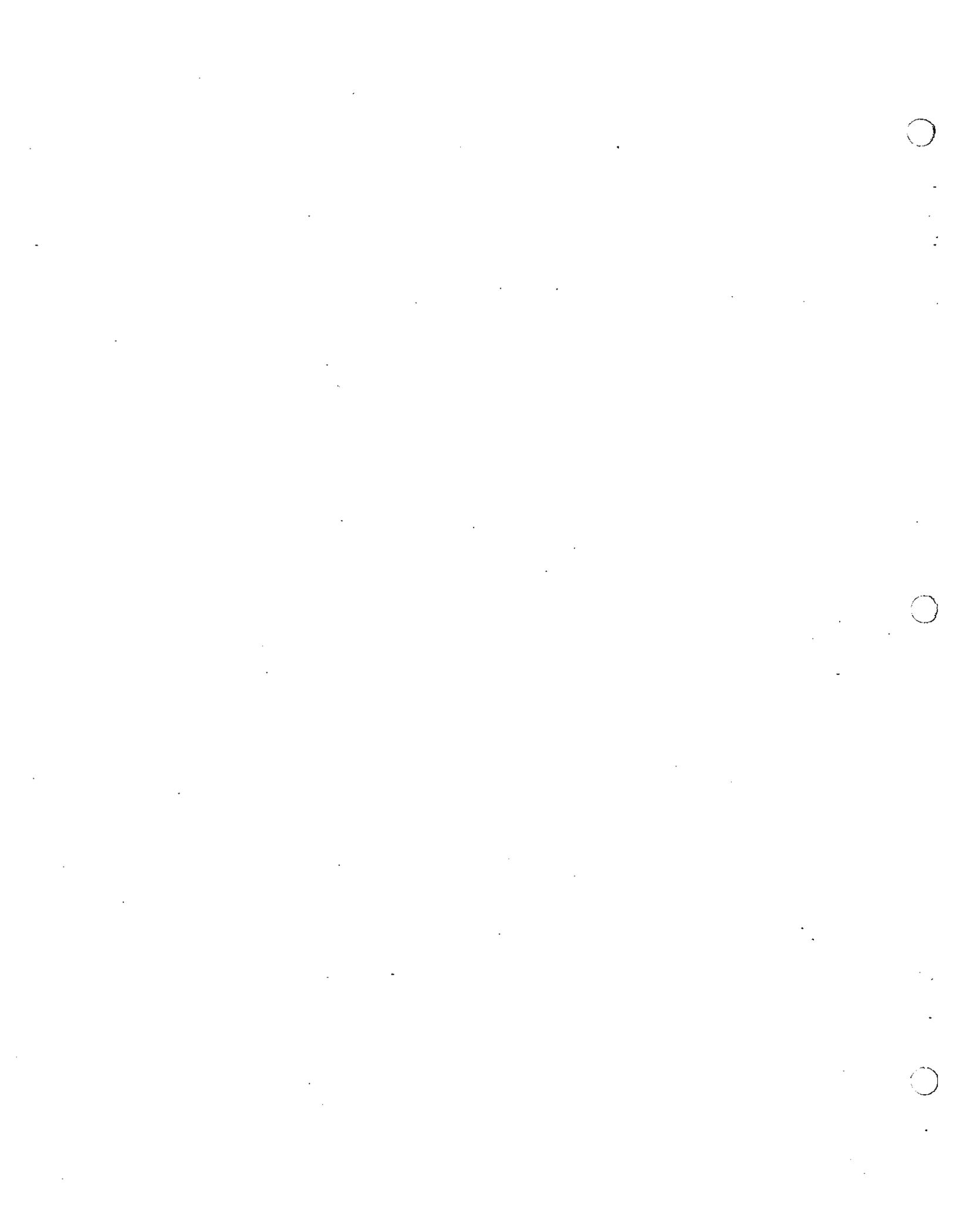
ETHANOL PRODUCTION FACILITIES

<u>Name</u>	<u>Location</u>	<u>Feed Stock</u>	<u>End Use*</u>
J. R. Simplot Co.	Heyburn	potato waste	O
	Caldwell	potato waste	O

*O=octane enhancer

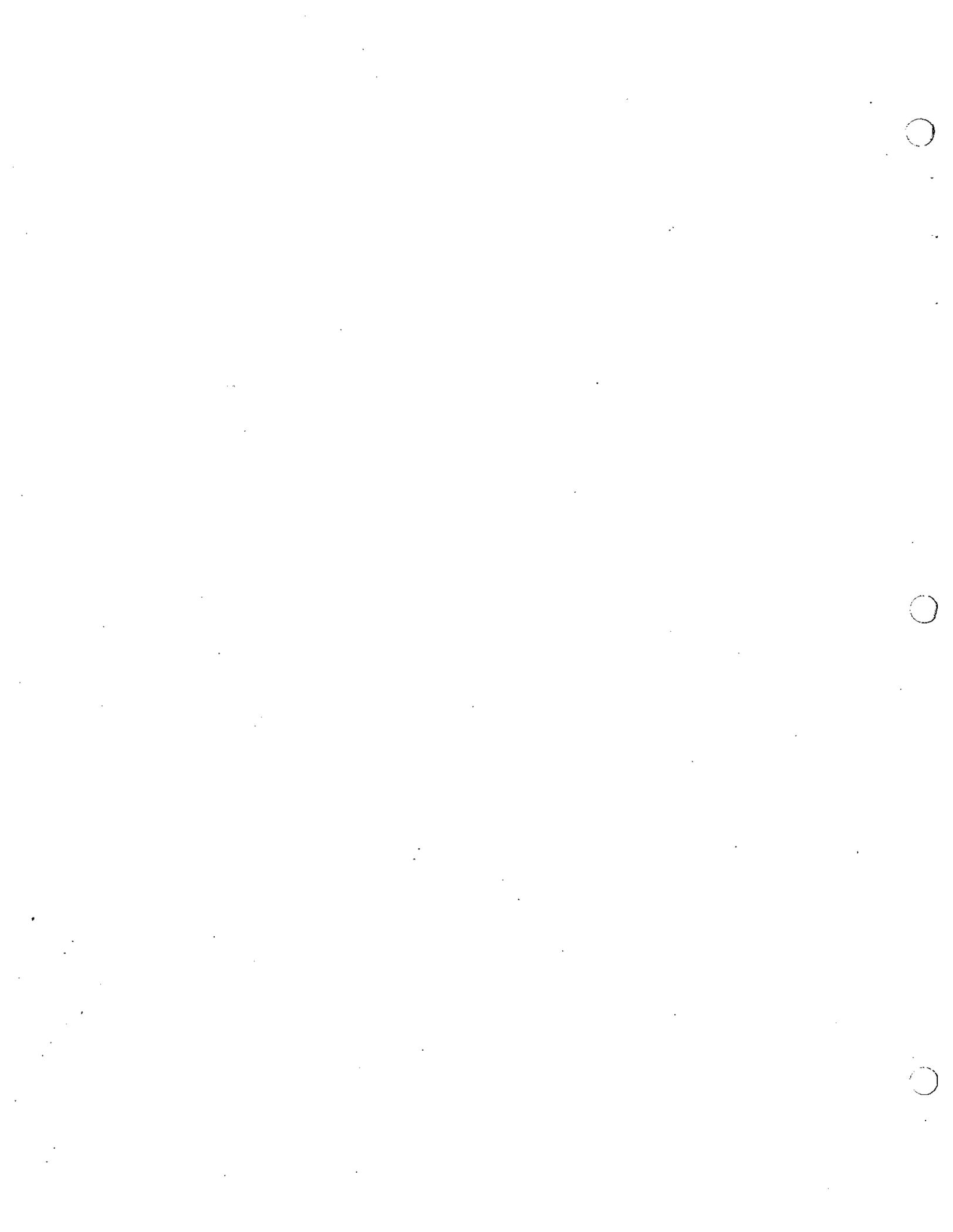


IV. DESCRIPTION OF BIOMASS ENERGY FACILITIES



A. WOOD COMBUSTION FACILITIES

1. INDUSTRIAL



WOOD COMBUSTION FACILITIES

Bennett Lumber Products, Inc.
P. O. Box 49
Princeton, ID 83857

CONTACT PERSON: Dave Paisley; Phone: 875-1121

NATURE OF BUSINESS: Sawmill and planing mill

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION: 37,800 tons/yr (50% moisture content)

FUEL TYPE REPLACED BY BIOMASS ENERGY: #2 oil

SECONDARY BACK-UP CAPABILITY:

END USE(S): Space heat, process drying

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 150 psig): 60,000

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 140 psig): 29,000

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Spreader-stoker

TYPE OF COMBUSTION CONTROL: Auto

TYPE OF BOILER: Watertube

BOILER MANUFACTURER: Zurn Industries

TYPE OF POLLUTION CONTROL: Multicone and scrubber

REASON FOR USING WOOD AS FUEL: In-house fuel available

WOOD COMBUSTION FACILITIES

Boise Cascade Corporation
Timber and Wood Products Division
P. O. Box 476
Emmett, ID 83617

CONTACT PERSON: Jim Spencer; Phone: 365-4431, Ext. 237

NATURE OF BUSINESS: Wood products

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION: 130,000 BDT/YR
(2 boilers @ 65,000 BDT/YR each)

FUEL TYPE REPLACED BY BIOMASS ENERGY: None

SECONDARY BACK-UP CAPABILITY: None

END USE(S): Space heat, process drying/steam, cogeneration

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 625 psig): 180,000 (90,000 each)

Electrical generation (kw): 15,000

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at _____ psig): 170,000 (85,000 each)

Electrical generation (kw): 10,000

TYPE OF COMBUSTION/FURNACE DESIGN: Spreader-stoker

TYPE OF COMBUSTION CONTROL: Auto

TYPE OF BOILER: Watertube

BOILER MANUFACTURER: Zurn

TYPE OF POLLUTION CONTROL: Cyclone, multicone and scrubber

REASON FOR USING WOOD AS FUEL: In-house fuel available

WOOD COMBUSTION FACILITIES

Clearwater Forest Industries
P. O. Box 340
Kooskia, ID 83539

CONTACT PERSON: Carl Young, Plant Manager; Phone: 926-4266

NATURE OF BUSINESS: Lumber manufacturing

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION:

FUEL TYPE REPLACED BY BIOMASS ENERGY:

SECONDARY BACK-UP CAPABILITY:

END USE(S): Process drying

PLANT DESIGN CAPACITY: 650 HP (2 boilers)

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 140 psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___ psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN:

TYPE OF COMBUSTION CONTROL: Auto

TYPE OF BOILER: Firetube

BOILER MANUFACTURER: Seattle Boiler

TYPE OF POLLUTION CONTROL: Cyclone

REASON FOR USING WOOD AS FUEL:

WOOD COMBUSTION FACILITIES

D.A.W. Forest Products Co.
P. O. Box 1119
Coeur d'Alene, ID 83814

CONTACT PERSON: Jack Werst; Phone: 765-4717

NATURE OF BUSINESS: Lumber Manufacturing

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION: 720,000 tons/yr

FUEL TYPE REPLACED BY BIOMASS ENERGY: None

SECONDARY BACK-UP CAPABILITY: None

END USE(S): Space heat, process drying/steam

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 150 psig): 60,000

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at psig): 45,000

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Spreader-stoker

TYPE OF COMBUSTION CONTROL:

TYPE OF BOILER: Watertube

BOILER MANUFACTURER: Wyatt and Kipper

TYPE OF POLLUTION CONTROL: Cyclone

REASON FOR USING WOOD AS FUEL: In-house fuel available

WOOD COMBUSTION FACILITIES

Idaho Forest Industries
#1 - Atlas, #2 - Dearmond
P. O. Box 1030
Coeur d'Alene, ID 83814

CONTACT PERSON: Paul Hakala, Manager; Phone: 765-1414

NATURE OF BUSINESS: Lumber mill

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION: 125,000 tons/yr
(#1 @ 70,000 tons/yr, #2 @ 55,000 tons/yr)

FUEL TYPE REPLACED BY BIOMASS ENERGY: Natural gas

SECONDARY BACK-UP CAPABILITY: Natural gas

END USE(S): Space heat, process drying, mechanical power

PLANT DESIGN CAPACITY: #1-1600 HP @ 90-130 psig

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 120 psig): #2- 36,000

Electrical generation (kw):

AVERAGE PLANT OUTPUT: #1-1200 HP

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___psig): #2-26,000

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Fluidized bed

TYPE OF COMBUSTION CONTROL: Auto

TYPE OF BOILER: #1-Firetube, #2-Watertube

BOILER MANUFACTURER: #1-York Shipley, #2-Nebraska Boiler Co.

TYPE OF POLLUTION CONTROL: #1-Cyclone, #2-Multi-cone

REASON FOR USING WOOD AS FUEL: In-house fuel available and fuel cost savings

WOOD COMBUSTION FACILITIES

Idaho Forest Industries, Inc.
St. Anthony Division
P. O. Box 167
St. Anthony, ID 83445

CONTACT PERSON: Sherwin Rigby

NATURE OF BUSINESS: Stud mill

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION: 40,000 tons/yr

FUEL TYPE REPLACED BY BIOMASS ENERGY:

SECONDARY BACK-UP CAPABILITY:

END USE(S): Space heat, process drying

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 15 psig): 20,000

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___ psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Fuel cell

TYPE OF COMBUSTION CONTROL: Auto

TYPE OF BOILER: Fire tube

BOILER MANUFACTURER: Wellens

TYPE OF POLLUTION CONTROL: Multi-cone

REASON FOR USING WOOD AS FUEL: In-house fuel available and
fuel cost savings

WOOD COMBUSTION FACILITIES

Konkolville Lumber Company, Inc.
P. O. Box 1208
Orofino, ID 83544

CONTACT PERSON: _____ ; Phone: 476-4597

NATURE OF BUSINESS: Lumber Manufacturing

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION: 6,384 tons/yr.

FUEL TYPE REPLACED BY BIOMASS ENERGY: None

SECONDARY BACK-UP CAPABILITY: None

END USE(S): Space heat, process drying

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ____ psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ____ psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Dutch oven

TYPE OF COMBUSTION CONTROL: Auto

TYPE OF BOILER: Firetube

BOILER MANUFACTURER: Kewanee

TYPE OF POLLUTION CONTROL: Cyclone

REASON FOR USING WOOD AS FUEL: Fuel cost savings

WOOD COMBUSTION FACILITIES

Louisiana Pacific Corporation
P. O. Box 108
Moyie Springs, ID 83805

CONTACT PERSON: Robert Harvey, Maintenance Foreman

NATURE OF BUSINESS: Sawmill

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: Mill waste

AVERAGE FUEL CONSUMPTION: 20,500 lbs/hr

FUEL TYPE REPLACED BY BIOMASS ENERGY:

SECONDARY BACK-UP CAPABILITY:

END USE(S): process steam/drying

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 150 psig): 80,000

Electrical generation (kw): None

AVERAGE PLANT OUTPUT: N/A

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 150 psig): 45,000

Electrical generation (kw): None

TYPE OF COMBUSTION/FURNACE DESIGN: Spreader-stoker

TYPE OF COMBUSTION CONTROL: Bailey pneumatic

TYPE OF BOILER: Watertube

BOILER MANUFACTURER: Kipper & Sons

TYPE OF POLLUTION CONTROL: Carbon Injectors and Reinjectors

REASON FOR USING WOOD AS FUEL: To burn up waste

WOOD COMBUSTION FACILITIES

Louisiana Pacific Corporation
P. O. Box 249
Sandpoint, ID 83864

CONTACT PERSON: Frank Steenvoorden, Plant Manager; Phone: 263-3145

NATURE OF BUSINESS:

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK:

AVERAGE FUEL CONSUMPTION:

FUEL TYPE REPLACED BY BIOMASS ENERGY:

SECONDARY BACK-UP CAPABILITY: Natural gas

END USE(S): Process drying

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 110 psig): 26,000

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___ psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Suspension burner

TYPE OF COMBUSTION CONTROL: Automatic

TYPE OF BOILER: Watertube

BOILER MANUFACTURER: Babcock and Wilcox

TYPE OF POLLUTION CONTROL: Multi-cone

REASON FOR USING WOOD AS FUEL: Savings in energy costs

WOOD COMBUSTION FACILITIES

Northwest Timber Company
W. I. Forest Products
P. O. Box 610
Coeur d'Alene, ID 83814

CONTACT PERSON: Gerald Sorbel, Plant Manager; Phone: 664-2135

NATURE OF BUSINESS: Lumber

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION: 40,000 tons/yr. (4 boilers,
10,000 tons/yr. each)

FUEL TYPE REPLACED BY BIOMASS ENERGY: None

SECONDARY BACK-UP CAPABILITY: None

END USE(S): Process drying/steam

PLANT DESIGN CAPACITY: 500 HP (125 HP each)

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 80 psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT: 400 HP (100 HP each)

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 80 psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Dutch oven

TYPE OF COMBUSTION CONTROL: Manual

TYPE OF BOILER: Firetube

BOILER MANUFACTURER: Union Iron Works

TYPE OF POLLUTION CONTROL: None

REASON FOR USING WOOD AS FUEL: In-house fuel available

WOOD COMBUSTION FACILITIES

Potlatch Corporation
P. O. Box 370
Coeur d'Alene, ID 83814

CONTACT PERSON: Floyd Hansen, Maint. Supr.; Phone: 664-8101, Ext. 36

NATURE OF BUSINESS: Sawmill

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION: 147,343 ODT/yr. (#1-#5 @ 107,310 ODT/yr., #6 @ 40,033 ODT/yr.)

FUEL TYPE REPLACED BY BIOMASS ENERGY:

SECONDARY BACK-UP CAPABILITY:

END USE(S): Process drying/steam

PLANT DESIGN CAPACITY: #6 - 591 HP @120 psig

Heat (millions of BTU's per hour):

Steam (lbs steam/hour) #1-#5 - 27,600 @ 120 psig

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Dutch oven

TYPE OF COMBUSTION CONTROL: Manual

TYPE OF BOILER: #1-#5 - Firetube, #6 - Watertube

BOILER MANUFACTURER: #1-#5 - Bros Brothers, #6 - Kidwell

TYPE OF POLLUTION CONTROL: Cyclone

REASON FOR USING WOOD AS FUEL: Fuel cost savings

WOOD COMBUSTION FACILITIES

Potlatch Corporation
Boiler #1
P. O. Box 1016
Lewiston, ID 83501

CONTACT PERSON: Frank Rider, Utilities Supt.; Phone: 799-1395

NATURE OF BUSINESS: Pulp and paper

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house, forest prod. firm,
wood chip processor

AVERAGE FUEL CONSUMPTION: 345,000 BDT/yr.

FUEL TYPE REPLACED BY BIOMASS ENERGY: Natural gas, #6 Oil

SECONDARY BACK-UP CAPABILITY: Natural gas, #6 Oil

END USE(S): Space heat, process drying/steam, electricity
generation

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 1,425 psig): 550,000

Electrical generation (kw): 32,000

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___ psig): 525,000

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Spreader stoker,
traveling grates

TYPE OF COMBUSTION CONTROL: Auto

TYPE OF BOILER: Water tube

BOILER MANUFACTURER: Combustion Engineering

TYPE OF POLLUTION CONTROL: Electrostatic Precipitator

REASON FOR USING WOOD AS FUEL: Energy cost & elimination of
waste wood disposal & environmental problems

WOOD COMBUSTION FACILITIES

Potlatch Corporation
Boiler #2
P. O. Box 1016
Lewiston, ID 83501

CONTACT PERSON: Frank Rider, Utilities Supt.; Phone: 799-1395

NATURE OF BUSINESS: Pulp and paper

or Ken Jones 799-1658

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house, forest prod. firm,
wood chip processor

AVERAGE FUEL CONSUMPTION: 66,383 BDT/yr.

FUEL TYPE REPLACED BY BIOMASS ENERGY: Natural gas, #6 oil

SECONDARY BACK-UP CAPABILITY: Natural gas, #6 oil

END USE(S): Space heat, process drying/steam, electricity
generation

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 250 psig): 300,000

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at psig): 125,000

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Grate burner, pin hole, air
cooled grates

TYPE OF COMBUSTION CONTROL: Auto

TYPE OF BOILER: Water tube

BOILER MANUFACTURER: Riley

TYPE OF POLLUTION CONTROL: Wet scrubber

REASON FOR USING WOOD AS FUEL: Energy cost & elimination of
wood disposal & environmental problems

WOOD COMBUSTION FACILITIES

Potlatch Corporation
Jaype Plywood Unit
HC 64, Box 58
Pierce, ID 83546

CONTACT PERSON: Milton Wilson, Power Supt.; Phone: 464-2511, 464-2112

NATURE OF BUSINESS: Manufacturing of Plywood

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION: 84,630 tons/yr.

FUEL TYPE REPLACED BY BIOMASS ENERGY:

SECONDARY BACK-UP CAPABILITY: #6 oil

END USE(S): Space heating, process drying

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 325 psig): 180,000

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 325 psig): 90,000

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Spreader-stoker

TYPE OF COMBUSTION CONTROL: Auto

TYPE OF BOILER: Watertube

BOILER MANUFACTURER: Union Iron Works

TYPE OF POLLUTION CONTROL: Wet stack scrubbers

REASON FOR USING WOOD AS FUEL: Fuel available & fuel cost savings

WOOD COMBUSTION FACILITIES

Potlatch Corporation
St. Maries Complex
P. O. Box 366
St. Maries, ID 83861

CONTACT PERSON: Lisle Young, Maint. Supt.; Phone: 245-2585

NATURE OF BUSINESS: Plywood and Lumber Manufacturing

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION: 50,000 BDT/yr

FUEL TYPE REPLACED BY BIOMASS ENERGY: Biomass original

SECONDARY BACK-UP CAPABILITY: None

END USE(S): Process drying/steam

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour): 120

Steam (lbs steam/hour at 285 psig): 100,000

Electrical generation (kw): None

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour): 120

Steam (lbs steam/hour at psig): 100,000

Electrical generation (kw): None

TYPE OF COMBUSTION/FURNACE DESIGN: Bent tube

TYPE OF COMBUSTION CONTROL: Semi-auto

TYPE OF BOILER: Watertube

BOILER MANUFACTURER: Riley - C and E

TYPE OF POLLUTION CONTROL: Multi-cone and water scrubber

REASON FOR USING WOOD AS FUEL: Economics

WOOD COMBUSTION FACILITIES

Riley Creek Lumber
P. O. Box 35
Laclede, ID 83841

CONTACT PERSON: Allan Hoblitt, Dry End Supt.; Phone: 263-7574

NATURE OF BUSINESS: Sawmill

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION: 45,625 BDT/yr

FUEL TYPE REPLACED BY BIOMASS ENERGY:

SECONDARY BACK-UP CAPABILITY:

END USE(S): Space heat, process drying

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___ psig): 40,000

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___ psig): 35,000

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Spreader stoker

TYPE OF COMBUSTION CONTROL: Auto

TYPE OF BOILER: Firetube

BOILER MANUFACTURER: ABCO Boiler

TYPE OF POLLUTION CONTROL: Multicone

REASON FOR USING WOOD AS FUEL: Fuel cost savings

WOOD COMBUSTION FACILITIES

Shearer Lumber Products, Inc.
P. O. Box 389
Elk City, ID 83525

CONTACT PERSON: Dave Paisley; Phone: 875-1121

NATURE OF BUSINESS: Sawmill and planing mill

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION: 33,600 tons/yr (50% moisture content)

FUEL TYPE REPLACED BY BIOMASS ENERGY:

SECONDARY BACK-UP CAPABILITY:

END USE(S): Space heat, process drying/steam

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 120 psig): 30,000

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 100 psig): 25,000

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Dutch oven

TYPE OF COMBUSTION CONTROL: Manual

TYPE OF BOILER: Watertube

BOILER MANUFACTURER: Babcock and Wilcox

TYPE OF POLLUTION CONTROL: None

REASON FOR USING WOOD AS FUEL: In-house fuel available

WOOD COMBUSTION FACILITIES

Tamarack Energy Partnership
P. O. Box H
New Meadows, ID 83654

CONTACT PERSON: Ted Jeremiah, Supt.; Phone: 347-2216

NATURE OF BUSINESS: Cogeneration

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: Forest products firm

AVERAGE FUEL CONSUMPTION: 80,592 tons/yr

FUEL TYPE REPLACED BY BIOMASS ENERGY: Biomass original

SECONDARY BACK-UP CAPABILITY:

END USE(S): Cogeneration

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 400 psig): 66,000

Electrical generation (kw): 6,200

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 400 psig): 61,380

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Grate burner

TYPE OF COMBUSTION CONTROL:

TYPE OF BOILER: Watertube

BOILER MANUFACTURER: The Fluor Corp., Ltd.

TYPE OF POLLUTION CONTROL: Wet scrubber

REASON FOR USING WOOD AS FUEL: Fuel supply available near site

WOOD COMBUSTION FACILITIES

W. I. Forest Products, Inc.
Bonners Ferry Division
P. O. Box 897
Bonners Ferry, ID 83805

CONTACT PERSON: Fay Florea, Plant Mgr.; Phone: 267-2859

NATURE OF BUSINESS: Sawmill and planer

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house

AVERAGE FUEL CONSUMPTION:

FUEL TYPE REPLACED BY BIOMASS ENERGY: Biomass Original

SECONDARY BACK-UP CAPABILITY: None

END USE(S): Process drying/steam

PLANT DESIGN CAPACITY: 550 HP (4 boilers, 2 @ 150 HP, 2 @ 125HP)

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 125 psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT: 400 HP (2 @ 110 HP, 2 @ 90 HP)

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Grate burner

TYPE OF COMBUSTION CONTROL: Manual

TYPE OF BOILER: Firetube

BOILER MANUFACTURER: 2 Erie City, 2 Union Iron Works

TYPE OF POLLUTION CONTROL: Automatic fire box air control

REASON FOR USING WOOD AS FUEL: In-house fuel available

WOOD COMBUSTION FACILITIES

Wood Power, Inc.
P. O. Box 189
Plummer, ID 83851

CONTACT PERSON: Everett Newbill

NATURE OF BUSINESS: Congeneration

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: In-house; (90%), Purchased Outside;(10%)

AVERAGE FUEL CONSUMPTION: 300 - 360 units

FUEL TYPE REPLACED BY BIOMASS ENERGY: N/A

SECONDARY BACK-UP CAPABILITY: None

END USE(S): Cogeneration

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 400 psig): 70,000 lbs./hr.

Electrical generation (kw): 5,000 kw

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at psig): 60 - 70,000 lbs./hr.

Electrical generation (kw): 5,000 kw

TYPE OF COMBUSTION/FURNACE DESIGN: Spreader Stoker

TYPE OF COMBUSTION CONTROL: Manual

TYPE OF BOILER: Watertube

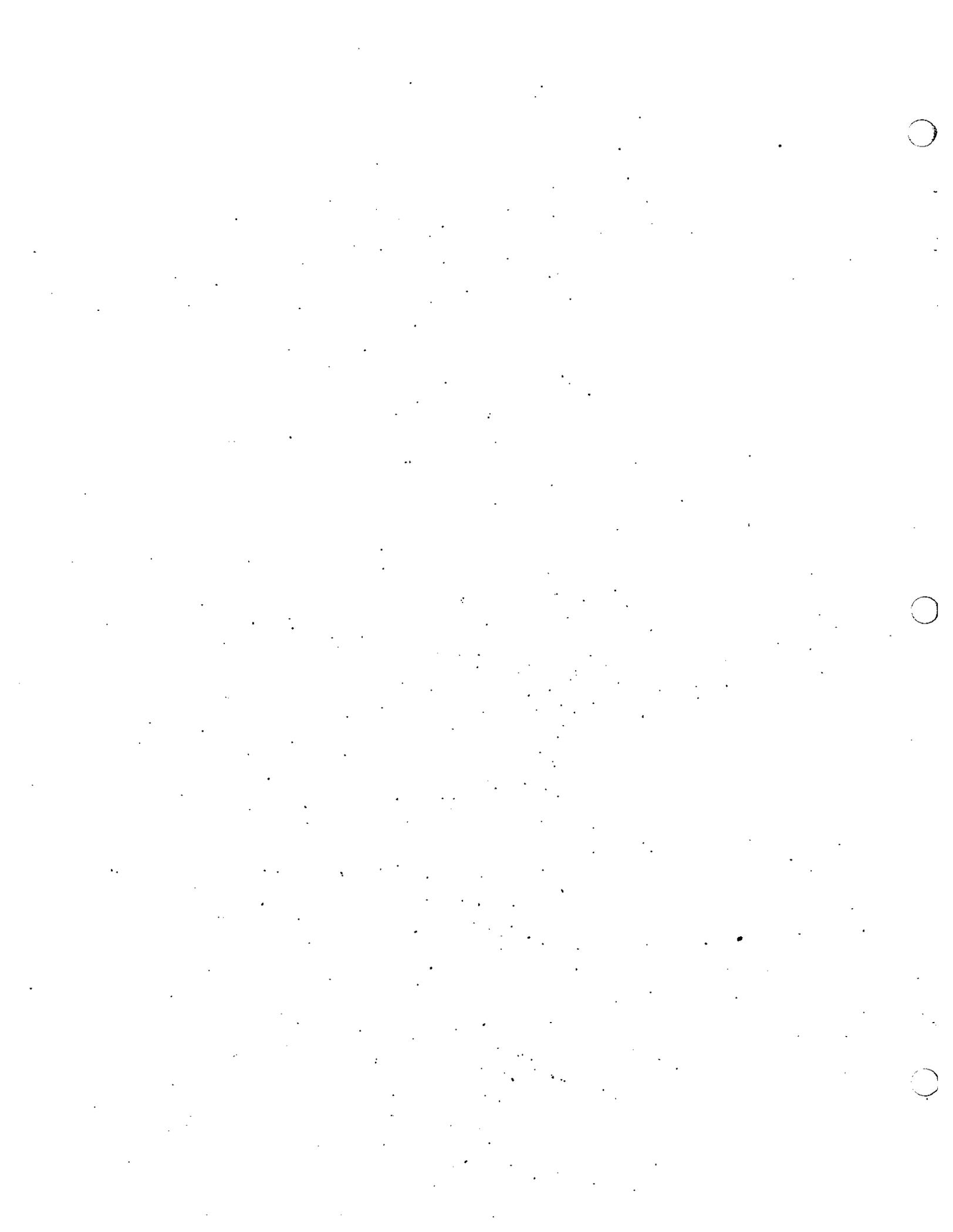
BOILER MANUFACTURER: Riley

TYPE OF POLLUTION CONTROL: Multicone and Wet Scrubbers

REASON FOR USING WOOD AS FUEL: Woodwaste is available from nearby mill
(Pacific Crown Timber)

A. WOOD COMBUSTION FACILITIES

2. COMMERCIAL



WOOD COMBUSTION FACILITIES

Barnett-Thompson Chevrolet
P. O. Box 231
Orofino, ID 83544

CONTACT PERSON: Dennis Thompson; Phone: 476-4595

NATURE OF BUSINESS: Auto Dealership

TYPE OF BIOMASS FEEDSTOCK: Wood pellets

SOURCE OF BIOMASS FEEDSTOCK: Wood pellet processor

AVERAGE FUEL CONSUMPTION:

FUEL TYPE REPLACED BY BIOMASS ENERGY: Coal

SECONDARY BACK-UP CAPABILITY:

END USE(S): Space heat

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___ psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 15 psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Grate burner

TYPE OF COMBUSTION CONTROL: Automatic

TYPE OF BOILER: Firetube

BOILER MANUFACTURER: Birchfield

TYPE OF POLLUTION CONTROL: None

REASON FOR USING WOOD AS FUEL: Cleaner than coal,
fuel cost savings

WOOD COMBUSTION FACILITIES

The Centre', Inc.
P. O. Box 272
Orofino, ID 83544

CONTACT PERSON: Donna R. Leach, President; Phone: 476-4724

NATURE OF BUSINESS: Retail Clothing Store

TYPE OF BIOMASS FEEDSTOCK: Wood pellets

SOURCE OF BIOMASS FEEDSTOCK: Wood pellet processor

AVERAGE FUEL CONSUMPTION: 40 tons/yr.

FUEL TYPE REPLACED BY BIOMASS ENERGY: Coal

SECONDARY BACK-UP CAPABILITY:

END USE(S): Space heat

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___ psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___ psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Pile burner

TYPE OF COMBUSTION CONTROL: Auto

TYPE OF BOILER:

BOILER MANUFACTURER: Weil-McLain

TYPE OF POLLUTION CONTROL:

REASON FOR USING WOOD AS FUEL: Cleanliness, even heat, possible fuel savings

WOOD COMBUSTION FACILITIES

Country Haus Restaurant and Village Motel
P. O. Box 132
Cottonwood, ID 83522

CONTACT PERSON: Chet Ferguson; Phone: 962-3391

NATURE OF BUSINESS: Motel, Restaurant and Beauty Salon

TYPE OF BIOMASS FEEDSTOCK: Wood pellets

SOURCE OF BIOMASS FEEDSTOCK: Wood pellet processor

AVERAGE FUEL CONSUMPTION: 27 tons/yr.

FUEL TYPE REPLACED BY BIOMASS ENERGY: Electricity

SECONDARY BACK-UP CAPABILITY: Electricity

END USE(S): Space heating, water heating

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ____ psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ____ psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN:

TYPE OF COMBUSTION CONTROL:

TYPE OF BOILER: Firetube

BOILER MANUFACTURER: Enndking Company

TYPE OF POLLUTION CONTROL: None

REASON FOR USING WOOD AS FUEL: Fuel cost savings

WOOD COMBUSTION FACILITIES

Hughes Greenhouse
S. 420 Spokane Street
Post Falls, ID 83854

CONTACT PERSON: Howard Hughes; Phone: 773-5112

NATURE OF BUSINESS: Greenhouse (roses)

TYPE OF BIOMASS FEEDSTOCK: Wood pellets

SOURCE OF BIOMASS FEEDSTOCK: Wood pellet processor

AVERAGE FUEL CONSUMPTION: 800 tons/yr

FUEL TYPE REPLACED BY BIOMASS ENERGY: Coal

SECONDARY BACK-UP CAPABILITY: Natural gas/coal

END USE(S): space heating

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 15 psig): 100-125

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___ psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN:

TYPE OF COMBUSTION CONTROL:

TYPE OF BOILER: Firetube

BOILER MANUFACTURER: Pacific

TYPE OF POLLUTION CONTROL: None

REASON FOR USING WOOD AS FUEL: Fuel cost savings

WOOD COMBUSTION FACILITIES

LaGrace Apartments
5000 N. Boyer
Sandpoint, ID 83864

CONTACT PERSON: Bob LaGrace; Phone: 263-5298

NATURE OF BUSINESS: Health club, wood pellet heating equipment dealer

TYPE OF BIOMASS FEEDSTOCK: Wood pellets

SOURCE OF BIOMASS FEEDSTOCK: Wood pellet processor

AVERAGE FUEL CONSUMPTION: 30 tons/yr (2 boilers)

FUEL TYPE REPLACED BY BIOMASS ENERGY: #2 oil

SECONDARY BACK-UP CAPABILITY: Coal

END USE(S): Space heat, domestic hot water

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 15 psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___psig): Water 160° F

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Pile burner

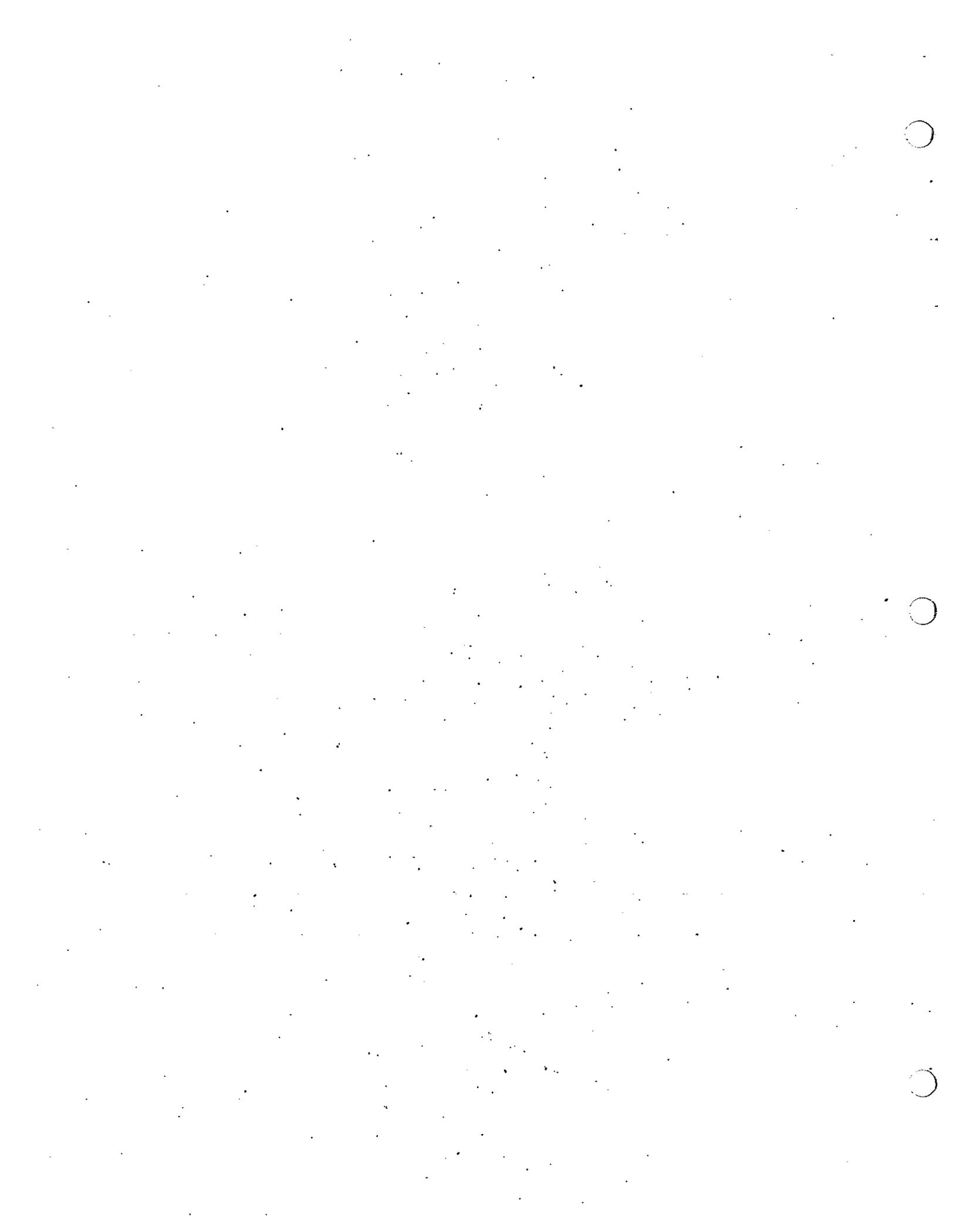
TYPE OF COMBUSTION CONTROL: Auto

TYPE OF BOILER:

BOILER MANUFACTURER: #1-American Radiator, #2-National

TYPE OF POLLUTION CONTROL: None

REASON FOR USING WOOD AS FUEL: Fuel cost savings & non-polluting fuel



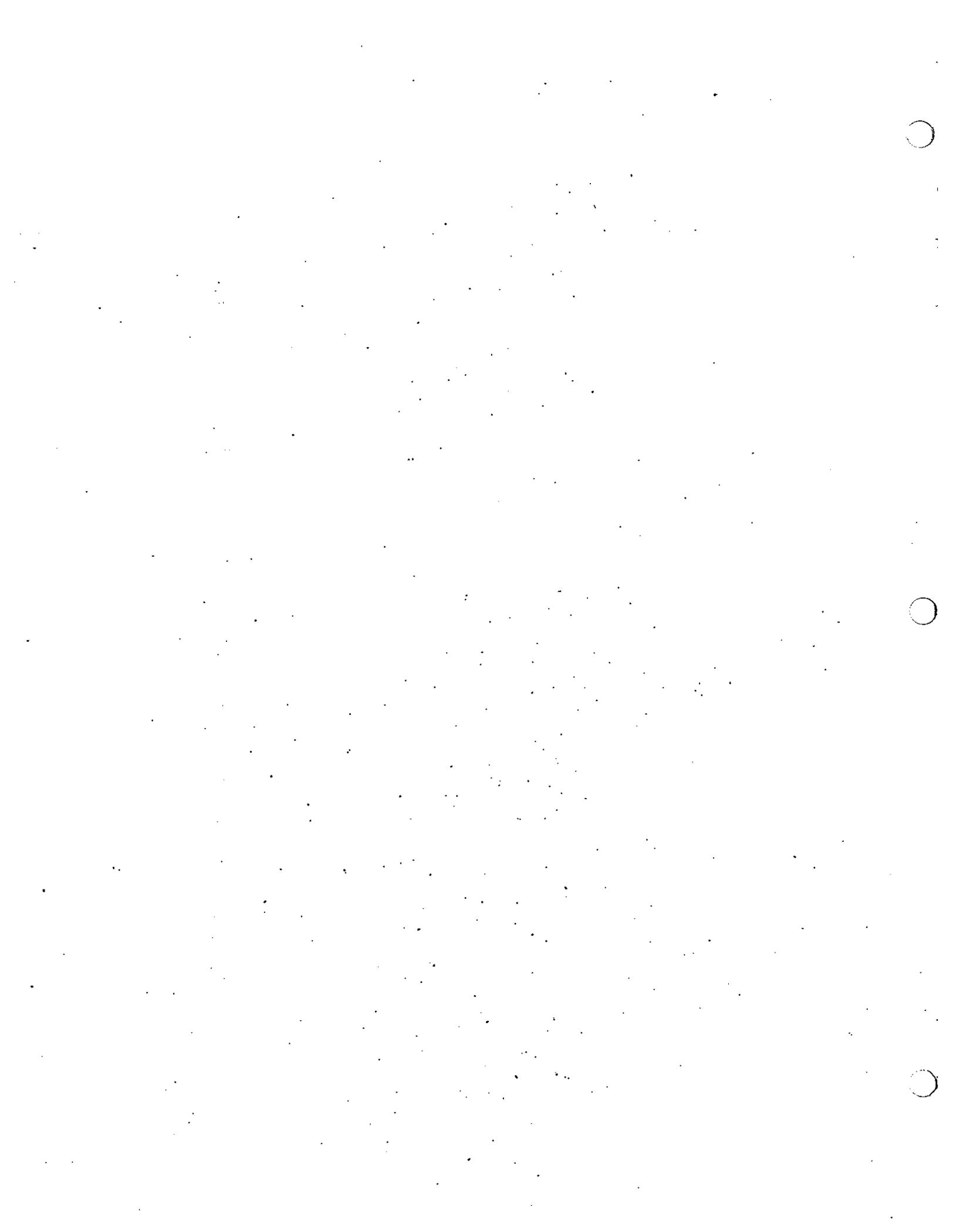
A. WOOD COMBUSTION FACILITIES

3. INSTITUTIONAL

Schools

Hospitals

Others



WOOD COMBUSTION FACILITIES

Craigmont High School
P. O. Box 127
Craigmont, ID 83523

CONTACT PERSON: Leonard C. Berg, Maintenance; Phone: 924-5211

NATURE OF BUSINESS: Educational institution

TYPE OF BIOMASS FEEDSTOCK: Wood pellets

SOURCE OF BIOMASS FEEDSTOCK: Wood pellet processor

AVERAGE FUEL CONSUMPTION: 100 tons/yr.

FUEL TYPE REPLACED BY BIOMASS ENERGY: Coal

SECONDARY BACK-UP CAPABILITY:

END USE(S): Space heat

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___ psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 15 psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN:

TYPE OF COMBUSTION CONTROL:

TYPE OF BOILER: Firetube

BOILER MANUFACTURER: Gabriel

TYPE OF POLLUTION CONTROL: None

REASON FOR USING WOOD AS FUEL:

WOOD COMBUSTION FACILITIES

Orofino Junior High School

P. O. Box 706

Orofino, ID 83544

CONTACT PERSON: Gene Hobbs, Principal; Phone: 476-4613

NATURE OF BUSINESS: Educational institution

TYPE OF BIOMASS FEEDSTOCK: Wood pellets

SOURCE OF BIOMASS FEEDSTOCK: Wood pellet processor

AVERAGE FUEL CONSUMPTION:

FUEL TYPE REPLACED BY BIOMASS ENERGY: Coal

SECONDARY BACK-UP CAPABILITY: Coal

END USE(S): Space heat

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 7 psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 7 psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Pile

TYPE OF COMBUSTION CONTROL:

TYPE OF BOILER: Firetube

BOILER MANUFACTURER: Kiwanis

TYPE OF POLLUTION CONTROL: None

REASON FOR USING WOOD AS FUEL: More dependable fuel supply

WOOD COMBUSTION FACILITIES

Prairie Elementary School
P. O. Box 158
Cottonwood, ID 83522

CONTACT PERSON: Everett Sonnen, Bldg. Maint.; Phone: 962-3521

NATURE OF BUSINESS: Educational institution

TYPE OF BIOMASS FEEDSTOCK: Wood pellets

SOURCE OF BIOMASS FEEDSTOCK: Wood pellet processor

AVERAGE FUEL CONSUMPTION:

FUEL TYPE REPLACED BY BIOMASS ENERGY: Coal

SECONDARY BACK-UP CAPABILITY: Coal

END USE(S): Space heat, steam

PLANT DESIGN CAPACITY: 90 HP

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 20 psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN:

TYPE OF COMBUSTION CONTROL:

TYPE OF BOILER: Firetube

BOILER MANUFACTURER: National U. S. Radiator

TYPE OF POLLUTION CONTROL: None

REASON FOR USING WOOD AS FUEL: Fuel cost savings

WOOD COMBUSTION FACILITIES

Prairie High School
P. O. Box 158
Cottonwood, ID 83522

CONTACT PERSON: Everett Sonnen, Bldg. Maint.; Phone: 962-3521

NATURE OF BUSINESS: Educational institution

TYPE OF BIOMASS FEEDSTOCK: Wood pellets

SOURCE OF BIOMASS FEEDSTOCK: Wood pellet processor

AVERAGE FUEL CONSUMPTION:

FUEL TYPE REPLACED BY BIOMASS ENERGY: Coal

SECONDARY BACK-UP CAPABILITY: Coal

END USE(S): Space heat, hot water/steam

PLANT DESIGN CAPACITY: 2 boilers

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ____ psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 15 psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Pile burner

TYPE OF COMBUSTION CONTROL:

TYPE OF BOILER: Firetube

BOILER MANUFACTURER: Birchfield

TYPE OF POLLUTION CONTROL: None

REASON FOR USING WOOD AS FUEL: Fuel cost savings

WOOD COMBUSTION FACILITIES

University of Idaho*
Moscow, ID 83843

CONTACT PERSON: Larry Kirkland; Tom Sawyer; Ken Hall; Phone: 885-6246

NATURE OF BUSINESS: Educational institution

TYPE OF BIOMASS FEEDSTOCK: Hogged fuel

SOURCE OF BIOMASS FEEDSTOCK: Mill waste

AVERAGE FUEL CONSUMPTION: 22,000 Bone dry tons per year

FUEL TYPE REPLACED BY BIOMASS ENERGY: Natural gas

SECONDARY BACK-UP CAPABILITY: Natural gas

END USE(S): Space heat

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour): 88,000,000

Steam (lbs steam/hour at 150 psig): 60,000

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at 150 psig): 60,000

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN:

TYPE OF COMBUSTION CONTROL:

TYPE OF BOILER:

BOILER MANUFACTURER: Nebraska Boiler

TYPE OF POLLUTION CONTROL: Cyclone

REASON FOR USING WOOD AS FUEL: Economics and education; research; state benefits

*Will be coming on line in April, 1987.

WOOD COMBUSTION FACILITIES

St. Mary's Hospital
P. O. Box 137
Cottonwood, ID 83522

CONTACT PERSON: John Hull; Phone: 962-3251

NATURE OF BUSINESS: Hospital

TYPE OF BIOMASS FEEDSTOCK: Wood pellets

SOURCE OF BIOMASS FEEDSTOCK: Wood pellet processor

AVERAGE FUEL CONSUMPTION: 250 tons/yr.

FUEL TYPE REPLACED BY BIOMASS ENERGY: Oil

SECONDARY BACK-UP CAPABILITY: Electricity

END USE(S): Space heat, hot water

PLANT DESIGN CAPACITY: 144 HP (#1-72 HP, #2-72 HP)

Heat (millions of BTU's per hour): 366,480 BTU/hr.

Steam (lbs steam/hour at 15 psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour): 45,810

Steam (lbs steam/hour at 10 psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN:

TYPE OF COMBUSTION CONTROL:

TYPE OF BOILER: Firetube

BOILER MANUFACTURER: Birchfield

TYPE OF POLLUTION CONTROL:

REASON FOR USING WOOD AS FUEL: Fuel cost savings

WOOD COMBUSTION FACILITIES

Sandpoint Baptist Church
P. O. Box 1841
Sandpoint, ID 83864

CONTACT PERSON: Lloyd Garrison, Pastor; Phone: 265-4220

NATURE OF BUSINESS: Religious institution

TYPE OF BIOMASS FEEDSTOCK: Wood pellets

SOURCE OF BIOMASS FEEDSTOCK: Wood pellet processor

AVERAGE FUEL CONSUMPTION: 25 tons/yr

FUEL TYPE REPLACED BY BIOMASS ENERGY: none

SECONDARY BACK-UP CAPABILITY: Electricity

END USE(S): Space heat, domestic hot water

PLANT DESIGN CAPACITY:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___ psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's per hour):

Steam (lbs steam/hour at ___ psig):

Electrical generation (kw):

TYPE OF COMBUSTION/FURNACE DESIGN: Grate burner

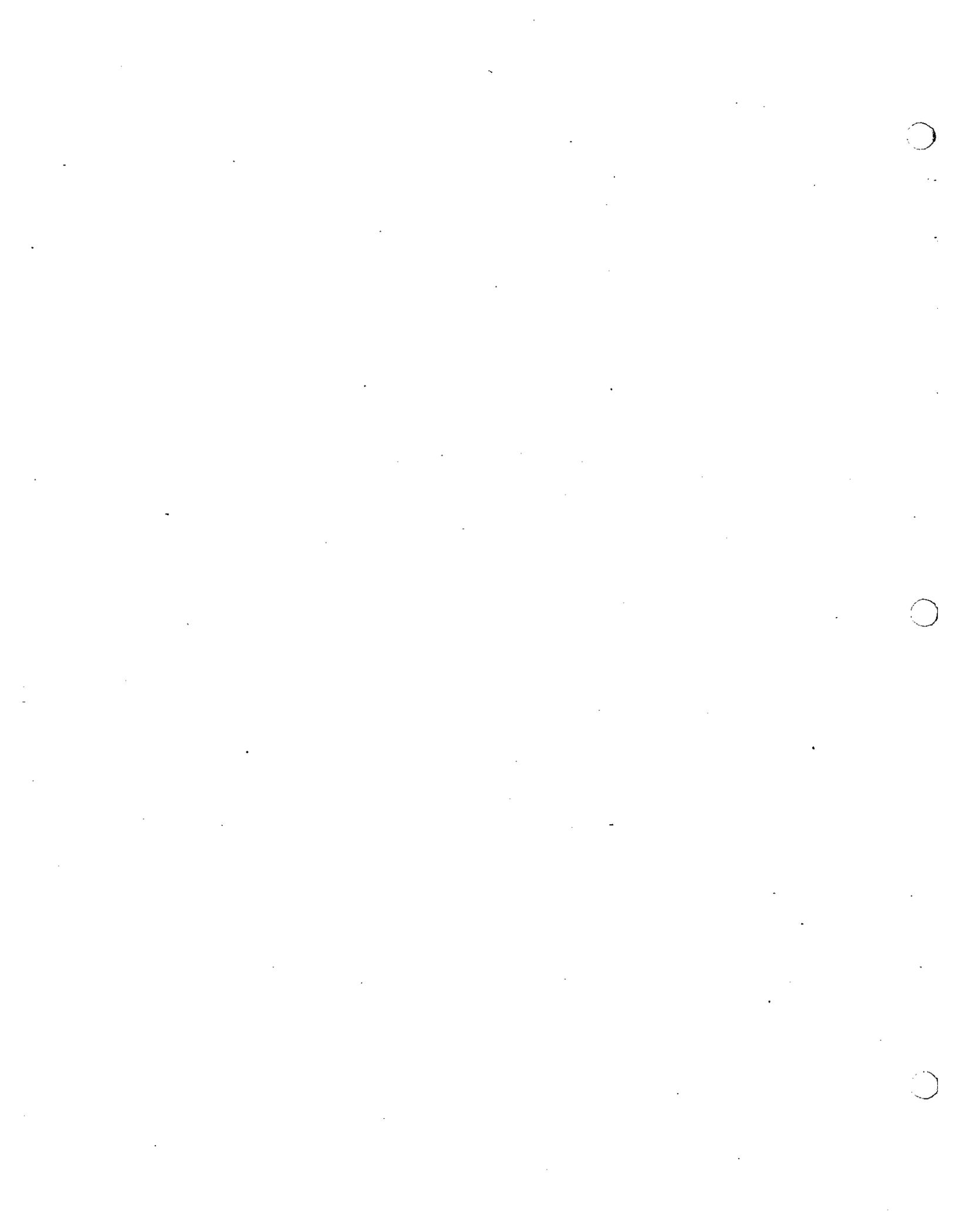
TYPE OF COMBUSTION CONTROL: Auto

TYPE OF BOILER:

BOILER MANUFACTURER:

TYPE OF POLLUTION CONTROL:

REASON FOR USING WOOD AS FUEL: Fuel cost savings



B. SOLID FUEL PROCESSING FACILITIES



IDAHO WOOD PELLET PLANTS

There are now 5 wood pellet mills in Idaho. Three of the mills have dryers. Two are located at sawmills. The following are data sheets on the five pellet mills and one compressed log manufacturer.

SOLID FUEL PROCESSING FACILITIES

Coeur d'Alene Fiber Fuels, Inc.
3550 W. Seltice Way
Coeur d'Alene, ID. 83814

CONTACT PERSON: Ron Green
PHONE: (208) 765-0608

TYPE OF BIOMASS FEEDSTOCK: sawdust and shavings

SOURCE OF BIOMASS FEEDSTOCK: local sawmills

PLANT DESIGN CAPACITY
tons pellets/year: 1990 - 20,000
1991 projected - 40,000

AVERAGE PLANT OUTPUT
tons pellets/day: 80

TYPE OF PRODUCTS: residential or commercial wood pellets

PRODUCT STORAGE CAPACITY
tons: 2500

CHIPPER
number: 0
sizes HP:
types:

PELLETIZING MACHINES
number: 1, 2 - 1991
types: flat die
brands: Kahl
HP ratings: 250
capacities: 4 tons/hr

DRYER
type: single pass
brand:
capacity: 10 tons/hr
fuels used: wood or gas
burner rating: 25,000,000 Btu/hr
normal firing rate: 10,000,000 Btu/hr
Will dryer operate solely on wood fuel except for pilot?: yes

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SOLID FUEL PROCESSING FACILITIES

Browning Cutstock
P.O. 439
Juliaetta, ID 83535

CONTACT PERSON: Jack Browning
PHONE: (208) 276-3494

TYPE OF BIOMASS FEEDSTOCK: Ponderosa Pine 99.9%

SOURCE OF BIOMASS FEEDSTOCK: Browning Cutstock
secondary wood processing plant

PLANT DESIGN CAPACITY
tons pellets/year:

AVERAGE PLANT OUTPUT
tons pellets/day: 3

TYPE OF PRODUCTS: residential bagged pellets

PRODUCT STORAGE CAPACITY
tons:

CHIPPERS

number: 2
sizes HP: 60 and 30
types: hammer mills

PELLETIZING MACHINES

number: 1
types: ring die
brands: Caifornia Pellet Mill
HP ratings: between 50 and 75
capacities:

DRYER

type: raw material is already dry
brand:
capacity:
fuels used:
burner rating:
normal firing rate:
Will dryer operate solely
on wood fuel
except for pilot?:



SOLID FUEL PROCESSING FACILITIES

C & S Snake River Wood Products
138 E Third North
St Anthony, ID 83445

Plant
2205 East 400 North
St Anthony, ID 83445

Updated November 3, 1992

CONTACT PERSON: Robert or David Cummings
PHONE: (208) 624-4644

TYPE OF BIOMASS FEEDSTOCK: Chips - log home waste

SOURCE OF BIOMASS FEEDSTOCK: Saw mills, post & pole yards
log home mfg. co.

PLANT DESIGN CAPACITY
tons pellets/year: 10,000

AVERAGE PLANT OUTPUT
tons pellets/day: 40

TYPE OF PRODUCTS: All Bagged - residential
pellets

PRODUCT STORAGE CAPACITY
tons: 200

CHIPPERS
number: 2
sizes HP: 60 and 150
types: Jacobsen

PELLETIZING MACHINES
number: 1 expanding shortly
expansion unit (1) ring die
Sprout Waldron 200 - 3.5
ton/hr
types: ring die
brands: Sprout Waldron
HP ratings: 125
capacities: 1.5 ton/hr

DRYER
type: None - expansion
brand:
capacity: 7.5 tons/hr
fuels used:
burner rating:
normal firing rate:
Will dryer operate solely on
wood fuel except for pilot?:



SOLID FUEL PROCESSING FACILITIES

Jensen Lumber Co.
P.O. Box 6
Ovid, ID 83260

CONTACT PERSON: Bob Jensen
PHONE: (208) 847-0889

TYPE OF BIOMASS FEEDSTOCK: planer shavings, sawdust and chips

SOURCE OF BIOMASS FEEDSTOCK: Jensen Lumber Co. sawmill and other area sawmills

PLANT DESIGN CAPACITY
tons pellets/year: 12,500

AVERAGE PLANT OUTPUT
tons pellets/day: 30 to 50

TYPE OF PRODUCTS: residential bagged pellets

PRODUCT STORAGE CAPACITY
tons: 350

CHIPPERS
number: 3
sizes HP: two 50 hp, one 40 hp
types: hammer mills

PELLETIZING MACHINES
number: 2
types: ring die - both
brands: Sprout - both
HP ratings: 100 each
capacities: 1.5 tons/hr each

DRYER
type: rotary drum
brand: shop built
fuels used: input-50% MCWP raw material
output-2 tons/hr at 6% MCWB
burner rating: 4 MM Btu/hr
normal firing rate: 2.8 to 3.4 mm Btu/hr
Will dryer operate solely on wood fuel except for pilot?: yes



SOLID FUEL PROCESSING FACILITIES

Lignetics of Idaho
P.O. Box 1706
Sandpoint, ID 83864

CONTACT PERSON: Ken Tucker
PHONE: (208) 263-0564

TYPE OF BIOMASS FEEDSTOCK: sawdust, planer shavings and chips

SOURCE OF BIOMASS FEEDSTOCK: area sawmills

PLANT DESIGN CAPACITY
tons pellets/year: 70,000

AVERAGE PLANT OUTPUT
tons pellets/day: 250

TYPE OF PRODUCTS: residential bagged and commercial bulk wood pellets

PRODUCT STORAGE CAPACITY
tons: 2500

CHIPPERS
number: 1
sizes HP:
types: most material is pre-hogged

PELLETIZING MACHINES
number: 2
types: ring die
brands: CPM 7000
HP ratings: 300 each
capacities: 3 to 7 tons/hr

DRYER
type: new unit - drum 12' X 32'
single-pass - to be on line in February 1991
brand: Thompson DE
capacity: yet to be determined
fuels used: wood and natural gas
burner rating: 40,000,000 Btu/hr
normal firing rate: 28 MM Btu/hr
Will dryer operate solely on wood fuel except for pilot?: yes



SOLID FUEL PROCESSING FACILITIES

Sawtooth Pellet Co.
8758 Melmont Rd.
Melba, ID 83641

CONTACT PERSON: Clint Neider
PHONE: (208) 495-1200

TYPE OF BIOMASS FEEDSTOCK: dry board ends, sawdust, pallets, etc.

SOURCE OF BIOMASS FEEDSTOCK: Secondary forest product manufactures and animal bedding processors, etc.

PLANT DESIGN CAPACITY
tons pellets/year: 12,500

AVERAGE PLANT OUT PUT
tons pellets/day: 50/12 hr. shift

TYPE OF PRODUCTS: residential bagged pellets 40 lb bags

PRODUCT STORAGE CAPACITY
tons: 120 bulk storage
bagged is stored outside

CHIPPERS

number: 1
sizes HP:
types: hammer mill

PELLETIZING MACHINES

number: 3
types: ring die
brands: Sprout Bauer
HP ratings: 150
capacities: 1.5 tons/hr each

DRYER

type: none
brand:
fuels used:
burner rating:
normal firing rate:
Will dryer operate solely
on wood fuel except for pilot?



SOLID FUEL PROCESSING FACILITIES

North Idaho Energy Logs
P.O. Box 571
Moyie Springs, ID 83845

CONTACT PERSON: Jim Fairchild
PHONE: (208) 267-5311

TYPE OF BIOMASS FEEDSTOCK: sawdust and planer shavings
SOURCE OF BIOMASS FEEDSTOCK: other mills

PLANT DESIGN CAPACITY
tons pellets/year: 10,800 tons/yr

AVERAGE PLANT OUTPUT
tons pellets/day: 20 units/shift

TYPE OF PRODUCTS: 4 1/2" X 12", 7.5 lb compressed
logs

PRODUCT STORAGE CAPACITY
tons: 1800

CHIPPERS

number: 1
sizes HP: 100
types: hammer mill

LOG MAKING MACHINES

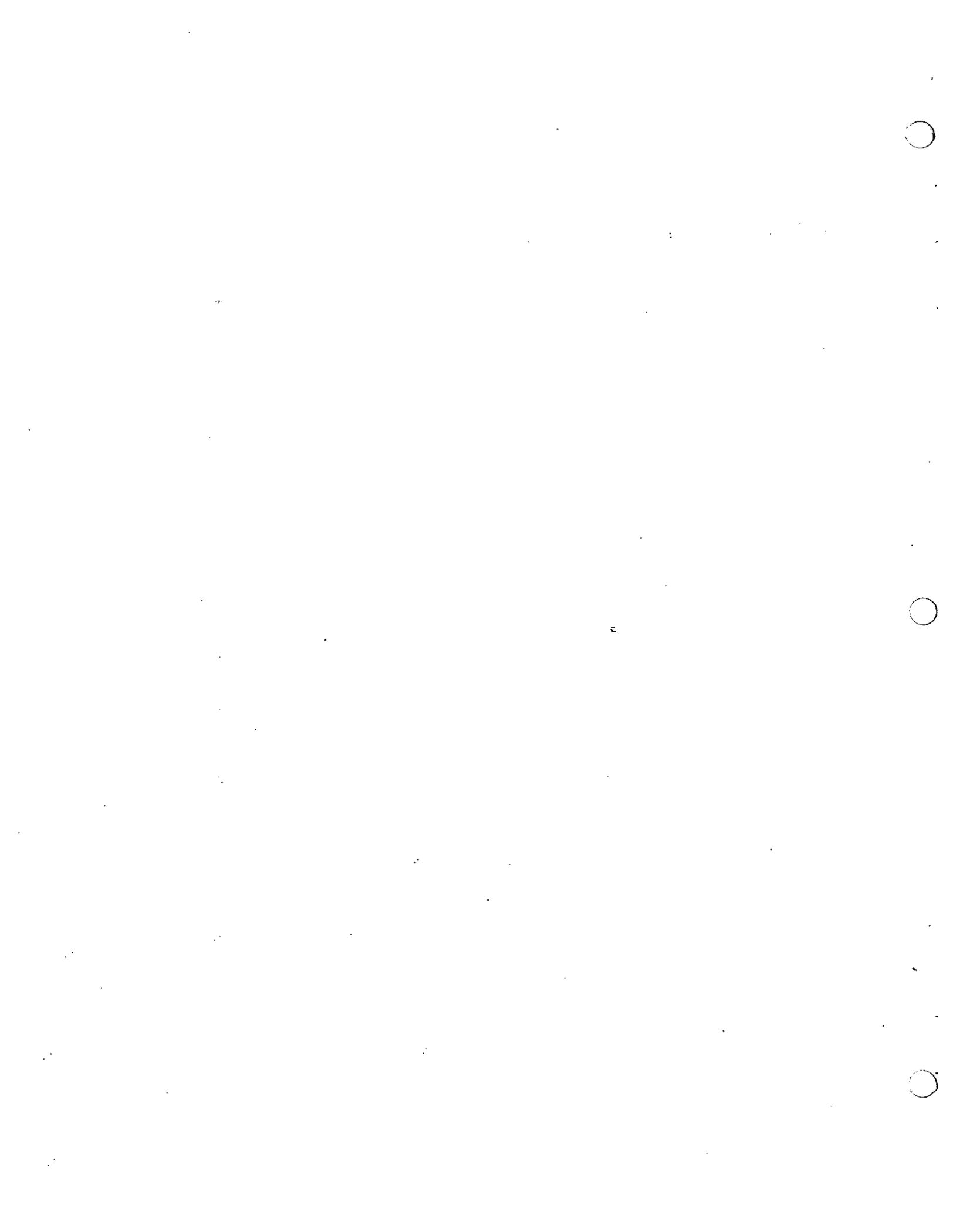
number: 6
types: screw press
brands: Presto Log Briquetter
HP ratings: 60 - 75
capacities: 120 logs/hr

DRYER

type: rotary drum
brand: Heil
capacity: input-7 tons/hr @ 50% MCWB
fuels used: propane
burner rating: 11,000,000 Btu/hr
normal firing rate: 3,000,000 Btu/hr
Will dryer operate solely
on wood fuel
except for pilot?: yes



C. MSW COMBUSTION FACILITIES



MSW COMBUSTION FACILITIES

*stopped operating
in 1992*

Cassia County Energy from Waste Facility
Cassia County Courthouse
Burley, ID 83318

CONTACT PERSON: Timothy A. Hurst, Deputy Auditor; Phone: 678-7302

TYPE OF BIOMASS FEEDSTOCK: Raw refuse

SOURCE OF BIOMASS FEEDSTOCK: Cassia County Municipal solid waste

AVERAGE FUEL CONSUMPTION: 40 TPD

END USE: Process steam at potato processing plant

PLANT DESIGN CAPACITY: 50 TPD

Heat (millions of BTU's/hour):

Steam (lbs. steam/hour at ___ psig):

Electrical generation (kw):

AVERAGE PLANT OUTPUT:

Heat (millions of BTU's/hour):

Steam (lbs. steam/hour at 250 psig): 10,000

Electrical generation (kw): None

TYPE OF INCINERATOR SYSTEM: Modular controlled-air incinerator

INCINERATOR MANUFACTURER: Consumat

TYPE OF POLLUTION CONTROL: Not available



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D. BIOGAS PRODUCTION FACILITIES



BIOGAS PRODUCTION FACILITIES

City of American Falls
Wastewater Treatment Plant
239 Idaho Street
American Falls, ID 83211

CONTACT PERSON: Gerald Geisbrecht, Supt.; Phone: 226-2827

NATURE OF BUSINESS: Wastewater treatment

TYPE OF BIOMASS FEEDSTOCK: Municipal wastewater

BIOGAS METHANE CONTENT:

END USE: Space heat, process heat at treatment plant

PLANT DESIGN CAPACITY: 0.9 MGD

AVERAGE PLANT OUTPUT: 1,737,670 cu. ft. per year

ELECTRICAL GENERATION CAPACITY: none

AVERAGE ELECTRICAL OUTPUT:

BIOGAS PRODUCTION FACILITIES

City of Boise
Lander Street Wastewater Treatment Plant
11818 Joplin Road
Boise, ID 83714

CONTACT PERSON: Ron W. Hathorn, Supt.; Phone: 384-4335

NATURE OF BUSINESS: Wastewater treatment

TYPE OF BIOMASS FEEDSTOCK: Municipal wastewater

BIOGAS METHANE CONTENT: + 70%

END USE: Space heat, process heat, cogeneration

PLANT DESIGN CAPACITY: 15 MGD

AVERAGE PLANT OUTPUT: 48,000,000 cu.ft. gas per year

ELECTRICAL GENERATION CAPACITY: none

AVERAGE ELECTRICAL OUTPUT:

BIOGAS PRODUCTION FACILITIES

City of Boise
West Boise
Wastewater Treatment Plant
11818 Joplin Road
Boise, ID 83714

Revised: December 6, 1993

CONTACT PERSON: John Throne, Manager; Phone: 208-334-4335

NATURE OF BUSINESS: Wastewater treatment

TYPE OF BIOMASS FEEDSTOCK: Municipal wastewater

BIOGAS METHANE CONTENT: 64% CH 36% CO₂

END USE: process heat, Electricity

ELECTRIC CAPACITY: 180 kW

AVERAGE ELECTRICAL OUTPUT: 148 kW

ELECTRIC GENERATION: 1,300,000 kWh/yr

AVERAGE BIOGAS OUTPUT: 147,000 cu ft/day



BIOGAS PRODUCTION FACILITIES

City of Nampa
Wastewater Treatment Plant
340 W. Railroad Street
Nampa, ID 83687-1741

CONTACT PERSON: Gary Towell or Dick Meacham; Phone: 465-2274

NATURE OF BUSINESS: Wastewater treatment

TYPE OF BIOMASS FEEDSTOCK: Municipal wastewater & potato processing waste

BIOGAS METHANE CONTENT: 62% Avg. 1985-86, CO₂ - 35%

END USE: Space heat, process heat in treatment plant

PLANT DESIGN CAPACITY: 11.9 MGD

AVERAGE PLANT OUTPUT: 99,558 ft³/day (1985-86)

ELECTRICAL GENERATION CAPACITY: 225 KW

AVERAGE ELECTRICAL OUTPUT:

BIOGAS PRODUCTION FACILITIES

City of Pocatello
Wastewater Treatment Plant
P. O. Box 4169
Pocatello, ID 83205-4169

CONTACT PERSON: Jay Ulrich, Supt., Phone: 234-6256
Keith Medford, Maintenance Supervisor

NATURE OF BUSINESS: Wastewater treatment

TYPE OF BIOMASS FEEDSTOCK: Municipal wastewater

BIOGAS METHANE CONTENT:

END USE: Cogeneration: Process heat at digester plant and electricity generation

PLANT DESIGN CAPACITY:

AVERAGE PLANT OUTPUT: 100,000 cu.ft. methane per day

ELECTRICAL GENERATION CAPACITY: 190 KW 280

AVERAGE ELECTRICAL OUTPUT: 150 KW/HR

BIOGAS PRODUCTION FACILITIES

City of Preston
Wastewater Treatment Plant
70 West Oneida
Preston, ID 83263

CONTACT PERSON: _____; Phone: 852-2930

NATURE OF BUSINESS: Wastewater treatment

TYPE OF BIOMASS FEEDSTOCK: Municipal wastewater

BIOGAS METHANE CONTENT:

END USE: Process steam at treatment plant

PLANT DESIGN CAPACITY:

AVERAGE PLANT OUTPUT: 3,000 cu.ft. per day

ELECTRICAL GENERATION CAPACITY: none

AVERAGE ELECTRICAL OUTPUT:

BIOGAS PRODUCTION FACILITIES

City of Soda Springs
Wastewater Treatment Plant
9 West Second South
Soda Springs, ID 83276

CONTACT PERSON: W. Lee Godfrey, Supt., Phone: 547-4158

NATURE OF BUSINESS: Wastewater treatment

TYPE OF BIOMASS FEEDSTOCK: Municipal wastewater

BIOGAS METHANE CONTENT:

END USE: Process heat

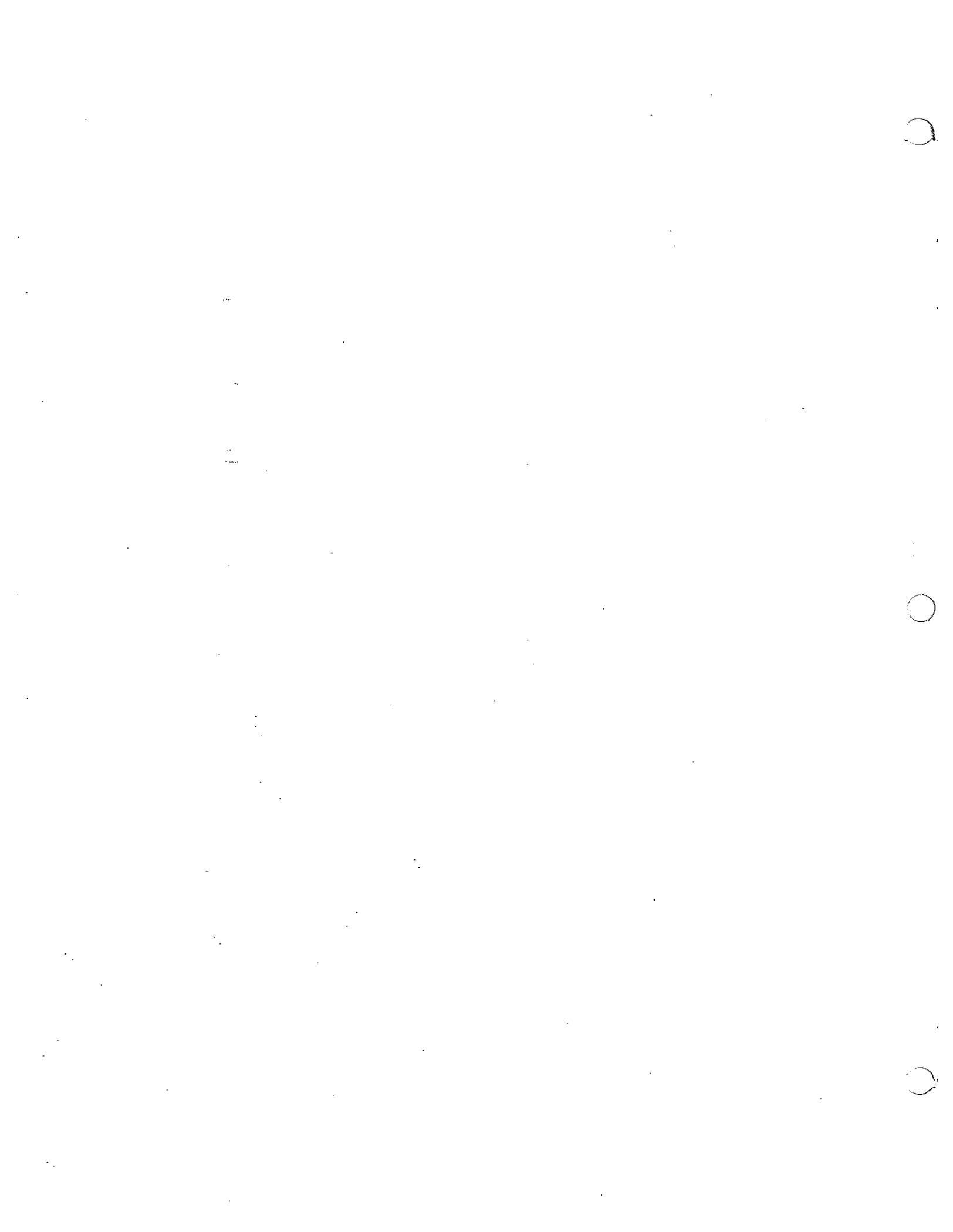
PLANT DESIGN CAPACITY: 1.7 MGD

AVERAGE PLANT OUTPUT: 2,500 cu.ft. methane per day

ELECTRICAL GENERATION CAPACITY: none

AVERAGE ELECTRICAL OUTPUT: none

E. ETHANOL PRODUCTION FACILITIES



ETHANOL PRODUCTION FACILITIES

J. R. Simplot Company
Simplot Avenue
Caldwell, ID 83605

CONTACT PERSON: John Aird, 454-4491

NATURE OF BUSINESS: Potato processing

TYPE OF BIOMASS FEEDSTOCK: Potato processing waste

SOURCE OF BIOMASS FEEDSTOCK: In-house

PROOF OF ETHANOL PRODUCED: 198

END USE: Octane enhancer for gasoline

BY-PRODUCTS: Dewatered stillage cake for livestock feed

PLANT DESIGN CAPACITY: 3 million gallons per year

AVERAGE PLANT OUTPUT:

ALCOHOL STORAGE CAPACITY: 200,000 gallons

ETHANOL PRODUCTION FACILITIES

J. R. Simplot Company
Heyburn, ID 83336

CONTACT PERSON: John Aird, 454-4491

NATURE OF BUSINESS: Potato processing

TYPE OF BIOMASS FEEDSTOCK: Potato processing waste

SOURCE OF BIOMASS FEEDSTOCK: In-house

PROOF OF ETHANOL PRODUCED: 198

END USE: Octane enhancer for gasoline

BY-PRODUCTS: Dewatered stillage cake for livestock feed

PLANT DESIGN CAPACITY: 3 to 5 million gallons per year

AVERAGE PLANT OUTPUT:

ALCOHOL STORAGE CAPACITY: 80,000 gallons

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