CODE OF PRACTICE FOR

ENERGY RECOVERY

September 2005

made under the Environmental Protection and Enhancement Act

ALBERTA ENVIRONMENT

CODE OF PRACTICE FOR ENERGY RECOVERY (made under the Environmental Protection and Enhancement Act, RSA 2000, c.E-12, as amended and Waste Control Regulation (AR 192/96), as amended)

Table of Contents

Part C: Burning Waste as Fuel

13.
Registration Application / Administration Requirements

14.
Design Requirements

15.
Operational Requirements

16.
Monitoring Requirements

Schedule 1
Registration Information for Production of Alternate Fuel

Schedule 2
Registration Information for Burning Waste as Fuel

Section 1: Definitions

1.1 All definitions in the Act and the regulations under the Act apply except where expressly defined in this Code of Practice.

1.2 In this Code of Practice:

(a) “Act” means the Environmental Protection and Enhancement Act, R.S.A. 2000, c. E-12, as amended;

(b) “alternate fuel” means a liquid that:

(i) is capable of being pumped,

(ii) is derived from recyclables,

(iii) has a net heat value equal to or greater than 12 780 kilojoules per kilogram (5500 BTU per pound),

(iv) meets all of the quality limits for the parameter as specified in Table 10-1 of this Code of Practice, and

(v) may contain, without limitation, one (1) or more of the following substances:

(A) oils, including, but not limited to, automotive lubricating oil, compressor oil, fuel oil, gear oil, or hydraulic oil;

(B) fuels, including, but not limited to, diesel, naphtha, gasoline, or kerosene;

(C) condensate that contain less than 0.2 parts per million of hydrogen sulphide;

(D) antifreeze;

(E) glycols;

(F) alcohols;

(G) non-halogenated solvents that contain less than 0.2 parts per million of hydrogen sulphide; and

(H) animal or vegetable based oils;

(c) “burning waste as fuel” means the thermal destruction of a waste or a recyclable in a thermal converter, combustion unit, or space heater for the purposes of producing heat or electricity, but does not include:

(i) the burning of alternate fuel,

(ii) the burning of 4500 litres or less of used oil per year where the used oil

(A) is generated on-site, and

(B) is burned in equipment that meets Canadian Standards Association (CSA) standards, or

(iii) an activity that is governed by an authorization issued under the Oil and Gas Conservation Act;

(cdc) “combustion unit” means industrial furnaces, boilers, or process heaters;

(e) “energy recovery” means

(i) the production of alternate fuel, or

(ii) burning waste as fuel;

(f) “facility” means an operation for energy recovery which produces alternate fuel or burns waste as fuel;

(g) “ISO 17025” means the international standard, developed and published by International Organization for Standardization (ISO), specifying the management and technical requirements for laboratories to demonstrate their technical competence to perform defined tests and produce valid data and results;

(h) “Material Safety Data Sheet” or “MSDS” means a document that contains, at a minimum, the information required pursuant to the Hazardous Products Act (Canada) and the information set out in section 11.1(a) of this Code of Practice;

(i) “mg/L” means milligrams per litre;

(j) “mg/kg” means milligrams per kilogram;

(k) “production of alternate fuel” means the collection and processing of recyclables to produce alternate fuel, where ten (10) tonnes or less of recyclables per month are used for that purpose, but does not include an activity that is governed by an authorization issued under the Oil and Gas Conservation Act;

(l) “Professional Engineer” means a professional engineer or registered professional technologist (engineering) under the Engineering, Geological and Geophysical Professions Act or an equivalent professional designation from another jurisdiction;

(m) “registration holder” means a person who has been issued a registration under the Act, for the construction, operation, or reclamation of a facility for energy recovery;

(n) “regulations” means the regulations under the Act;

(o) “Rm3” means cubic metre of air at the reference conditions of twenty-five (25) degrees Celsius and 101.325 kPa;

(p) “space heater” means an oil fired heater used for heating the interior of a structure;

(q) “TEQ” means dioxin toxic equivalent with respect to the following toxicity equivalency factors:

Congeners Toxicity Equivalency Factor

2,3,7,8-tetrachloro-dibenzo-p-dioxin 1.000

1,2,3,7,8-pentachloro-dibenzo-p-dioxin 0.500

1,2,3,4,7,8-hexachloro-dibenzo-p-dioxin 0.100

1,2,3,6,7,8-hexachloro-dibenzo-p-dioxin 0.100

1,2,3,7,8,9-hexachloro-dibenzo-p-dioxin 0.100

2,3,7,8-tetrachloro-dibenzofuran 0.100

1,2,3,7,8-pentachloro-dibenzofuran 0.050

2,3,4,7,8-pentachloro-dibenzofuran 0.500

Congeners Toxicity Equivalency Factor

1,2,3,4,7,8-hexachloro-dibenzofuran 0.100

1,2,3,6,7,8-hexachloro-dibenzofuran 0.100

1,2,3,7,8,9-hexachloro-dibenzofuran 0.100

2,3,4,6,7,8-hexachloro-dibenzofuran 0.100

(r) “thermal converter” means a device for energy recovery that uses indirect heat to separate organic components from a waste or recyclable to produce fuel;

(s) “this Code of Practice” means the Code of Practice for Energy Recovery, published by the Department, as amended; and

(t) “used oil” means a petroleum-based oil that has been used primarily as lubricating oil in, without limitation, combustion engines, turbines, transmissions, gear boxes, or hydraulic equipment.

PART A: GENERAL REQUIREMENTS

The requirements under this Part apply to both the production of alternative fuel and burning waste as fuel.

Section 2: General

2.1 Any registration holder who conducts energy recovery must do so in accordance with this Code of Practice.

2.2 Where a registration has been issued for energy recovery at a particular facility that registration applies only to that facility.

2.3 Any conflict between the registration application and the terms and conditions of this Code of Practice shall be resolved in favour of this Code of Practice.

2.4 The terms and conditions of this Code of Practice do not affect any rights or obligations created under any other authorization issued by the Department.

2.5 The terms and conditions of this Code of Practice are severable. If any term or condition of this Code of Practice or the application of any term or condition is held invalid, the application of such term or condition to other circumstances and to the remainder of this Code of Practice shall not be affected by that invalidity.

2.6 Subject to 2.7, if the registration holder monitors for any substances or parameter which are the subject of limits in this Code of Practice more frequently than is required, using procedures authorized in this Code of Practice, then the registration holder shall provide the results of such monitoring as an addendum to the next reports required by this Code of Practice.

2.7 Section 2.6 does not apply to short term testing or monitoring of operational changes, new processes, or technologies that do not cause an adverse effect.

2.8 The registration holder shall immediately notify the Director in writing if any of the following events occurs:

(a) the registration holder is served with a petition into bankruptcy;

(b) the registration holder files an assignment in bankruptcy or Notice of Intent to make a proposal;

(c) a receiver or receiver-manager is appointed;

(d) an application for protection from creditors is filed for the benefit of the registration holder under any creditor protection legislation; or

(e) any of the assets, which are the subject matter of this Code of Practice, are seized for any reason.

Section 3: Analytical Requirements

3.1 Any sample required pursuant to this Code of Practice shall be:

(a) collected;

(b) preserved;

(c) stored;

(d) handled; and

(e) analyzed

in accordance with:

(i) the Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846 manual, published by the United States Environmental Protection Agency, 1998, as amended,

(ii) the Methods Manual for Chemical Analysis of Water and Waste, published by Alberta Environment, 1996, as amended,

(iii) the Alberta Stack Sampling Code, published by Alberta Environment, 1995, as amended,

(iv) the Standard Test Method for Ash from Petroleum Products, ASTM D 482-95, as amended,

(v) the Standard Methods for Examination of Water and Wastewater, 20th edition, 1998, published by the American Public Health Association, American Water Works Association, and Water Environment Federation, as amended, or

(vi) any other equivalent method authorized in advance in writing by the Director.

3.2 The registration holder shall analyse all samples that are required to be obtained by this Code of Practice in a laboratory accredited pursuant to ISO 17025 standard, as amended, for the specific parameter(s) to be analyzed, unless otherwise authorized in writing by the Director.

3.3 The registration holder shall comply with the terms and conditions of any written authorization issued by the Director under 3.2.

Section 4: Design and Installation Requirements

4.1 The

(a) design, and

(b) construction

of combustion units or space heaters that burn used oil must comply with CAN/CSA-B140-M97, General Requirements for Oil Burning Equipment, and CAN/CSA-B140.2.1-M90 (R1995), Oil Burners; Atomizing Type, published by the Canadian Standards Association, as amended, or another standard specified in writing by the Director.

4.2 The installation of combustion units or space heaters that burn used oil must comply with CAN/CSA-B139-00, Installation Code for Oil Burning Equipment, 1991, published by the Canadian Standards Association, as amended, or another standard specified in writing by the Director.

4.3 In addition to any other requirements in the Act and the regulations, storage tanks used for storage of recyclables, alternate fuel, and waste burned as fuel shall comply, as applicable, with the Alberta Fire Code (1997), published by the National Research Council of Canada, as amended.

Section 5: Closure Requirements

5.1 Where a facility:

(a) has permanently ceased operations; or

(b) has not been operated for a period of twelve (12) consecutive months,

the registration holder shall notify the Director in writing within thirty (30) calendar days after the respective event.

Section 6: Reporting Requirements

6.1 In addition to any other reporting required pursuant to this Code of Practice, the Act, or the regulations, the registration holder shall immediately report any contravention of this Code of Practice to the Director, either:

(a) by telephone at (780) 422-4505; or

(b) by a method:

(i) in compliance with the release reporting provisions of the Act and the regulations, or

(ii) authorized in writing by the Director.

6.2 In addition to the immediate report in 6.1, the registration holder shall provide a report to the Director:

(a) in writing; or

(b) by a method:

(i) in compliance with the release reporting provisions of the Act and the regulations, or

(ii) authorized in writing by the Director,

within seven (7) calendar days of the discovery of the contravention, or within a time period specified in writing by the Director, unless the Director waives the requirement for a report.

6.3 The report required under 6.2 shall contain, at a minimum, the following information:

(a) a description of the contravention;

(b) the date, time, and duration of the contravention;

(c) the address or legal land description (LLD) of the location of the contravention;

(d) the name, address, phone number, and responsibilities of the person who was in charge and was operating the facility at the time the contravention occurred;

(e) an explanation as to why the contravention occurred including, but not limited to, a comparison of operating conditions at the time the contravention to normal operating conditions;

(f) a summary of all measures and actions that were taken to mitigate any effects of the contravention;

(g) a summary of all measures that will be taken to address the remaining effects and potential effects related to the contravention;

(h) a summary of proposed measures that will prevent future contraventions, including a schedule of implementation for these measures;

(i) any information that was maintained or recorded under this Code of Practice, as a result of the incident; and

(j) any other information required by the Director in writing.

6.4 A registration holder who is required to complete a manual stack survey under 15.2 shall, within sixty (60) days after the completion of the manual stack survey, provide the Director a copy of the manual stack survey results.

Section 7: Record Keeping Requirements

7.1 The registration holder shall, as applicable:

(a) record the following information; and

(b) keep the following records available for five (5) years after creation of the record:

(i) all records that are required under this Code of Practice,

(ii) the results of any monitoring and analysis that are carried on pursuant to this Code of Practice, including the method of testing used,

(iii) the type, quantity, and sources of recyclables or wastes received on a monthly basis for the production of alternate fuel, or the burning of waste as fuel, as applicable,

(iv) the type, quantity, and disposal location of all wastes resulting from the production of alternate fuel, or the burning of waste as fuel, as applicable,

(v) copies of all MSDS prepared in accordance with 11.1,

(vi) site plans or design drawings and specifications for the site or waste burning unit, as applicable,

(vii) a description of all maintenance and repairs made to the alternate fuel or waste burning unit, as applicable, including:

(A) the date of the maintenance;

(B) a description of the maintenance conducted; and

(C) the name of person conducting the maintenance,

(viii) a copy of all applications submitted to the Department for a registration,

(ix) all reports of inspections conducted by the Department,

(x) the registration issued under the Act for the facility, and

(xi) any correspondence sent to the Department regarding the facility.

7.2 The results and records in 7.1 shall contain, at a minimum, all of the following information:

(a) the date, place, and time of monitoring, and the name of the person collecting the sample;

(b) date of analysis;

(c) laboratory name and person responsible for performing analysis;

(d) the analytical method used; and

(e) the results of the analysis.

7.3 A registration holder shall, upon request by an inspector or Director, provide to the inspector or Director, a copy of the registration issued under the Act, any accompanying correspondence, and any records or data regarding the energy recovery.

Section 8: Code of Practice Administration

8.1 This Code of Practice will be reviewed as changes in technological and other standards warrant.

PART B: PRODUCTION OF ALTERNATE FUEL

Section 9: Registration Application/Administration Requirements

9.1 An application for registration for the production of alternate fuel shall contain, at a minimum, the information specified in Schedule 1.

9.2 The technical assessment referred to in clause (h) of Schedule 1 shall be signed and stamped by a Professional Engineer, the manufacturer, or the supplier of the equipment when it involves processes other than phase separation systems.

9.3 A registration holder who produces alternate fuel shall provide written notice to the Director within fourteen (14) calendar days of any change in the information provided in the application for the registration, regarding:

(a) the type and quantity of recyclables collected to produce alternate fuel on a monthly basis;

(b) the address and phone number of the registration holder; and

(c) the name, address, and phone number of any person who has charge, management or control of that facility.

Section 10: Design Requirements
10.1 Subject to 10.2 and 10.3, the design of production facilities for alternate fuels shall include engineering features such that the quality of alternate fuel complies with the parameter quality limits in Table 10-1, as applicable.

Table 10-1 – Quality Limits for Alternate Fuel

Parameter	Limits for Produced Alternate Fuel
Arsenic	maximum 5.0 mg/L
Cadmium	maximum 2.0 mg/L
Chromium	maximum 10.0 mg/L
Lead	maximum 50.0 mg/L
Sulphur	maximum 7 500.0 mg/L
Halogenated Organic Compounds	maximum 1 000.0 mg/L

Polychlorinated Biphenyls
maximum 2.0 mg/L

Flash Point
minimum 38.0 degrees Celsius

Ash Residue
maximum 1.0 % (w/w)

Net heat value
minimum 12 780.0 kJ/kg

10.2 The flash point quality limit in Table 10-1 applies unless the MSDS prepared by the registration holder states that the alternate fuel must not be burned in space heaters.

10.3 The ash residue quality limit in Table 10-1 applies unless the MSDS prepared by the registration holder states that the alternate fuel must only be used in facilities authorized under the Act.

Section 11: Operational Requirements

11.1 When producing alternate fuel the registration holder shall:

(a) prepare a MSDS, which includes:

(i) the quality data for the parameters in Table 10-1, as applicable, and

(ii) a statement that the design of combustion units or space heaters used to burn alternate fuel prepared from used oil must comply with the applicable standard in section 4;

(b) provide third parties receiving alternate fuel with the MSDS, along with the alternate fuel.

11.2 All wastes and wastewaters resulting from producing alternate fuel shall be:

(a) stored and handled in compliance with the Waste Control Regulation; and

(b) disposed of or recycled in a manner authorized under the Act.

Section 12: Monitoring Requirements

12.1 A registration holder who produces alternate fuel shall:

(a) collect one (1) representative sample from each tank containing alternate fuel at each of the following times:

(i) prior to shipment or first time use of the alternate fuel,

(ii) after any change in the nature of the feedstock from which the alternate fuel is produced,

(iii) every three (3) years thereafter;

(b) split the representative sample in two sub-samples;

(c) analyse one (1) sub-sample for the parameters specified in Table 10-1, as applicable; and

(d) keep the second sub-sample for a period of three (3) months, should a need arise to re-analyse the sample.

PART C: BURNING WASTE AS FUEL

Section 13: Registration Application/Administration Requirements

13.1 An application for registration for burning waste as fuel shall contain at a minimum the information specified in Schedule 2.

13.2 The technical assessment referred to in clause (h) of Schedule 2 shall be signed and stamped by a Professional Engineer, the manufacturer, or the supplier of the waste-burning unit.

13.3 A registration holder who burns waste as fuel shall provide written notice to the Director within fourteen (14) calendar days of any change in the information included in the application for the registration regarding:

(a) the type and quantity of wastes burned as fuel on a monthly basis;

(b) the address and phone number of the registration holder; and

(c) the name, address, and phone number of any person who has charge, management, or control of that facility.

Section 14: Design Requirements
14.1 The registration holder shall not burn waste as fuel when the waste:

(a) is hazardous because of its halogenated organic compound(s) content; or

(b) does not comply with the limits for any of the parameters identified in Table 14-1, as applicable.

Table 14-1: Quality Limits for Waste Burned as Fuel

Parameter
Limits for Waste Burned as Fuel

Arsenic
maximum 5.0 mg/kg

Cadmium
maximum 2.0 mg/kg

Lead
maximum 50.0 mg/kg

Mercury
maximum 2.0 mg/kg

Halogenated Organic Compounds
maximum 1,000.0 mg/kg

Polychlorinated biphenyls
maximum 2.0 mg/kg

Net heat value

minimum 12,780.0 kJ/kg

14.2 When the registration holder burns more than ten (10) tonnes of waste per month the flue gas emissions shall not exceed:

(a) the limits for the parameters specified in Table 14-2, as applicable; and

(b) the limits for any additional parameter as specified in writing by the Director.

Table 14-2: Emission Limits for Burning Waste as Fuel

Parameter
Maximum Concentration Limits

Particulate matter
one hour average of 50 mg/Rm3

Hydrogen chloride
one hour average of 75 mg/Rm3

Carbon monoxide
one hour average of 57 mg/Rm3

Sulphur dioxide
one hour average of 450 mg/Rm3

Nitrogen dioxide
one hour average of 400 mg/Rm3

Mercury
one hour average of 20 g/Rm3

Dioxins and furans (TEQ)
one hour average 80 pg TEQ/Rm3

Opacity
20 % averaged over six consecutive minutes

14.3 The emission, as determined by analytical results of the manual stack survey conducted under 15.2 and 15.4, shall not exceed the limits specified in 14.2.

14.4 All wastes and wastewater resulting from burning waste as fuel shall be:

(a) stored and handled in compliance with the Waste Control Regulation; and

(b) disposed of or recycled in a manner authorized under the Act.

Section 15: Monitoring Requirements

15.1 A registration holder who burns waste as fuel shall:

(a) collect one (1) representative sample from each waste:

(i) prior to its use as fuel for the first time,

(ii) when there is change in the nature of the waste to be burned as fuel, and

(iii) as required in writing by the Director; and

(b) analyze the representative sample for the parameter specified in the first column of Table 14-1, as applicable, based on the nature and classification of the waste.

15.2 A registration holder who burns waste as fuel shall complete a manual stack survey:

(a) where the amount of waste burned as fuel exceeds ten (10) tonnes per month; or

(b) when requested in writing by the Director.

15.3 Upon application and submission by the registration holder, the Director may, by notice in writing, exempt the registration holder from the test under 15.2.

15.4 At least two (2) weeks prior to conducting a manual stack survey required in 15.2, a registration holder who burns waste as fuel shall notify the Director in writing that the manual stack survey will be undertaken.

15.5 The manual stack survey required under section 15.2 shall meet the following requirements:

(a) the stack gas must be analyzed with respect to:

(i) the parameter specified in Table 14-2, and

(ii) any other parameter specified by the Director;

(a) the operating temperature of the combustion chamber(s) must be recorded; and

(b) the manual stack survey must comply with the sampling procedures in the Alberta Stack Sampling Code, 1995, published by Alberta Environment, as amended.

15.6 In addition to the collection and analysis of samples required under this Code of Practice, the registration holder burning waste as fuel shall:

(a) collect;

(b) analyze; and

(c) provide the Director with the results of analyses of any additional samples that are required in writing by the Director.

SCHEDULE 1

REGISTRATION INFORMATION FOR PRODUCTION OF ALTERNATE FUEL

Pursuant to 9.1 of this Code of Practice, all of the following information shall be provided to the Director:

(a) The name, address, and phone number of the intended registration holder;

(b) The company name, if any, and the name, address, phone number, and signature of the person who submitted the registration application on behalf of the intended registration holder;

(c) If a person other than the registration holder submitted the registration application, written authorization from the intended registration holder, stating that the person who submitted the registration application was authorized to do so on behalf of the intended registration holder;

(d) The name, job title, address, and phone number of the person designated by the intended registration holder as the primary contact for the facility;

(e) The municipal address, if one exists, or legal land description (LLD) on which the facility will be located;

(f) The expected source, type, and quantity of recyclables to be collected each month for the production of alternate fuel;

(g) A description of the facility including, but not limited to:

(i) a site plan, which includes the legal boundaries of the parcel of land on which the facility is or will be located,

(ii) a list of all storage tanks and their capacities and locations,

(iii) a list of all production equipment,

(iv) monthly production rates,

(v) the estimated quantity, type, and proposed disposal location of all wastes produced;

(vi) monitoring to be conducted, and

(vii) proposed closure procedures.

(h) A technical assessment of the processes used in the production of alternate fuel.

In consideration of the information required above, and the information required in an Activities Plan, the Director waives the requirements of subsection 3(1)(a) through (o) of the Approvals and Registrations Procedure Regulation, A.R. 113/93, as amended from time to time, for a registration application under this Code of Practice.

SCHEDULE 2

REGISTRATION INFORMATION FOR BURNING WASTE AS FUEL

Pursuant to 13.1 of this Code of Practice, all of the following information shall be provided to the Director:

(a) The name, address, and phone number of the registration holder;

(b) The company name, if any, and the name, job title, address, phone number, facsimile number, e-mail address, and signature of the person who submitted the registration application on behalf of the registration holder;

(c) If a person other than the registration holder submitted the registration application, written authorization is required from the registration holder, stating that the person who submitted the registration application was authorized to do so on behalf of the registration holder;

(d) The name, job title, address, phone number, facsimile number, and e-mail address of the person designated by the registration holder as the primary contact for the facility;

(e) The municipal address, if one exists, or legal land description (LLD) of the parcel or parcels on which the operation will be conducted;

(f) The quantity and source of the waste(s) to be burned as fuel;

(g) The results of analyses of a representative sample of the waste to be burned as fuel for the parameters specified in Table 14-2, as applicable;

(h) A technical assessment of the thermal converter and/or waste-burning unit, as applicable. This assessment includes, but is not limited to:

(i) the make, model, and serial number of the thermal converter or burning unit,

(ii) type of thermal converter or burning unit,

(iii) the actual and rated capacity in kilograms per hour specified by the manufacturer,

(iv) the design thermal converter or combustion chamber,

(v) the operating temperature of any thermal converter, if one is included,

(vi) the operating temperature(s) of the combustion chambers,

(vii) equipment to be used in conjunction with the thermal converter or burning unit,

(viii) the expected gaseous emissions at normal operating conditions for the parameter in Table 14-2 as applicable,

(ix) the quantity, type, and proposed disposal location of any wastes produced, and

(x) monitoring to be conducted.

In consideration of the information required above, and the information required in an Activities Plan, the Director waives the requirements of subsection 3(1)(a) through (o) of the Approvals and Registrations Procedure Regulation, A.R. 113/93, as amended, for a registration application under this Code of Practice.