

**APPENDIX I**  
**REQUEST FOR INFORMATION**  
**AND**  
**INCINERATOR CONTACT LIST**

**Golder Associates Innovative  
Applications (GAIA) Inc.**  
500 – 4260 Still Creek Drive  
Burnaby, British Columbia, Canada V5C 6C6  
Telephone (604) 298-6604  
Fax (604) 298-6641



July 4, 2007

07-1700-0035

Attention: Various Recipients

**RE: INCINERATION OPTIONS FOR SPECIFIED-RISK MATERIAL REQUEST FOR  
INFORMATION**

## **1.0 BACKGROUND**

The spread of bovine spongiform encephalopathy (BSE) is a concern within the cattle industry. Following slaughter, approximately 5% of waste material is classified as a Specified-Risk Materials (SRMs) and is currently disposed of in Calgary, Alberta at considerable cost. The issue of disposing of SRMs, particularly nerve and endocrine tissues of cattle containing BSE prions, cannot be properly addressed through direct burial and hence, methods of incinerating SRMs is to be explored.

The BC Ministry of Agriculture and Lands has provided assistance to the provincial cattle industry to aid in the disposal of SRMs through the Livestock Waste Tissue Initiative (LWTI). The LWTI is aware of available incinerators but would like to broaden their knowledge base while developing a matrix comparing choices. The LWTI has asked Golder Associates Innovative Applications (GAIA) Inc. to gather applicable incineration technologies for disposal of SRMs.

## **2.0 REQUEST FOR INFORMATION**

GAIA is contacting incinerator suppliers and manufacturers for information regarding technologies, cost of implementation and cost of operation and maintenance. With this information we will construct a table of information detailing available regional and individual incinerator technologies. Please refer to Attachment A: Incinerator Information as a guide line of the data we are gathering.

This information will then be compiled into a report which will be distributed to the provincial cattle industry as a guide for implementing an incinerator program. Suppliers and manufacturers contact information would be provided in this report for the opportunity of further study and individual solutions.

### 3.0 REQUIREMENTS

The LWTI has stipulated specific annual waste material volumes which should be matched up to different incinerator models. The Table 1 waste tonnages correspond to: the amount of dead stock to be burned, a regional solution to service various facilities and smaller scale individual plant solutions.

**TABLE 1: Waste Tonnage Volumes**

<b>Dead Stock Tonnes per year</b>	<b>Regional SRM Solutions Tonnes per year</b>	<b>Individual Plant SRM Solutions Tonnes per year</b>		
1,800	500	187	47	9
1,500	250	152	40	8
1,000	40	88	25	2
700		80	20	1
350		60	18	
		58	13	

With the tonnage from Table 1 a suitable burn frequency can be selected to match the incinerators feed rate (kg/hr) and burn time (hours). Possible frequencies could be a daily basis with a 260 day work year, or on a weekly basis 52 times per year.

The LWTI is also very interested in any third party verified emissions for burns of SRMs, dead animals or slaughter waste. This information would assist the selection process of an appropriate incinerator.

The Canadian Food Inspection Agency (CFIA) has specific regulations for animal health feed ban control. (<http://www.inspection.gc.ca/english/anima/heasan/man/bseesb/4e.shtml>). The incinerator chosen must be able to operate and be approved under these regulations. Some specific points to be aware of:

- The primary chamber heats to at least 850°C before SRM is added.
- SRM Remains in the primary chamber for a residence time of at least 15 minutes with the temperature maintained above 850°C.
- Any ash volatilized by the primary chamber that can escape prior to a 15 – minute residency time is controlled by a residency time of at least 2 seconds in a secondary chamber.

- The temperature sensor measures the temperature of the primary chamber from an appropriate location, such as the inner wall or the immediate exhaust.
- The burner does not directly influence the temperature sensor, which should provide a representative measure of the whole chamber.
- The monitoring system provides temperature trend data for the primary chamber.

The supplier should refer to and be familiar with the CFIA's regulations.

The British Columbia Ministry of Environment (MOE) has released a policy intentions paper which details slaughter and poultry waste disposal through incineration. ([http://www.env.gov.bc.ca/epdiv/ema\\_codes\\_of\\_practice/slaughter/index.html](http://www.env.gov.bc.ca/epdiv/ema_codes_of_practice/slaughter/index.html)) The incinerator chosen must be able to operate and be approved under these intended regulations. Some specific points to be aware of:

- This proposed code only applies to incinerators, either continuous or batch, with a feed rate of 400 kg per hour or less. Incinerators with a higher feed limit must address more stringent permitting and should not be chosen unless absolutely necessary.
- Air emissions must be measured for total particulate below 50 mg/m<sup>3</sup> and opacity below 10% averaged over 6 consecutive minutes.
- The permitting for the incinerator is for animal by-product waste stream only.
- Waste loading into the incinerator must be weighed.

The supplier should refer to and be familiar with the MOE's intended regulations.

The supplier should contact GAIA to discuss their proposed incineration technology. GAIA will acknowledge and provide contact information in the report for all suppliers and manufacturers who provide appropriate information. We believe this will be an excellent opportunity for suppliers to get incinerator information directly to potential end users in the BC cattle industry.

#### **4.0 PROPOSED SCHEDULE**

Upon delivery of the request for information suppliers and manufacturers will have two weeks to contact GAIA with the information required. After this period the information will be compiled into a report for the LWTI and ultimately the provincial cattle industry.

#### **5.0 CLOSURE**

We look forward to hearing from you and ultimately taking a step in the right direction for instituting a needed resource for the agriculture industry. We trust that the above is satisfactory. Should you have any questions, please contact the undersigned.

Yours very truly,

**GOLDER ASSOCIATES INNOVATIVE APPLICATIONS (GAIA) INC.**

Philip Birett, B. Eng.  
Project Manager

Neil McQuitty, LLB(Hons), P.Eng.  
Contracts Manager

Attachment: Incinerator Information

PJB/NMcQ/pjb

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**ATTACHMENT A: Incinerator Information**

Model and Manufacturer				
Description: Batch / Continuous Feed Tested on SRMs / Air emission After burner / Secondary chamber Foot Print Capacity (kg/hr)				
Capital Cost (\$)				
Typical Installation Cost (\$)				
Operation Costs: Labour / Training (\$/year) Major Repair Contingency (\$ / event) Fuel				
Options: Feed Ram Ash Management / Auto outload Waste Oil Burner Feed weigh scale Mobilization upgrade				
Other				

Company / Location	Contact Information	Contact Name	Conversation	Date of Conversation
1 Jentek Environmental Industries Inc.	ph: 604-534-7430	Phil Wilford	Spoke with and met to discuss.	June 7, 2007
Langley, BC	fax: 604-534-7470		Sent RFI (Request for Information) and discussed	July 4, 2007
	email: <a href="mailto:jentek@telus.net">jentek@telus.net</a>			
2 KG Wardstrom Industrial Gas	ph: 604-888-2077	Ken Wardstrom	Referred to by AED MFG & Mechanical Installations Ltd.	July 4, 2007
Surrey BC	fax: 604-888-2823		Called and emailed RFI	
	email: <a href="mailto:kgward@axion.net">kgward@axion.net</a>			
3 AH Lundberg Systems	ph: 604-629-5599		Emailed RFI	July 4, 2007
Vancouver, BC	email: <a href="mailto:tbinnema@ahlundberg.com">tbinnema@ahlundberg.com</a>			
4 Infratech Corporation	ph: 780-778-4226	Don Guenette	Spoke with Dan, vice president. Referred to Jeremy.	July 4, 2007
Whitecourt, Alberta	fax: 780-778-4220	Dan	Emailed RFI to Don, president of the company.	July 9, 2007
	email: <a href="mailto:don@infratech.ca">don@infratech.ca</a>		Jeremy Wuban emailed me requesting information.	
	email: <a href="mailto:jeremy@infratech.ca">jeremy@infratech.ca</a>		Responded with an email.	
5 Montenay Inc	ph: 604-521-1025	Ron Richter	Emailed RFI	July 4, 2007
Burnaby, BC	fax: 604-521-2140			
	email: <a href="mailto:richter@montenay.com">richter@montenay.com</a>			
6 Eco Waste Solutions	ph: 1-866-326-2876	Jean Lucas	Spoke with receptionist, she referred me to Jean Lucas.	July 4, 2007
Burlington, Ontario	ph: 905-634-7022		Emailed RFI to Jean.	July 11, 2007
	fax: 905-634-0831		Called with questions concerning the report.	
	email: <a href="mailto:jlucas@ecosolutions.com">jlucas@ecosolutions.com</a>			
7 Mesh Tech Inc.	ph: 204-831-0351	Mike Starodub	Emailed RFI to Mike	July 4, 2007
Winnipeg, Manitoba	fax: 204-888-8702		Mike emailed a confirmation that he had received the RFI.	July 6, 2007
	email: <a href="mailto:mesh@meshtech.ca">mesh@meshtech.ca</a>			
	<a href="mailto:mikes@meshtech.ca">mikes@meshtech.ca</a>			
8 Heuristic Engineering	ph: 604-263-8005	Malcolm Lefcort	Emailed RFI to info@heuristicengineering.com and left a voice message.	July 4, 2007
Vancouver, BC	fax: 604-263-0786		Spoke with Malcolm and he had a question on waste composition. Malcolm emailed his question to Phil Birett who forwarded it onto Rick VanKleeck.	July 5, 2007
	email: <a href="mailto:info@heuristicengineering.com">info@heuristicengineering.com</a>			
	<a href="mailto:mlefcort@shaw.ca">mlefcort@shaw.ca</a>			
9 Richway Energy Holdings	ph: 604-275-2201 x 124	Carl	Spoke with Receptionist, she referred me to Carl and gave me an email address which did not work,	July 4, 2007
Richmond, BC	fax: 604-275-2203		karlb@richway.ca. I forwarded the RFI to marketing@richway.ca	
	email: <a href="mailto:marketing@richway.ca">marketing@richway.ca</a>			
10 Syntel Biofuels	email: <a href="mailto:info@syntelbiofuel.com">info@syntelbiofuel.com</a>		Phone number from website was wrong. Forwarded the RFI to info@syntelbiofuel.com	July 4, 2007
Vancouver, BC				

11	Enerkem Technologies	ph: 514-875-0284 office	Martin Gagnon	Spoke with Receptionist who referred me to Martin. Left a message with Martin and forwarded the RFI to his email address.	July 4, 2007
	Montreal, Quebec	ph: 819-347-1111 Martin			
		fax: 514-875-0835			
		email: <a href="mailto:enerkem@enerkem.com">enerkem@enerkem.com</a>			
		email: <a href="mailto:mgagnon@enerkem.com">mgagnon@enerkem.com</a>			
12	Imexco	ph: 641-673-8955	Sherry VanZante	Left a message and emailed RFI	July 4, 2007
	Iowa, USA	fax: 641-673-3382		Sherry returned call and we discussed the Project.	July 5, 2007
		email: <a href="mailto:imexco@kdsi.net">imexco@kdsi.net</a>			
13	Advanced Thermal Recycling (German)	email: <a href="mailto:mvr@mvr-hh.de">mvr@mvr-hh.de</a>		Website was all in german. Emailed through the RFI to <a href="mailto:mvr@mvr-hh.de">mvr@mvr-hh.de</a>	July 4, 2007
14	EPR Resources (UK)	email: <a href="mailto:enquiries@eprfs.com">enquiries@eprfs.com</a>		Emailed the RFI to <a href="mailto:enquiries@eprfs.com">enquiries@eprfs.com</a>	July 4, 2007
15	Energy Sustaining Technologies	ph: 204-222-2712	Richard Stoton	Spoke with Richard and emailed the RFI.	July 5, 2007
	Winnipeg, Manitoba	email: <a href="mailto:estbizmail@mts.net">estbizmail@mts.net</a>		Received confirmation email from Richard, he is awaiting information from CFIA concerning Incinerator loading.	July 9, 2007
16	Westland Environmental	ph:	Anil Chhibber	Spoke with Anil and emailed RFI	July 5, 2007
	(Division of Ketek Industries)	fax:	Dr. Liem	Email response indicating Dr. Liem will be the contact	July 6, 2007
		email: <a href="mailto:anil@westlandenvironmental.com">anil@westlandenvironmental.com</a>		Anil called to confirm a conference call on July 11th at 10:00 am pacific to with Dr. Liem.	July 9, 2007
				Called with questions concerning the report.	July 11, 2007
17	Calefaction Systems Ltd.	ph: 416-696-2118	Joe Limner	Reached the voice mail of Joe Limner and left a message.	July 5, 2007
	Toronto, Ontario	fax: 416-425-4858			
18	Tiru	ph: 418-648-8818	Mr. Fournier	Spoke with receptionist and Mr. Fournier. He asked me to call back Friday for the Director at x 227. I emailed the RFI to <a href="mailto:ffournier@qc.tiru.ca">ffournier@qc.tiru.ca</a> July 5th.	July 5, 2007
	Quebec City, Quebec	fax: 418-648-8801			
		email: <a href="mailto:ffournier@qc.tiru.ca">ffournier@qc.tiru.ca</a>			
19	EPI Energy Products	ph: 208-765-1611	Jim Starkey	Emailed RFI.	July 5, 2007
	Idaho, USA	fax: 208-765-0503			
		email: <a href="mailto:jastarkey@energyproducts.com">jastarkey@energyproducts.com</a>			
20	Naanovo	ph: 971-223-0628		Emailed <a href="mailto:info@naanovo.com">info@naanovo.com</a> . No answer on phones.	July 5, 2007
	USA	email: <a href="mailto:info@naanovo.com">info@naanovo.com</a>			
21	BRI, USA	web: <a href="http://www.brienergy.com">www.brienergy.com</a>		No contact phone or email on website. Sent a request for information through the website.	July 5, 2007
22	GreenPower, USA	web: <a href="http://www.greenpoweremc.org">www.greenpoweremc.org</a>		No contact phone or email on website. Sent a request for information through the website.	July 5, 2007
23	Nexterra	ph: 604-637-2501	Darcy Quinn	Spoke with Darcy Quinn emailed the RFI.	July 5, 2007
	Vancouver, BC	fax: 604-637-2506		Received email declining request, followed up with phone call. They are not comfortable with Agricultural waste at this time.	July 9, 2007
		email: <a href="mailto:dquinn@nexterra.ca">dquinn@nexterra.ca</a>			
24	Energy Quest / Syngas	ph: 702-568-4131		Emailed out RFI to <a href="mailto:vpsales@nrgqst.com">vpsales@nrgqst.com</a>	July 5, 2007
	Alberta	email: <a href="mailto:vpsales@nrgqst.com">vpsales@nrgqst.com</a>		Email bounced back.	July 6, 2007

25	RTI International	web: <a href="http://www.rti.org">www.rti.org</a>		Emailed RFI to generic email address listen@rti.org.	July 6, 2007
		email: <a href="mailto:listen@rti.org">listen@rti.org</a>			
26	Thermogenics	web: <a href="http://www.thermogenics.com">www.thermogenics.com</a>	Tom Taylor	Spoke with Tom and emailed RFI to both emails	July 6, 2007
	Albuquerque, New Mexico	ph: 505-463-8422		Tom emailed some information concerning Gasifiers, we discussed an economic model of burning excess waste and making the work profitable. He will send through more information.	
		fax: 505-268-9206			
		email: <a href="mailto:thermogenics@thermogenics.com">thermogenics@thermogenics.com</a>			
		email: <a href="mailto:linvent@aol.com">linvent@aol.com</a>			
27	Thermoselect	web: <a href="http://www.interstatewastetechnologies.com">www.interstatewastetechnologies.com</a>	Frank Campbell	Spoke with Receptionist and emailed Frank the RFI.	July 6, 2007
	Pensylvania, USA	ph: 610-644-1665			
		fax: 610-644-1733			
		<a href="mailto:frankc@iwtonline.com">frankc@iwtonline.com</a>			
28	Global Environmental Energy Corp.	web: <a href="http://www.gli-geecf.ru">www.gli-geecf.ru</a>		Emailed RFI to global@coralwave.com	July 6, 2007
	Bahamas	ph:		Email bounced back their mailbox is full. Phone was a voicemail / fax machine.	
		fax: 852-3010-3838			
		email: <a href="mailto:global@coralwave.com">global@coralwave.com</a>			
29	Ordan Thermal Products Ltd.	ph: 905-475-9292		Spoke with Kim and emailed RFI.	July 5, 2007
		fax: 905-475-3286			
		email: <a href="mailto:kim@ordanthermal.com">kim@ordanthermal.com</a>			
30	Westech Industrial Ltd.	ph: 403-259-9711		Referred by Total Combustion, emailed RFI	July 5, 2007
	Ontario	fax: 403-850-5009			
		email: <a href="mailto:etsy@westech-ind.com">etsy@westech-ind.com</a>			
31	Trecan Combustion	ph: 403-243-5570		Left a voice mail	July 5, 2007
	Calgary, AB				
32	Western Construction & Combustion Services Ltd	ph: 403-279-5676	Richard Brautigam	Emailed RFI	July 5, 2007
		fax: 403-236-0377			
		email: <a href="mailto:rbrautigam@westernconstruction.ca">rbrautigam@westernconstruction.ca</a>			
33	BGP	ph: 905-764-6824	Gary Ainlay	Received contact info from LWTI will contact BGP Wednesday, July 11.	July 10, 2007
	Scarborough, Ontario	fax: 905-764-6352		Spoke with Gary sent through the RFI.	July 11, 2007
		email: <a href="mailto:garyd.ainlay@sympatico.ca">garyd.ainlay@sympatico.ca</a>		Received package through mail	July, 2007
		ph: 416-286-2211	Gordon J. Joyce	Gary left a message	August 9, 2007
		fax: 416-286-8626			
		web: <a href="http://www.bgp-inc.com/index.html">http://www.bgp-inc.com/index.html</a>			
34	Westwood Fiber	ph: 250-372-7055	Darrell Ford	Left a voice mail, sent RFI. Darrell responded with a voice message and email acknowledging he had received the email.	July 11, 2007
	Kamloops, BC	fax: 250-372-8303			
		email: <a href="mailto:dford@westfibre.com">dford@westfibre.com</a>			
		web: <a href="http://www.westfibre.com">www.westfibre.com</a>			
35	B&L Cremation Services	ph: 1-800-622-5411		Emailed RFI.	August 3, 2007
		fax: 727-547-0669		Dr. Looker called for clarification and emailed confirmation of interest. He will have the information sent out for August 15th.	August 9, 2007
		email: <a href="mailto:sales@blcremationsystems.com">sales@blcremationsystems.com</a>			
		web: <a href="http://www.blcremationsystems.com/">http://www.blcremationsystems.com/</a>			