

PREVENT  
CANCER  
*NOW*

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**Elevation Request for a “bump up” to Individual Environmental Assessment and Comment to Plasco Environmental Screening Report**

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Prevent Cancer Now (PCN) is pleased to provide limited comments on the Environmental Screening Report.

Prevent Cancer Now began with a long distance telephone discussion among 15 Canadians in various parts of the country in December 2004. We decided that Canada needed a bold new initiative to focus on primary cancer prevention, to balance costly, seemingly endless searches for cancer cures, and attempts to control cancer through more widespread screening and early diagnosis.

In 2007, after finalizing our constitution and bylaws, Prevent Cancer Now was legally incorporated. We promote policies and programs that eradicate exposures to carcinogens and other health hazards, through an ongoing Toxic-Free Future campaign.

We launched an incineration campaign in 2008 and developed an Incineration Tool-Kit for concerned citizens in January 2009.

Emissions from incinerators as well as the process residues are highly likely to contain carcinogens and we are therefore concerned about these as they relate to the Plasco project.

**1) Elevation request for a “bump up” to require Plasco to undertake an Individual Environmental Assessment.**

Plasco’s is an “unproven” technology and predictions about impacts remain untested.

They have not demonstrated that there is a “need” for their type of facility to process the proposed waste streams.

The non-MSW waste streams may not be post diversion wastes i.e. not true residuals and therefore should not be disposed of via incineration.

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The demonstration phase clearly showed that Plasco experienced both operational problems and emissions exceedances even at very low volumes of MSW processed.

Though not able to demonstrate that their facility could both process waste at approved quantities and produce electricity while meeting emissions limits, Plasco nevertheless wishes to move to a permanent commercial phase and process additional quantities and types of waste.

There is potential for serious human health and ecological effects as a result of their operations and insufficient detail has been provided as described below in our submission.

We have primarily focused on emissions to air and process residues in our submission, however believe that the full range of environmental impacts should be considered given this would be the first commercial plasma gasification plant in Ontario, if approved.

An individual EA study, looking at the full range of impacts to the environment is required so that potential impacts could be more clearly identified, with appropriate mitigation measures proposed and applied to minimize negative environmental effects, with detailed monitoring required to “ground truth” results.

## 2) Concerns about the Environmental Screening Report (ESR)

### Demonstration phase – quantities of waste processed and electricity production

Plasco is seeking re-permitting to move from a demonstration project to a permanent commercial demonstration and development facility. The ESR states in Section 1.2 that “the facility has been operating successfully as a demonstration facility, converting solid waste to electricity. PTR makes use of waste that would otherwise be deposited at the Trail Road Landfill.”

A review of the monthly engineering reports Plasco submitted between 2008 and 2010 shows that Plasco processed waste approximately 25% of the time and on average, processed approximately 23 tons per day (tpd). Less waste was processed in 2010 than in 2009.

It is not clear how much actual electricity was produced during the demonstration phase, therefore it is not possible to assess how likely it would be that Plasco could produce the “designed electrical output of 4.2 MW” that it claims it could produce at 135 tpd. Sec. 2.6 1 states:

“PTR operates five reciprocating gas engines each of 704 kW, 4160 V power generation capacity to produce electricity from the internal combustion of syngas. The generators are designed for stationary, continuous duty operation, and are characterized by particularly high efficiencies, low emissions, durability and high reliability. The engines are designed to operate at 6.5% excess oxygen. **Continued operation of PTR may potentially include the installation of a sixth gas engine.**”

Plasco must identify complete operating systems for the proposed permanent commercial facility and assess the impacts of all operations/sources of emissions in the ESR.

## Waste to be processed and Waste Service Area

Sec. 2.1 – Waste Characteristics - states:

As a permanent operation, PTR will process mainly MSW; however, the facility will potentially receive and process four waste streams. PTR will not accept hazardous waste. The four waste streams include:

- MSW;
- Institutional, Commercial and Industrial (IC&I);
- Automotive Shredded Residual (ASR); and
- Construction and Demolition (C&D).

The wastes received will be assessed for their calorific value and physical characteristics (i.e., ability to being shredded, and levels of sulphur/ chlorine). Based on the demonstration phase experience, the facility emissions are known to be unaffected by the organic constituents of the wastes. Waste streams with low or no heating value are not beneficial to the process as they do not contribute energy to the syngas. These streams will not be processed. Other streams which may be processed may include, but are not limited to: composting facility rejects, plastics recycling rejects, and tires.

Municipal Solid Waste (MSW) processed during the demonstration phase appears to have been primarily “residual waste” i.e., waste that remained after source separation by residents. It appears that much of the waste in the additional categories that Plasco wishes to process in addition to MSW could be diverted from final disposal, if not immediately, certainly in the near future.

We find no description of the “Waste Service Area” that would show from what geographic area Plasco would source waste other than MSW.

Section 2 only says that such waste would be on an “as sourced” basis. Without a full characterization of waste to be potentially processed and from where it would come, potential environmental effects cannot be estimated nor can appropriate mitigation be identified nor could net effects be assessed.

## Variable waste stream – impact on emissions and process residues of all potential contaminants

Engineering reports show that even when processing well below the permitted daily maximum, it appears there were **25 records of non-compliance of emissions** and this processing only MSW.

As identified in Table 4.1, “there is potential for the Project to cause negative effects on air quality due to emissions to air. **The predominant source of atmospheric emissions at PTR is the Flare.** This is what is modelled below. **Additional modelling for the engine exhaust** would be submitted to the Ministry as part of an application for an amendment to the Certificate of Approval (Air and Noise).”

Sec. 2.61 Re-routing the Engine Exhaust through the Flare states that:

“Plasco has had discussions with the Ministry of Environment during the demonstration project concerning the applicability of the A-7 guidelines for organic matter as it relates to the engine exhaust.

These discussions and the collection of additional technical data for the implementation of a comprehensive analytical and speciation program on the content of the organic matter exhaust will continue, as it is the position of Plasco that exhausting the engine emissions through the Flare is not economically viable. Propane is consumed for the destruction of organic matter, and NO<sub>x</sub> (as well as other combustion gases) are generated as a result of the extra heat and propane added to the Flare.

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The current design diverts the exhaust of the reciprocating engines to the operational Flare for further combustion/ thermal destruction of organic matter. The exhaust is introduced in the Flare at an elevation that is slightly above the burners. This will reduce the organic matter value contained in the engine exhaust to well below the permit level. Any syngas which is not directed to the engines for combustion is routed to the Flare. PTR intends to continue discussions with the ministry to allow the engine exhaust (treated with SCR/SCO) to be vented to atmosphere.”

Economic viability should not be the predominant concern. A full assessment of the impact of environmental effects of engine exhaust must be provided so that all sources of emissions could be addressed.

Sec. 2.2 states that:

”During the demonstration project, PTR operated on MSW and a consistent carbon feed (CCF, plastic stream)..... Extensive characterizations of MSW, CCF, syngas, ash and emissions have shown that the quality of the syngas is affected by two components of the incoming waste: moisture and inert material. The Plasco conversion process is highly effective at breaking down any organics into base components; C, H, O, N, and S. The reformation of these molecules into an energy rich syngas is unaffected by the type of organic molecule fed to the conversion process (i.e., PVC pipe vs Polyethylene Plastic). When considering the effects of the different waste streams on the syngas quality, the waste should be compared by the relative components of organic and inert fractions.”

Variable waste feedstock results is likely to result in variable emissions profiles. While Plasco may claim that the type of waste may not affect syngas quality, the major concern must be on potential health impacts and environmental effects from emissions and final disposal of process residues.

With around 50% of ASR being non-combustible – and therefore requiring some other form of disposal - is the Plasco process the appropriate technology to process ASR? Would this compete with existing and/or planned auto recycling initiatives?

### **Reprocessing of own waste including hazardous waste**

The Plasco process generates wastes on site and may not process significant portions of waste received, for a variety of reasons.

Sec. 2.9 Waste Generation on site, states that:

“The volume and characterization of waste generated at PTR is dependent upon the composition of the incoming feed. Several types of wastes are generated from the facility; Solid Byproducts which contain heating value, inert solid byproducts (slag), liquids which meet ROPEC disposal criteria and are not hazardous and hazardous liquids. Solid byproducts which contain heating value are reprocessed in the converter. Some of these solids may be classified as hazardous if disposed of offsite. Hazardous solid and liquid wastes are collected, tested, stored and disposed of accordingly by a licensed contractor.

Table 2.11 below summarizes the PTR waste streams. Liquids which can be treated to be nonhazardous in the waste water treatment plant are treated to meet ROPEC disposal criteria and are shipped to ROPEC for further treatment and disposal.”

In Sec. 2.9 it states: “Streams which are found to negatively impact either air or water streams will be disposed of off-site at a licensed facility.”..... Plasco will use a measured and careful approach when reprocessing the byproduct streams from the process until such time as empirical data validates the strategy to have no negative effect. Plasco was unable to generate the empirical data to support the reprocessing strategy during the demonstration period due to the constraints of the C of A during that time.”

We believe this approach is inappropriate and could expose the public to significant health risks while Plasco sorts out its assessment of “negative impacts.” Further analysis should be required before any approvals would be considered.

What are the percentages of waste produced on site, by category, of waste processed by Plasco?

What percentages require final disposal after processing? What percentage is hazardous waste?

Where could the analysis of the impact on emissions and slag from reprocessing hazardous waste be found?

**Lack of a Complete Emissions Inventory and full assessment of potential Health & Ecological Risks**

It’s not clear how the emissions inventory was developed for the ESR. Why are only 10 contaminants listed in the Emission Summary – Table 4.8? Waste from MSW and other sources including reprocessing of own waste could contain many additional contaminants that could result in environmental and health impacts.

As per the table footnotes, emissions summaries appear to be based on processing of MSW only.

A complete emissions inventory based on processing all the waste streams that Plasco wish to process must be provided.

Human Health and Ecological Risk Assessment (HHERA) should be produced to assess human health and ecological risks for various operating scenarios.

**Emissions - Oct. 2010 A-7 Guidelines and 419/05**

Sec. 4.2 -Plasco Air Emission Limits states:

“Originally established for municipal waste thermal treatment facilities, the MOE Guideline A-7 regulatory framework was applied to PTR to establish maximum emission limits for selected contaminants. More stringent operational limits were also enforced to ensure normal operations of the facility remained within the approved performance threshold. In February 2011, these at source emission limits were revised and the new proposed and more stringent maximum limits are summarized in Table 4.2. The revised maximum at source emission levels were used as the basis of worst case emission scenario for air dispersion modelling.”

Table 4.2 Plasco Trail Road Demonstration Project at Source Emission Limits

- Nitrogen oxides ppmv 64 24-hour arithmetic average – CEMS
- Carbon monoxide ppmv 26 24-hour arithmetic average – CEMS
- Hydrogen chloride ppmv 3.5 24-hour arithmetic average – CEMS
- Sulphur dioxide ppmv 13.5 24-hour geometric average – CEMS
- Organic matter (as CH4) ppmv 30.5 10-minute arithmetic average - CEMS
- Particulate matter mg/Rm3 7 Arithmetic average of 3 source tests
- Mercury µg/Rm3 10 Arithmetic average of 3 source tests
- Cadmium µg/Rm3 3 Arithmetic average of 3 source tests
- Lead µg/Rm3 20 Arithmetic average of 3 source tests
- Dioxins & furans (TEQ) pg/Rm3 32 Arithmetic average of 3 source tests

Does particulate matter emissions modeling include both the filterable and condensable PM fractions?

Does the proposed limit apply to Total PM i.e., include both PM fractions?

In Sec. 3.2 of the A-7 Guidelines, MoE encourages proponents to consider CEMS for particulate matter, with other parameters to consider for long term monitoring being CO<sub>2</sub>, Hydrogen Fluoride, Mercury and Dioxins/Furans.

Has Plasco considered continuous sampling for Dioxins and Furans via an AMESA cartridge, and an AMESA M-for mercury. The latter should be used to demonstrate compliance in addition to periodic stack testing.

Source testing – Plasco must be required to test all relevant contaminants as per Appendix 1 in Guideline A-7.

As a minimum, Plasco should be required to meet the limits for all applicable contaminants described in A-7 and meet POI ground level concentrations as per 419/05 for all contaminants where there is a standard.

### **Monitoring – Ambient Air and Emissions**

#### 5.1. Monitoring

“A summary of monitoring commitments is provided in Table 5.2 below. The flare and waste water monitoring was conducted as part of the demonstration project and will continue during the permanent operation of PTR. The additional commitment of monitoring the stormwater outfall is proposed for the permanent operation of PTR.

#### **Table 5.2 Summary of Monitoring Commitments**

Monitoring Location Collected Media Parameter of Interest  
 Flare Gas/air emissions Continuous emissions monitors  
 (CEM) are in place to measure NO<sub>x</sub>, SO<sub>2</sub>, HCl, TOC, O<sub>2</sub>, CO.  
 Periodic Source Testing for PM, metals and Dioxin and Furans”

Where are the detailed monitoring plans, including Ambient Air Monitoring Plan and an Air Emissions Monitoring Plan, as well as Noise, Odour, Ground/surface water, similar to what was required for the Durham-York incinerator? Readers must be able to review detailed plans in order to assess if appropriate parameters are being monitored for long enough periods.

### **Impacts of Process Residues e.g., Slag**

The table below is provided in the ESR.

Table 2.5 Leachability Tests on Slag Produced from MSW

MSW Sample	Concentration (mg/L)	Method	Limit (mg/L)
Arsenic	0.03	SM 3120	2.5 < detectable limit
Barium	0.01	SM 3120	100 0.060
Boron	0.005	SM 3120	500 0.018
Cadmium	0.005	SM 3120	0.5 < detectable limit
Chromium	0.002	SM 3120	5 0.005
Lead	0.02	SM 3120	5 < detectable limit
Mercury	0.0006	SM3112	0.1 < detectable limit

“The melted ash flows from the bottom of the CRV into the solid residue melter, where it is maintained as a super-heated molten slag by a plasma torch. The molten slag then pours from the solid residue melting chamber into an external sand box where it solidifies into a vitrified amorphous product. This solid residue is a nonleaching nonhazardous by-product requiring no controlled disposal as illustrated in Table 2.5 below. Plasco slag has potential value as a construction material.”

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Where is the data to support the assertion that the slag is “inert” and that leaching of contaminants would not occur over the long term?

What percentage of waste processed remains as “slag”, requiring ultimate disposal?

Where has, and where does Plasco plan to send the slag, if different than during demonstration phase?

### **Accidental Spills or Releases**

“As identified in Table 4.1, there is potential for the Project to cause negative effects on surface or groundwater from accidental spills or releases to the environment. Spills of oil, diesel fuel, cleaning chemicals, waste water or other chemicals could occur during PTR operation.”

A review of the engineering reports shows that 13 spills occurred.

“In addition, Plasco is committed to maintaining PTR’s existing monitoring and control program for odour, litter and noise during PTR’s permanent operation. The strategy to minimize these nuisance effects involves minimizing the opportunity for these problems through feed waste inventory controls, proper enclosure controls and good maintenance, followed by appropriate and prompt corrective actions as required”.

Have a Spill Contingency Emergency Response Plan, a Community Complaints Protocol and Compliance Monitoring Plans been developed?

In closing, we thank you for considering our comments.

To protect Ontarians from avoidable exposures to carcinogens and other contaminants, and to ensure that net effects are clearly identified, we urge the Ministry to require the proponents to undertake an Individual Environmental Assessment that would examine the full range of environmental effects around the proposed permanent commercial plant that Plasco is proposing.

We also look forward to a response from Plasco Energy with respect to our specific comments.

Questions and/or requests for clarification should be directed to Linda Gasser, our Incineration Campaign Coordinator, whose contact information is shown below.

Yours truly,



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