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ENVIRONMENTAL SERVICES
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KA 521-05-11
April 14, 2006

Mr. A. A. Linero, PE
FDEP
Program Administrator, South Permitting Section
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Request for Additional Information; DEP File 0530010-022-AC
Trial Period for Petroleum Coke and WTDF Firing at CEMEX Brooksville Plant

Dear Al:

CEMEX is in receipt of the Department's Request for Additional Information (RAI) dated January 10, 2006. On October 14, 2005, an air construction permit application for various projects at the CEMEX Brooksville Plant (Project No. 0530010-018-AC; PSD-FL-362) was submitted. On December 12, 2005 a separate application to address the burning of petcoke and tires on a trial basis was submitted to the Department. It is our understanding that the Department plans to handle this project in phases beginning with the trial burn and testing period. A separate RAI was sent out by the Department addressing the PSD application for the various projects including the use of petroleum coke and tires and a response was submitted on March 1, 2006. All of the comments are addressed below in the order they appear in the referenced letter.

1. CEMEX is proposing a six month trial period. Please explain why a 6-month trial period is necessary to conduct the proposed testing.

Response: The trial period for using petroleum coke and WTDF as fuels or supplemental fuels at the CEMEX Brooksville cement plant was proposed by CEMEX at a suggestion by the Department. The purpose for the suggestion, as we understand, was to allow CEMEX to develop an adequate record of emission data to support a permit application requesting the continued use of petcoke and WTDF. The six-month period is proposed to allow CEMEX time to make the modifications necessary to the two kilns to use the two fuels (including the installation of a

WTDF feed system on Kiln No. 2), to allow CEMEX to develop the test protocol addressed in Paragraph 3 of this letter and to allow CEMEX time to certify the NOx and CEMS prior to using either of the two fuels as addressed in Paragraph 4 of this letter.

Once the permit is issued, CEMEX will make the necessary modifications to Kiln No. 1 and No. 2 to burn petcoke and will make the modifications necessary to Kiln No. 2 to burn WTDF. CEMEX will also develop the test protocol requested by the Department and certify the CO and NOx CEMS. These activities will consume a portion of the six-month trial period.

Once the modifications and other pre-burn activities have been completed, CEMEX will have to evaluate the capability of the coal mills for grinding petcoke and/or select a petcoke that can be suitably ground by the mills. Once petcoke firing and WTDF firing commence, CEMEX will have to evaluate firing conditions and other factors necessary for the kilns to operate in a stable and normal manner while operating at or near permitted production rates. All of these activities will take time.

Once the two kilns are operating normally with the two alternative fuels, CEMEX can begin developing emission data that can be used to support the permit application for the permanent use of petcoke and WTDF. The development of these emission data and the analysis of these data will require probably 3-4 months.

In evaluating the request for the six-month trial period, the Department should also consider that trial periods of similar duration have been approved for other cement companies in the state (e.g., the six-month trial period granted for a production rate increase evaluation to Rinker for their Miami cement plant).

2. CEMEX is also requesting that the current emission limits be temporarily lifted for both kilns (Kilns No. 1 and No. 2) during the trial period. Although the Department may require compliance with all existing emissions limits during the trial period, please provide more precise details as to which pollutant limitations should be lifted, and to what extent CEMEX feels the limits should be lifted.

Response: CEMEX will comply with the current permitted emission rates during the trial burn period. However, CEMEX requests that the current NOx and CO emission limits be allowed on a 30-day rolling average basis.

3. Please provide a detailed description of the testing protocol to be followed. At a minimum, please describe the procedure for establishing baseline emissions from each kiln, describe in more detail the various feed amounts of petroleum coke and tires that are expected to be fired in each kiln, and state which pollutant tests will be carried out for each testing scenario. This is not a request the exact testing protocol to be followed during the trial period, but rather a request for a more detailed description of the procedures and objectives of the project.

Response: A test protocol for the petcoke and TDF projects will be prepared and submitted under separate cover before any petcoke and/or TDF is used as fuel. The protocol will set forth the coal/petcoke ratios to be evaluated as well as the fraction of the pyroprocessing heat input provided by TDF. Additionally, the protocol will set forth operating conditions that will be monitored/adjusted to assure compliance is maintained with all regulated emissions.

4. CEMEX proposes to certify the recently installed NOx and CO CEMS during the trial period. The Department will require certification of these instruments prior to the trial period in the requested permit. Please comment and/or provide the certification documentation for the CO and NOx CEMS.

Response: CEMEX will certify the CEMS prior to firing any petcoke and/or TDF. The certification documentation will be submitted to the Department upon completion.

5. According to the application, "CEMEX may modify the firing system to an indirect-firing system." Please describe any work conducted or that will be conducted with respect to this change. Is this change planned for both kilns, and is it scheduled to take place during the trial period or prior to the beginning of the trial period?

Response: Please refer to Response No. 1 in the letter dated March 1, 2006.

6. CEMEX has requested the ability to burn 100% petroleum coke during the trial period. In the application it is stated that there may be a limitation to this ability "based on the sulfur/alkali ratio and/or other factors". What is the maximum amount of petroleum coke expected to be achieved? What are the "other factors" that may limit the use of petroleum coke?

Response: Please refer to Response No. 5 in the letter dated March 1, 2006.

7. Has CEMEX or its affiliates had any violations (or warning letters) related to any Department or EPA regulations at any of their facilities in Florida and the United States? Have officers of CEMEX also been officers of other companies that have had violations (or warning letters) of Department regulations at any facilities? Please provide all documentation in relation to such violations.

Response: CEMEX will respond to this question under separate cover.

8. With the low alkali levels in the native limestone, how will CEMEX compensate with the greater alkali requirements inherent in burning petroleum coke? Will it be necessary for CEMEX to use even more of the 16% LOI fly ash and less bauxite or sand or clay?

Response: Please refer to Response No. 5 in the letter dated March 1, 2006.

9. Provide the procedures for receiving and storing petroleum coke as well as controlling dust from handling. Provide procedures related to groundwater protection.

Response: Please refer to Response No. 3 in the letter dated March 1, 2006.

10. Are the coal mills capable of grinding petroleum coke to the specifications needed and to supply a 100% petroleum coke fuel stream for the two kilns? If not, what amount of petroleum coke are the mills capable of supplying to the two kilns?

Response: Please refer to Response No. 4 in the letter dated March 1, 2006.

11. Please provide information on the effects of additional vanadium and nickel found in petroleum coke upon the formation of sulfuric acid mist.

Response: Please refer to Response No. 6 in the letter dated March 1, 2006.

12. Please describe any work conducted or that will be conducted with respect to burning TDF. This should include any modifications made or to be made to the existing tire burning system on Kiln 1 and the proposed system on Kiln 2. Describe the handling and feeding system.

Response: Please refer to Response No. 7 in the letter dated March 1, 2006.

13. Given the lack of a tertiary air duct, how will CEMEX insure that sufficient air will be available in the area of the kiln riser to insure proper combustion of TDF and burn out of CO?

Response: Please refer to Response No. 8 in the letter dated March 1, 2006.

14. Describe the combustion zone within the riser and lower preheater including the residence time to insure maximum burnout of CO.

Response: Please refer to Response No. 9 in the letter dated March 1, 2006.

15. How will burning TDF and petroleum coke affect the heat balance as well as conditions related to dioxin formation and control?

Response: Please refer to Response No. 11 in the letter dated March 1, 2006.

16. Provide information from other CEMEX projects where petcoke or TDF have been used and summarize the resulting emission changes. Provide any test reports related to past petroleum coke or TDF test burns.

Response: Please refer to Response No. 15 in the letter dated March 1, 2006.

17. Please provide a summary for the past two years of the required daily sampling and recording of baghouse dust thallium concentration described in Condition B.20 of the facility Title V Operation Permit.

Response: Please refer to Response No. 17 in the letter dated March 1, 2006.

18. Does CEMEX waste baghouse dust in general or to meet the mentioned thallium requirements in particular?

Response: Please refer to Response No. 18 in the letter dated March 1, 2006.

19. Where is the dust stored or where is it disposed or sold?

Response: Please refer to Response No. 19 in the letter dated March 1, 2006.

If you have any questions regarding these issues, please contact me at 352-377-5822 or FBergen@kooglerassociates.com, or Charles Walz at 352-799-2011 or charles.walz@cemexusa.com.

Very truly yours,

KOOGLER & ASSOCIATES, INC.

Fawn W. Bergen, P.E.
PE Seal # 61614
Project Engineer

FB

cc: J. Bins, CEMEX
J. Gill, CEMEX
C. Walz, CEMEX

KOOGLER & ASSOCIATES, INC.
ENVIRONMENTAL SERVICES

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

January 10, 2006

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Michael A. Gonzales
Plant Manager
CEMEX Cement, Inc.
Post Office Box 6
Brooksville, Florida 34605-0006

Re: DEP File 0530010-022-AC
Trial Period for Petroleum Coke and WTDF Firing at CEMEX Brooksville Plant

The Department originally received an air construction permit application on October 14th for various projects at the CEMEX Brooksville Plant (Project No. 0530010-018-AC, PSD-FL-362). Included in this application was the request for use of up to 100% petroleum coke as a fuel in Kilns 1 and 2, and the use of tire-derived fuel (TDF) in Kiln No. 2. On November 15 the Department sent a Request for Additional Information addressing the completeness of this application.

On December 12, 2005, the Department received an application for an air construction permit to allow the firing of petroleum coke in Kilns No. 1 and No. 2, and waste tire derived fuel (WTDF) in Kiln No. 2 during a trial period to assess the affect of these fuels on emissions.

The Department has determined that the application is incomplete. The Department requests submittal of additional information in order to continue processing your application pursuant to Rules 62-4.055, and 62-4.070 F.A.C., Permit Processing. Should your response to any of the below items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

The following information is required to complete the application:

1. CEMEX is proposing a six month trial period. Please explain why such an extended period may be necessary to conduct the proposed testing.
2. CEMEX is also requesting that the current emission limits be temporarily lifted for both kilns (Kilns No. 1 and No. 2) during the trial period. Although the Department may require compliance with all existing emissions limits during the trial period, please provide more precise details as to which pollutant limitations should be lifted, and to what extent CEMEX feels the limits should be lifted.

3. Please provide a more detailed description of the testing protocol to be followed. At a minimum, please describe the procedure for establishing baseline emissions from each kiln, describe in more detail the various feed amounts of petroleum coke and tires that are expected to be fired in each kiln, and state which pollutant tests will be carried out for each testing scenario. This is not a request for the exact test protocol to be followed during the trial period, but rather a request for a more detailed description of the procedures and objectives of the project.
4. CEMEX proposes to certify the recently installed NO_X and CO CEMS during the trial period. The Department will require certification of these instruments prior to the trial period in the requested permit. Please comment and/or provide the certification documentation for the CO and NO_X CEMS.
5. According to the application, "CEMEX may modify the firing system to an indirect-firing system". Please describe any work conducted or that will be conducted with respect to this change. Is this change planned for both kilns, and is it scheduled to take place during the trial period or prior to the beginning of the trial period?
6. CEMEX has requested the ability to burn 100% petroleum coke during the trial period. In the application it is stated that there may be a limitation to this ability "based on the sulfur/alkali ratio and/or other factors". What is the maximum amount of petroleum coke expected to be achieved? What are the "other factors" that may limit the use of petroleum coke?
7. Has CEMEX or its affiliates had any violations (or warning letters) related to any Department or EPA regulations at any of their facilities in Florida and the United States? Have officers of CEMEX also been officers of other companies that have had violations (or warning letters) of Department regulations at any facilities? Please provide all documentation in relation to any such violations.

The following questions were included in the Department's November 15 Request for Additional Information regarding the previous permit application (Project No. 0530010-018-AC, PSD-FL-362) to which the Department has not yet received a response. However, because of the relevance of the information to the current project, the Department is requesting that the following information be submitted for the completion of this project:

5 8. With the low alkali levels in the native limestone, how will CEMEX compensate with the greater alkali requirements inherent in burning petroleum coke? Will it be necessary for CEMEX to use even more of the 16% LOI fly ash and less bauxite or sand or clay?

3 9. Provide the procedures for receiving and storing petroleum coke as well as controlling dust from handling. Provide procedures related to groundwater protection.

4 10. Are the coal mills capable of grinding petroleum coke to the specifications needed and to supply a 100% petroleum coke fuel stream for the two kilns? If not, what amount of petroleum coke are the mills capable of supplying to the two kilns?

6 11. Please provide information on the effects of additional vanadium and nickel found in petroleum coke upon the formation of sulfuric acid mist.

12. Please describe any work conducted or that will be conducted with respect to burning TDF. This should include any modifications made or to be made to the existing tire burning system on Kiln 1 and the proposed system on Kiln 2. Describe the handling and feeding system.
13. Given the lack of a tertiary air duct, how will CEMEX insure that sufficient air will be available in the area of the kiln riser to insure proper combustion of TDF and burn out of CO?
14. Describe the combustion zone within the riser and lower preheater including the residence time to insure maximum burnout of CO.
15. How will burning TDF and petroleum coke affect the heat balance as well as conditions related to dioxin formation and control?
16. Provide information from other CEMEX projects where petroleum coke or TDF have been used and summarize the resulting emissions changes. Provide any test reports related to past petroleum coke or TDF test burns.
17. Please provide a summary for the past two years of the required daily sampling and recording of baghouse dust thallium concentration described in Condition B.20 of the facility Title V Operation Permit.
18. Does CEMEX waste baghouse dust in general or in order to meet the mentioned thallium requirements in particular?
19. Where is the dust stored or where is it disposed or sold?

Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature.

Permit applicants are advised that Rule 62-4.055(1), F.A.C. requires applicants to respond to requests for information within 90 days. Failure of an applicant to provide the timely requested information by the applicable date shall result in denial of the application.

If you have any questions regarding this matter, please call me at 850/921-9523 or Cindy Mulkey at 850/921-8968.

Sincerely,

A. A. Linero, P.E.
Program Administrator
South Permitting Section

Cc: Fawn Bergen, P.E.
Mara Nasca, DEP SWD
Charles Walz, CEMEX

7-10-06

United States
Environmental Protection
Agency

April 2005
EPA530-F-05-006
www.epa.gov/osw

Tire-Derived Fuel (TDF)

The Environmental Protection Agency (EPA) supports the highest and best practical use of scrap tires in accordance with the waste management hierarchy, in order of preference: reduce, reuse, recycle, waste-to-energy, and disposal in an appropriate facility. Disposal of scrap tires in tire piles is not an acceptable management practice because of the risks posed by tire fires, and because tire piles can provide habitats for disease vectors, such as mosquitoes.

In 2003, more than 290 million scrap tires were generated in the U.S. Nearly 100 million of these tires were recycled into new products and 130 million were reused as tire-derived fuel (TDF) in various industrial facilities. TDF is one of several viable alternatives to prevent newly generated scrap tires from inappropriate disposal in tire piles, and for reducing or eliminating existing tire stockpiles.

Based on over 15 years of experience with more than 80 individual facilities, EPA recognizes that the use of tire-derived fuels is a viable alternative to the use of fossil fuels. EPA testing shows that TDF has a higher BTU value than coal. The Agency supports the responsible use of tires in portland cement kilns and other industrial facilities, so long as the candidate facilities: (1) have a tire storage and handling plan; (2) have secured a permit for all applicable state and federal environmental programs; and (3) are in compliance with all the requirements of that permit.

More information on the use of TDF in kilns and boilers is available on EPA's scrap tire web site at: <http://www.epa.gov/epaoswer/osw/non-hw/muncpl/tires.htm>. The web site also contains links to other EPA, state, and industry information on the use of TDF.

Where You Live
Basic Information
Frequent Questions
Markets
Tire Derived Fuel
Civil Engineering
Ground Rubber
Laws/Statutes
Grants/Funding
Science/Technology
Publications
Related Links

Tire Derived Fuel

Scrap tires are used as fuel because of their high heating value. Using scrap tires is not recycling, but is considered a beneficial use—it is better to recover the energy from a tire rather than landfill it. In 2003, 130 million scrap tires were used as fuel (about 45% of all generated)—up from 25.9 million (10.7% of all generated) in 1991.

Tires can be used as fuel either in shredded form—known as tire derived fuel (TDF)—or whole, depending on the type of combustion device. Scrap tires are typically used as a supplement to traditional fuels such as coal or wood. Generally, tires need to be reduced in size to fit in most combustion units. Besides size reduction, use of TDF may require additional physical processing, such as de-wiring.

There are several advantages to using tires as fuel:

- Tires produce the same amount of energy as oil and 25% more energy than coal
- The ash residues from TDF may contain a lower heavy metals content than some coals.
- Results in lower NOx emissions when compared to many U.S. coals, particularly the high-sulfur coals.

EPA supports the highest and best practical use of scrap tires in accordance with the waste management hierarchy, in order of preference: reduce, reuse, recycle, waste-to-energy, and disposal in an appropriate facility. Disposal of scrap tires in tire piles is not an acceptable management practice because of the risks posed by tire fires, and because tire piles can provide habitats for disease vectors, such as mosquitoes.

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Based on over 15 years of experience with more than 80 individual facilities, EPA recognizes that the use of tire-derived fuels is a viable alternative to the use of fossil fuels. EPA testing shows that TDF has a higher BTU value than coal. The Agency supports the responsible use of tires in portland cement kilns and other industrial facilities, so long as the candidate facilities: (1) have a tire storage and handling plan; (2) have secured a permit for all applicable state and federal environmental programs; and (3) are in compliance with all the requirements of that permit.

This information is also contained in a printable fact sheet on TDF [PDF File, 1 page, 12 KB, About PDF].

Several industries use tires as fuel:

Cement Industry
Pulp and Paper Industry
Electric Utilities
Industrial/Institutional Boilers
Dedicated Tire-To-Energy Facilities

Cement Industry

About 53 million tires per year are consumed as fuel in US cement kilns. The cement industry burns scrap tires as fuel in kilns used to make clinker—a primary component of portland cement. A cement kiln is basically a large furnace in which limestone, clay, and shale are heated at extreme temperatures and a chemical reaction transforms them into clinker. Clinker is ground together with gypsum to form Portland cement.

Of the 130 million scrap tires used as fuel per year:

Cement industry – 41%
Pulp and paper mills – 20%
Electric utilities – 18%
Industrial/institutional boilers – 13%
Dedicated tire-to-energy facilities – 8%

– Rubber Manufacturers Association, 2004

The use of whole tires as kiln fuel is possible for some type of cement kilns. For these cement kilns, truck loads of whole tires, usually in enclosed vans, are delivered to the end of a conveyor. Tires are manually unloaded from the truck onto the conveyor. The conveyor feeds the tires to a mechanism that inserts one tire at a time into the kiln at specified time intervals. The advantage of utilizing whole tires is that there are no costs to create tire chips. The removal of the steel is unnecessary since cement kilns have a need for iron in their processes. Tire chips may also be utilized because there is very little manual labor involved in handling chips versus whole tires, however, producing chips from whole tires increase costs.

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Pulp and Paper Industry

About 26 million tires per year are consumed as fuel in boilers at US pulp and paper mills. Pulp and paper mills have large boilers which are used to supply energy for making paper. This energy is normally supplied by wood waste, however, wood varies substantially in heat values and moisture content, so the mills often supplement the wood fuel with other fuels, such as coal or oil, to make the operation more stable. TDF is also used in many plants as a supplement to the wood because of its high heat value and low moisture content.

The main problem in using TDF in the paper industry is the need to use de-wired tires. The wires often clog the feed systems. Also, the mills sometimes sell the resulting ash to farmers who require the ash to be free of iron. De-wired TDF can cost up to 50 % more than regular TDF.

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Electric Utilities

About 24 million tires per year are consumed as fuel in boilers at electric utilities. In the electric utility industry, boilers typically burn coal to generate electricity. TDF is often used as a supplement fuel in electric utility boilers because of its higher heating value, lower NOx emissions, and competitive cost as compared to coal. However, only certain types of boilers are conducive to burning TDF.

Cyclone boilers are the most used of all the utility boilers for burning TDF. They are good because they require no changes to be made to the boiler itself which reduces the capital investment. Therefore, the only additional equipment needed is a conveyer to transport the tire pieces into the boiler. Cyclone boilers cannot accept whole tires which increases the cost of obtaining the fuel (the optimum size of the tire pieces is 1 inch x 1 inch and it must be de-wired). Stoker fired units are also economical. In the stoker boilers, the residence time of the fuel is longer so larger tire pieces can be used. The optimum size of these pieces is 2 inches square. This reduces the cost of obtaining the fuel for Cyclone boilers and makes it more economical.

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Industrial/Institutional Boilers

Approximately 17 million tires per year are consumed in industrial boilers.

According to a Rubber Manufacturers Association survey in 2004, 19 industrial facilities were using TDF in their boilers to supplement their fuel usage. Industrial boilers are smaller than utility boilers and typically use a variety of fuels. When utilizing TDF, tires are typically shredded. Not all boilers are compatible with TDF. Clumping and clogging are common and preclude the use of TDF in many facilities.

Another impediment is the metal in the tires - if not removed before combustion, it ends up in the ash and can create disposal problems. Each facility must evaluate the impact of TDF on their air emissions and ash disposal. Industrial facilities must apply for the appropriate permits from their state and/or local regulatory authorities before commencing operation.

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Dedicated Tire-To-Energy Facilities

Approximately 10 million tires per year are consumed as fuel at dedicated tire-to-energy facilities. A dedicated tire-to-energy facility is specifically designed to burn TDF as its only fuel to create energy.

According to a Rubber Manufacturers Association survey at the end of 2003, there was only 1 dedicated tire-to-energy facility operating in the US. The dedicated tire-to-energy facility, Exeter Energy Limited in Sterling, Connecticut burns mainly whole tires and consumes 10 million tires per year. This facility serves as a major scrap tire market for scrap tires in New York and northern New Jersey. The second dedicated tire-to-energy facility in the US is located in Ford Heights, Illinois and was not in operation at the end of 2003.

Even though dedicated tire-to-energy facilities have been demonstrated to achieve emission rates much lower than most solid fuel combustors, there are no known facilities under construction or consideration. The length of time and cost of construction, as well as the deregulation of the utility industry hinders further expansion of this industry.

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TOPICS WITHIN THIS PAGE

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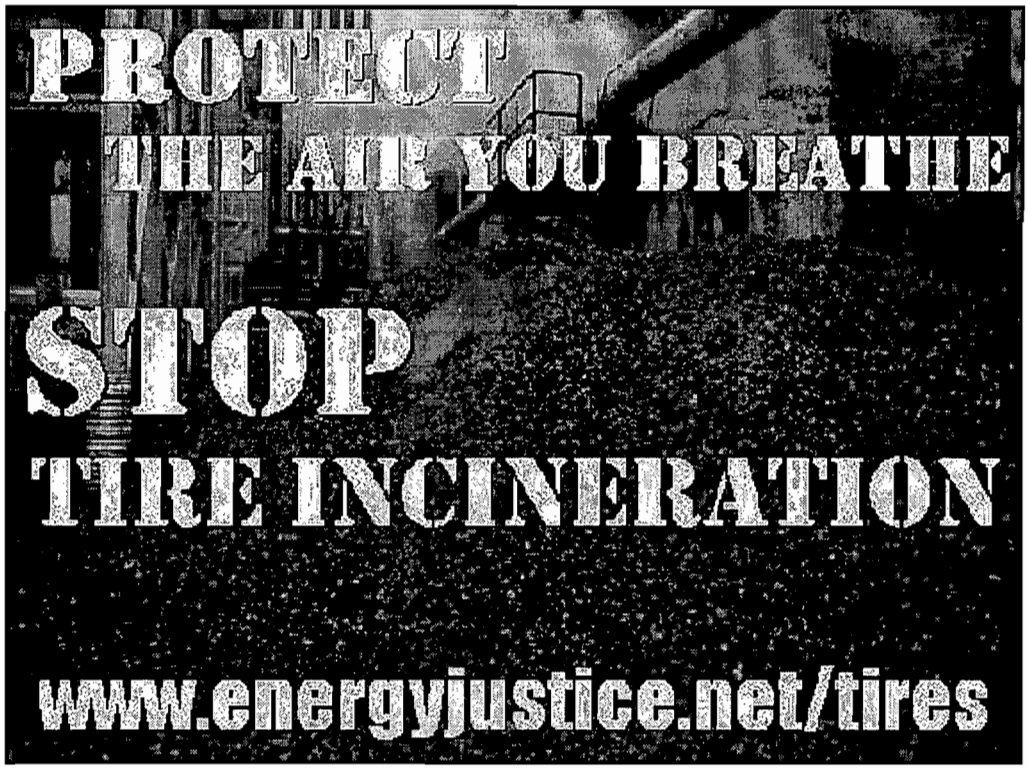

What is "Tire Derived Fuel" and why is it dangerous?

As of 2003, about 290 million tires are discarded in the U.S. every year (roughly one per person). Nearly 45% of these scrap tires (130 million) are used as "Tire Derived Fuel" (TDF), which often involves burning the (usually shredded) tires alongside conventional fuels like coal (usually no more than 10-25% TDF is used when co-firing with coal). At the end of 2003, 89 U.S. facilities burned TDF on a regular basis, about half of which (43) are cement kilns with the rest being pulp/paper mills (17), coal-fired power plants (13), and other industrial boilers or waste incinerators (15). Only one dedicated tire incinerator is currently operating (in Sterling, CT). Others used to operate in Modesto, CA and Ford Heights, IL and there have been efforts to reopen them. Another was proposed for Preston, MN, but was stopped in 2005. The number of facilities burning TDF is increasing. More cement kilns are beginning to use TDF and electric arc furnaces (EAFs) are starting to burn tires.[1]

Tire manufacturers, Tire Derived Fuel producers (tire shredders) and TDF users (burners) and government agencies promote burning TDF as a solution to the dire problem of waste tires. What they fail to mention in their promotional materials is that tire incineration under any circumstance creates pollution that makes the air dangerous to breathe.

It is common knowledge that burning tires in the open is extremely harmful to human health and the natural environment. The fumes emitted are packed with the many toxic chemicals that tires contain (including volatile organic compounds such as benzene, metals such as lead, polycyclic aromatic hydrocarbons such as benzo(a)pyrene, and synthetic rubber components such as butadiene and styrene). Additionally, the chlorine content in tires leads to the creation of dioxins and furans (which are

extremely toxic chemicals) when tires are burned.

Yet, users of Tire Derived Fuel are confident that their machinery (which usually is not even designed for burning tires) and the combination of tires with traditional fuels (like coal) will render the incineration process harmless. According to the Auburndale Recycling Center, Inc, a Wisconsin-based for-profit corporation that sells tire chips for incineration, "Most individuals are confused about the difference between a "burning tire" which emits black smoke and damages the environment, and the use of scrap tires as a fuel source for power companies."

Citing government approval of Tire Derived Fuels, Auburndale ignores the scathing critiques that reputable scientists like Dr. Neil Carman and Dr. Seymour I. Schwartz have written in response to the "junk science" and stacked statistics behind the rubber-stamp approval of tire derived fuel. These experts, along with other scientists, ecologists, and public interest groups, have uncovered the truth behind the propaganda -- that tire incineration by any method is NOT safe.

Problems with Test Data

Supporters of Tire Derived Fuel claim that substituting 10-25% TDF for coal or natural gas in incinerators/boilers does not significantly alter the chemical content of the emissions. To justify their claims, TDF advocates point to government studies like the Environmental Protection Agency's 1997 report "Air Emissions from Scrap Tire Combustion" [2], which states that:

> "Based on the results of the [EPA rotary kiln incinerator simulator] test program, it can be concluded that, with the exception of zinc emissions, potential emissions from TDF are not expected to be very much different than from other conventional fossil fuels, as long as combustion occurs in a *well-designed, well-operated and well-maintained combustion device.*" (Italics ours.)

However, there are many problems with this. First of all, the test data is not an accurate measure of the actual day-to-day emissions of a given plant. As reported by Greenpeace, "Trial burns are generally considered a poor indicator of operation on a daily basis: during trial burns when regulatory authorization is at stake and government officials are at the site, variables such as wastefeed, temperature, oxygen flow, and pollution control device efficiency are carefully maintained to optimize performance. On a day-to-day basis, emissions may be considerably higher." [3] Dr. Neil Carman confirms this:

"But during stack tests of TDF, cement kilns will do several things to make emissions and combustion look good-to-decent for such facilities:

- run at higher excess air to improve combustion efficiency
- control kiln parameters more precisely
- prevent kiln solid ring formation and buildup that creates havoc for good combustion of any fuels
- burn lower TDF levels during stack tests than they may be seeking to burn operationally
- operate and maintain their ESPs or baghouses in top condition to keep particulate emissions to a reduced level, and
- miscellaneous tricks." [4]

Apart from this it should be kept in mind that facilities naturally wear down with use. It is unlikely that any incinerator could continuously operate for a long period of time at the same level of performance as it did during the initial testing period.

Another disturbing aspect of tire incineration, particularly in cement kilns, is the occurrence of serious

"upsets." As Dr. Carman explains,

> "Cement kilns certainly do have combustion upsets and smoke may be emitted during such events. Cement kilns are not designed or required to have major fail-safe combustion devices such as large afterburners that all state-of-the-art incinerators must have by federal law today (all medical, municipal, and hazardous waste incinerators can not operate without their afterburner or secondary combustion chambers in normal operation). The afterburner is required because of the potential for flame outs and total combustion failure in the primary burn chamber, which is all that cement kilns possess. Cement kilns have no fail safe combustion devices which is unthinkable today in all incinerators...Cement kilns are subject to a variety of problems, including a type of meltdown of the kiln when the ID fans lose power or fail to operate, without adequate air flow to control kiln temperatures at or below 3,000 degrees F, the kiln temperature may skyrocket quickly to 4,000 degrees F and the kiln is so hot that the steel shell sags toward the ground effectively destroying the kiln. Kiln meltdowns are not rare events and have happened here in Texas at several plants in the last ten years. Cement companies do not like to talk about this problem." [4]

Aside from all of this, it should be noted that a number of tests conducted by or on behalf of the Tire Derived Fuel industry and its supporters have been notoriously shoddy in terms of scientific method, vision, language, and conclusions. As mentioned earlier, such reports have been repeatedly blasted by a number of reputable scientists and organizations. These experts raise very serious concerns and cast a shadow of doubt over much of the "official science" behind tire incineration.

Tire Incineration in Paper Mills

The aforementioned EPA test was not even performed on an actual operating plant but rather on a scaled-down simulator. Such devices are obviously bound to be more stable than large industrial incinerators that are used on a daily basis over a period of years. Importantly, the EPA simulator isn't even designed to represent the type of incinerators typically used in paper mills, which often use Tire Derived Fuel.

Tire incineration in paper mills poses special concerns. The North Carolina Division of Pollution Prevention and Environmental Assistance, a government agency that is generally uncritical of tire incineration as a whole, still has this to say about tire incineration in paper mills:

> "[Paper mill] boiler sizes are smaller, and operating temperatures are lower. Thus, complete burning of TDF particles in this kind of boiler is much more difficult. Data have indicated that using TDF appears to deteriorate the emission quality. Particulates in the emissions are increased with a corresponding increase of TDF usage. Other criteria pollutants also increased in most cases... The emission control problem is the greatest single concern for burning TDF at pulp and paper mills." [5]

What we don't know *can* hurt us.

Another major concern about Tire Derived Fuel is the enormous lack of knowledge about a wide range of potential dangers. This has been painfully apparent even in the pro-TDF reports. What follows is a selection of quotes from the California Air Pollution Control Officers Association (CAPCOA) report. The quotes were originally isolated for analysis by Dr. Seymour I. Schwartz, a professor of environmental science and policy at University of California at Davis.

- "Effects of exposure to more than one carcinogen or toxicant are also not quantified in the risk assessment [on tire burning in CAPCOA's report]. Many examples of additivity or synergism

(effects greater than additive) are known" (CAPCOA, 1993; p. I-3).

- "Additionally, there may be chemicals which pose health risks but are not considered in a given risk assessment for a number of reasons, including lack of information on toxicity" (CAPCOA, 1993; p. I-3).

- "The estimates of cancer potency in humans contain many sources of uncertainty. . . . Differences in these factors . . . cannot be easily quantified and incorporated into risk assessment . . . . Other uncertainties arise in the assumptions underlying the dose-response model used." (CAPCOA, 1993; p. I-4).

In his letter to the California Integrated Waste Management Board, Dr. Schwartz also notes that "Virtually nothing is known about the dose-response functions for important categories of health effects, particularly disruptions to the hormone systems of humans, which could produce life long damage in developing infants. Also, virtually nothing is known about the health effects caused by combinations of toxic chemicals that are emitted when burning tires. Without such scientific knowledge, and because some toxic pollutants increase from burning tires, there is no scientific basis for the Board to conclude that burning waste tires in cement kilns is safe." [6]

Toxic Pollution from Burning Tire Derived Fuel

So far we have looked at the disturbing unreliability of the existing pro-TDF studies, the special problems posed by burning tires in paper mill boilers, and the alarming lack of knowledge about a wide range of potential dangers that tire incineration may pose to the health and safety of our communities and the environment. This next section will take a closer look at the existing record and find that even based on the limited knowledge that exists, it is already clearly evident that tire incineration is dangerous.

Below is a breakdown of some of the condemning test data, organized by chemical groupings:

Dioxins and Furans

Dioxins are highly toxic and cause serious health problems, including infertility, learning disabilities, endometriosis, sexual reproductive disorders, birth defects, damage to the immune system and cancer. Dioxin is fat-soluble and once it's released into the outside environment, it readily climbs up the food chain, causing average meat and dairy-product consumers to get over 95% of their dioxin exposure through their diet.[7] In fact, according to the World Health Organization, the most toxic forms of dioxin are considered to be the most carcinogenic (cancer causing) substances known to science.[8] Even a very tiny quantity of dioxins can be dangerous. According to an EPA's Dioxin Reassessment, exposure to dioxins, even at minute levels, poses cancer risks and health concerns wider than previously suspected.[9] Deceptively small dioxin emission rates (for example, 0.0236 grams/year for the now-closed tire incinerator in Modesto, California) conceal the harmfulness of these deadly chemicals. Based on the EPA's "risk specific dose" criteria, 0.0236 grams/year is the equivalent of a *lifetime* maximum acceptable dose for over two million people.[3]

Dioxins and furans are chemicals that are created by burning chlorine (or other halogens, like fluorine or bromine) in the presence of hydrocarbons and oxygen. Hydrocarbons (the bulk of the TDF itself, as well as coal, wood or gas it's co-fired with) and oxygen (from the air) are readily available when TDF is incinerated. Dioxins and furans are produced by tire incineration because tires contain chlorine. The manufacture of synthetic rubber for tires uses up to 25% aromatic extender oils, a toxic waste product of oil refining which can contain chlorine. Another possible source of chlorine in tires is through the use of the "salt-bath" vulcanization process, a process where the rubber is made more elastic.[10] One major

source of chlorine in tires is their halogenated butyl rubber liners. The addition of chlorine or bromine (the latter used more widely for truck tires) to the butyl rubber gives liners the air-impermeability required to maintain proper tire inflation.[11] A content comparison by the state of California indicates that tires may contain as much as two to five times the chlorine level of western coal, with an average of 0.04 weight percent for western coal, and a range of 0.07 to 0.2 weight percent for tires.[12]. The largest proponents of TDF burning (the Rubber Manufacturers Association) confirmed this on their own website, when they listed the chlorine content of tires as being 0.149 - 0.150 % by weight.[13] An extensive EPA survey of the chemical composition of fuels burned in coal plants found chlorine levels in tires to be 2% higher (1,064 ppm average from 149 samples) than the national average for bituminous coal (1,043 ppm average from 27,352 samples) -- the most widely used type of coal, which also has the highest average concentration of chlorine of any coal type. Since chlorine levels in coal vary throughout the nation, it's possible that the chlorine content of tires could be far higher or lower than coal burned at any specific facility.[14]

Certain metals present in tires (such as copper, iron, manganese, nickel, sodium and zinc)[10] serve as catalysts for dioxin formation, providing a surface on which dioxins can readily form during and after the combustion process.[15] The greater chlorine content of tires combined with the presence of these metal catalysts is the likely reason why burning tires with coal has been found to produce more dioxin pollution than burning only coal. Increased dioxin emissions have been found in most of the tests conducted where dioxin emissions at facilities burning 100% coal were compared to those co-firing 4-30% TDF.

Data From	TDF Content (% TDF compared to 100% coal)	Dioxins/Furans
4 California Cement Kilns[6,16-22]	<20%	Increased between 53% and 100%
5 Canadian Cement Kilns[23]		Increased 37% and 247% in two tests Decreased 54% and 55% in two other tests
Victorville, CA Cement Kiln[24]	24.6%	Dioxins increased 139-184% Furans increased 129%
Cupertino, CA Cement Kiln[26]		Increased 30%
Davenport, CA Cement Kiln[24,27]	30%	Dioxins increased 398% and 1,425% in two tests Furans increased 58% and 2,230% in two tests
Davenport, CA Cement Kiln[28]	20%	Increased 25%
Lucerne Valley, CA Cement Kiln[29]	20%	Dioxins and some dibenzofurans increased
Chester, PA Paper Mill[30]	4-8%	Increased 4,140%
U Iowa, Iowa City, IA Industrial Boiler[2]	4%	Decreased 44%
U Iowa, Iowa City, IA Industrial Boiler[2]	8%	Decreased 83%

Other Chorine-Based Pollutants

In addition to dioxins and furans, a number of other harmful chemicals are emitted from incineration of chlorine-based substances in tires.[3,25,26,28] Among the halocarbons emitted during tests at TDF incinerators are PCBs, dichlorobenzene, trichlorobenzene, tetrachlorobenzene, hexachlorobenzene,

chlorophenol, and dichlorophenol, which are all highly toxic compounds and are all either proven or suspected to be carcinogenic.[31]

Non-Chlorinated Hydrocarbon Pollutants

Tires also contain petrochemical feedstocks, including butadiene and styrene (the latter being a benzene derivative). The chemicals are both carcinogens. Other carcinogenic benzene derivatives, such as M, P and O-Xylenes are sometimes found in tire derived fuel as well.[4]

Polycyclic Aromatic Hydrocarbons (also known as Polynuclear Aromatic Hydrocarbons) is a name applied to over 100 chemicals containing multiple benzene rings that are difficult to break down. PAHs are known to cause cancer in rats and "may reasonably be expected to be carcinogens" in humans as well, according to the Department of Health and Human Services.[4,32] Approximately 25% of tire contents are PAHs.[4] Tire incineration tests have shown increases (compared to only burning coal) in PAHs of between 88% and 23,938% (most are in the several hundreds or thousands), although one test found a decrease of 68%.[6,16,17,25,26,28]

Heavy Metals

Tires contain around 20 different metals, none of which can be destroyed by burning them, since they're elements. Metals known to be in tires include aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, selenium, silicon, tin, titanium and zinc.[2,13,33,34] Zinc is present in particularly high amounts, since zinc oxide is used in the vucanization process. Most of them, including arsenic, lead, mercury, and chromium VI, are quite toxic to humans and can also wreak ecological havoc on aquatic wildlife if even a small quantity finds its way into a body of water. Some metals, like mercury, can accumulate in wildlife. A 2002 test of emissions from a Colorado cement kiln burning TDF with coal found an 8% increase in mercury when TDF was used, leading to nearly 5 pounds of additional mercury pollution per year -- enough to contaminate about 2,000 twenty-acre lakes to the point where the fish cannot be eaten due to methylmercury bioaccumulation.

The test data for metal emissions varies widely for each metal, but the overall trend shows increases in most metals when TDF is burned along with coal.[2,3,16,16,17,25,26,28]

This evidence clearly demonstrates that tire incineration releases a variety of toxic pollutants into the air, posing a dangerous and potentially deadly threat to human health and the environment.

Alternatives to Tire Incineration

Footnotes:

1. "U.S. Scrap Tire Markets 2003," Rubber Manufacturers Association, July 2004. https://www.rma.org/getfile.cfm?ID=489&type=publication (616 KB PDF file) [Local copy]

2. Joel I. Reisman, Paul M. Lemieux, "Air Emissions from Scrap Tire Combustion." Environmental Protection Agency, Oct. 1997. www.epa.gov/ttncatc1/dir1/tire_eng.pdf (PDF file) [Local copy]

3. Greenpeace, "Tire incineration and Toxic Emissions: New data from the Modesto Incinerator, Westley, CA." www.energyjustice.net/tires/files/greenpeaceletter.html

4. Dr. Neil Carman, "Hazards of Burning Tires." June 1997.
www.portaec.net/local/tireburning/hazards_of_burning_tires.html

5. North Carolina Division of Pollution Prevention and Environmental Assistance, "Tire-Derived Fuel."
www.p2pays.org/ref/11/10504/html/usa/emission.htm [Local copy]

6. Dr. Seymour I. Schwartz. Letter to California Integrated Waste Management Board. January 21, 1998.
www.portaec.net/local/tireburning/dr_schwartz.html [Local copy]

7. Dioxin Homepage.
www.ejnet.org/dioxin/

8. IARC Monographs Programme on the Evaluation of Carcinogenic Risks to Humans
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9. Draft Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) and Related Compounds, Part III, USEPA, Office of Research and Development, EPA/600/P-00/001Bg, SAB Review Draft, September 2000.
cfpub.epa.gov/ncea/cfm/part3.cfm

10. "OECD Emission Scenario Document -- Additives in the Rubber Industry," Federal Environmental Agency, Berlin, Germany, March 3, 2003.
www.pius-info.de/dokumente/docdir/infu/praxis_info/pdf/INFU-0603_ESDRubber.pdf (1.2 MB PDF file) [Local copy]

11. "Subject: Rubber Compound ... Polymers," Toyo Tire Talk
www.toyojapan.com/tires/pdf/TTT_06.pdf [Local copy]

12. "Tires as a Fuel Supplement: Feasibility Study," California Integrated Waste Management Board, Sacramento, CA, January 1992.
www.ciwmb.ca.gov/Publications/default.asp?pubid=90

13. "Scrap Tire Characteristics," Scrap Tire Management Council website, archived Oct 10, 2000. Chlorine content is listed as 0.15% of tires by weight. This is described as a "Representative Analysis of TDF" produced by Waste Recovery, Inc. in 1986.
Archive of www.rma.org/scrapchn.html (Once it was brought to RMA's attention that chlorine content of tires was available on their own website, they removed the chemical composition of tires from their current page on Scrap Tire Characteristics)

14. U.S. Environmental Protection Agency 1999 Information Collection Request (ICR) Coal Analysis Results
www.epa.gov/ttn/atw/combust/utiltox/utoxpg.html#TECR

15. "Metals as Catalysts for Dioxin Formation," Dioxin Homepage.
www.ejnet.org/dioxin/catalysts.html

16. "Markets For Tires As Fuel," St. Vrain Valley Community Watchdogs
www.geocities.com/watchdogs_99/ca_research.html [Local copy]

17. "Attachment A: Environmental and Health Consequences from Using Tires as Fuel; Health Risk

Assessment," Schwartz, Carmen, et. al., from report to CIWMB, *Domestic Markets for California's Used and Waste Tires*.
www.energyjustice.net/tires/files/attacha-health-risk.pdf

18. California Integrated Waste Management Board, (CIWMB). Tires as a Fuel Supplement: Feasibility Study. Sacramento, CA, (1992).

19. California Portland Cement Company. Modify Pyroprocessor: Add Whole Tire Handling System and Allow Use of Whole Tires as Supplementary Fuel to Kiln. Application to Kern County Air Pollution Control District, (March 28, 1995).

20. Carnot Technical Services, Inc., and Radian International, LLC, Tustin, CA. Kaiser Cement Corporation TDF Demonstration Program. Volume I, Executive Summary, (April, 1996), pp. 1–15.

21. RMC Lonestar Cement. Preliminary Evaluation and Proposal to Conduct Testing on the Use of Whole Tires as a Supplementary Fuel in the Cement Manufacturing Process. Davenport, CA, (May 1, 1992), pp. 6, 29.

22. Bateman, Brian. Bay Area Air Quality Management District. Personal communication with S. I. Schwartz, June 14, 1996.

23. "Proctor and Redfern, Ltd. A Review of Emissions Performance of Cement Kilns Using Tire-Derived Fuel. Don Mills, Ontario, Canada, (July, 1995), pp. 5, 16–23." Test of 5 Canadian Cement Kilns. Cited in Notes 16 and 17.

24. "Estimates of Organic Emissions TDF for RMC Lonestar and Southwestern cement kilns burning tires as fuel." Cited in Note 25.

25. "Proposed Permit No. 1003026(J) to Burn Tire Derived Fuel California Portland Cement Company," Letter from Neil J. Carman, Ph.D. to Citizens for a Better Environment, San Francisco, CA, November 1995.
www.energyjustice.net/tires/files/carman-cal-portland.pdf

26. "Comments on Hazards related to Tire-Derived Fuel use in Cement Kilns," Letter from Neil J. Carman, Ph.D. to California Integrated Waste Management Board, Sacremento, CA, October 1997.
www.energyjustice.net/tires/files/carman1997ciwmb.pdf

27. "Preliminary Evaluation of RMC Lonestar Davenport Cement Plant: Proposal to Conduct Testing on the Use of Whole Rubber Tires as a Supplementary Fuel in the Cement Mfg Process," May 1, 1992. Cited in Notes 25 and 26.

28. "Attachment B: Examination of the Board's Claim of 'No appreciable difference in toxic emissions'," Schwartz, Carmen, et. al., from report to CIWMB, *Domestic Markets for California's Used and Waste Tires*.
www.energyjustice.net/tires/files/attachb-toxic-emissions.pdf

29. "Report of Air Pollution Source Testing of a Cement Plant Rotary Kiln Fired on Rubber Tires and Coal at Mitsubishi Cement Company, Lucerne Valley, California." Cited in Note 25.

30. "Kimberly-Clark Corporation Chester Mill Tire-Derived Fuel Trial Emission Test Results." Tests conducted in 1999.

31. International Agency for Research on Cancer (IARC) Monographs on the Evaluation of Carcinogenic Risks to Humans and their Supplements. See Volumes 18, 41, 73 and 79. www-cie.iarc.fr/monoeval/allmonos.html

32. EnviroTools Factsheet: Polycyclic Aromatic Hydrocarbons (PAHs) www.envirotools.org/factsheets/fs_pahs.shtml [Local copy]

33. "Emission Control," North Carolina Division of Pollution Prevention and Environmental Assistance. www.p2pays.org/ref/11/10504/html/usa/emission.htm [Local copy]

34. "Tire Derived Fuel Characteristics," North Carolina Division of Pollution Prevention and Environmental Assistance. www.p2pays.org/ref/11/10504/html/usa/tdfdata.htm [Local copy]

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Results **1** - **10** of about **26,500** for **tire derived fuel "cement kilns"**. (**0.15** seconds)

EPA: Management of Scrap **Tires** - **Tire Derived Fuel**

Tires can be used as **fuel** either in shredded form—known as **tire derived fuel** ... About 53 million **tires** per year are consumed as **fuel** in US **cement kilns**. ...
www.epa.gov/garbage/**tires**/tdf.htm - 25k - Cached - Similar pages

[PDF] **Tire-Derived Fuel** Fact Sheet, April 2005

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reused as **tire-derived fuel** (TDF) in various industrial facilities. ... Agency supports the responsible use of **tires** in portland **cement kilns** and other ...
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Below is a some links about **tire derived fuel** and related issues. ... **Tire** Burning in **Cement Kilns** - Part I (PDF file 750K) Communities for a Better ...
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US Portland Cement Plants Utilizing **Tire-Derived Fuel** ... When whole **tires** are combusted in **cement kilns**, the steel. belting becomes a component of the ...
www.cement.org/bookstore/download. asp?mediatypeid=1&id=6989&itemid=IS325 - Similar pages

Tire Derived Fuel Use in **Cement Kilns**

This Tech Notes discusses the use of **tire derived fuel** (TDF) in **cement kilns**. The various forms of TDF, how it is utilized in the different clinker ...
www.gcisolutions.com/GCINOTES997.htm - 12k - Cached - Similar pages

Applied Science News 2005-2006

Professor Jackson also notes that **tire derived fuel** is commonly used in ... Asia and North America in power plants, pulp and paper boilers and **cement kilns**. ...
appsci.queensu.ca/news/2005-2006/jackson/ - 12k - Cached - Similar pages

Building A Successful **Tire-Derived Fuel** Program

Due to the site and the configuration of the Allentown **Cement kilns** and process ... As part of obtaining the air permit for the new scrap **tire-derived fuel**, ...
cementamericas.com/mag/cement_ building_successful_**tirederived**/index.html - 57k - Cached - Similar pages

Tire-Derived Fuel

Tire-Derived Fuel. General Overview; Emission Control at the TDF Facilities ... Three major combustion facilities for TDF are **cement kilns**, power plants and ...
www.p2pays.org/ref/11/10504/html/usa/tdf.htm - 11k - Cached - Similar pages

[PDF] **Tire derived Fuel**: Environmental Characteristics and Performance

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This application utilizes **tire derived fuel** (TDF) obtained by processing scrap ... Scrap **tires** have been used as. a. supplemental **fuel** in **cement kilns** in ...

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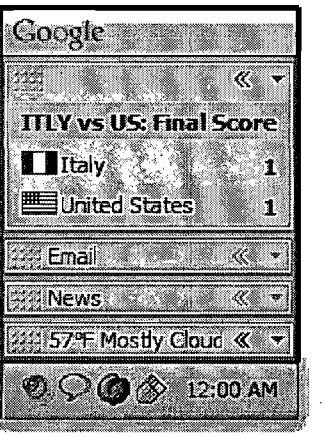

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KA 521-05-11
June 27, 2006

Via Email and USPS

Ms. Trina Vielhauer
FDEP-Division of Air Resources Mgmt.
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Cemex, Inc.
Brooksville Cement Plant
FDEP File No. 0530010-022-AC
Letter Amendment to Permit Application

Dear Trina:

This letter supersedes my letter of May 1, 2006 addressed to you and Al Linero and confirms information regarding the above-captioned Air Construction Permit file that we discussed during our meeting with you and your staff in your office on June 19, 2006. The above-captioned file addresses a trial period that Cemex had requested to evaluate the efficacy of burning petroleum coke (pet coke) in Kiln No. 1 and Kiln No. 2 at their Brooksville Cement Plant and also the efficacy of burning Tire Derived Fuel as a fuel supplement in Kiln No. 2. The use of Tire Derived Fuel is already permitted for Kiln No. 1.

During our meeting, Cemex explained that based on information developed at other plants, they would be unable to effectively burn pet coke at the Brooksville Cement Plant with the existing kiln burners and coal mills. Because of this finding, Cemex is requesting by this letter, that the use of pet coke in the trial addressed in the above-captioned Air Construction Permit application be withdrawn. Cemex is requesting, however, that the Department continue the processing of the above-captioned application for the trial period to evaluate use of Whole Tire Derived Fuel as a fuel supplement in Kiln No. 2.

The request to withdraw the use of pet coke from the above-captioned application does not affect the information contained in the original application (dated December 12, 2005) related to the use of Whole Tire Derived Fuel nor does it affect the information related to the use of Whole Tire Derived Fuel contained in our response to a Request for Additional Information (RAI) dated April 14, 2006.

Regarding matters related to the above-captioned permit application are matters addressed in an Air Construction permit application submitted to the Department on October 14, 2005 and assigned FDEP File No. 0530010-018-AC/PSD-FL-362. This application included the following projects:

(1) The installation of SNCR nozzles in the Kiln No. 1 and Kiln No. 2 systems,

(2) The replacement of kiln burners in Kiln No. 1 and Kiln No. 2,

(3) The use of pet coke on a continuing basis in Kiln No. 1 and Kiln No. 2, and

(4) The use of Whole Tire Derived Fuel on a continuing basis in Kiln No. 2.

Based on discussions between the Department and Cemex subsequent to the submittal of this application, Cemex submitted the Air Construction Permit application assigned File No. 0530010-022-AC. This application requested a trial period for the burning of pet coke and tire derived fuel. The purpose of the trial period is to generate data that can be used to support the projects requested in Application 0530010-018-AC. While not the immediate subject of this letter, the request to burn pet coke on a continuing basis will also be withdrawn from Application 0530010-018-AC and submitted at a later date in an entirely new Air Construction Permit Application.

Regarding the two Air Construction Permit Applications addressed herein, Cemex requests and/or understands the following:

- The application in File 0530010-022-AC, requesting authorization to use Whole Tire Derived Fuel on a trial basis in Kiln No. 2, will continue to be processed by

the Department. The request to use pet coke on a trial basis in Kiln No. 1 and Kiln No. 2 is withdrawn from this application by this letter.

- The permit issued following the completion of review of File 0530010-022-AC will recognize the installation and use of the SNCR nozzles in Kiln No. 1 and Kiln No. 2 and the installation and use of the kiln burners in Kiln No. 1 and Kiln No. 2. This recognization will eventually be superseded by conditions of the permit issued under File 0530010-018-AC.

- The processing of Application 0530010-018-AC will be placed on hold until data generated under Permit 0530010-022-AC have been generated and submitted to the Department. These data may require amendments to the application in File 0530010-018-AC; possibly subjecting other pollutants to a PSD Review or conversely, eliminating the necessity of a PSD Review entirely. When finally processed, the permit issued under this file will authorize the use on a continuing basis of the SNCR nozzles on Kiln No. 1 and Kiln No. 2, the kiln burners on Kiln No. 1 and Kiln No. 2 and Whole Tire Derived Fuel as a supplemental fuel in Kiln No. 2. The permit will also address other incidental items included in the original application or items that may have surfaced during the review of the application.

- There is a RAI from the Department related to File 0530010-018-AC dated March 31, 2006 that is outstanding. While this RAI does not specifically impact the primary request of this letter, a response will be prepared and submitted to the Department in a timely manner.

We appreciate the time that you and your staff have expended on the projects addressed herein and I hope that the information that I've provided and the understandings that I've expressed are consistent with the requests/understandings of the

Department. If there are any inconsistencies between what I've represented and the intentions of the Department or if there are questions regarding factual information I've provided, please contact me at 352-377-5822 or jkoogler@kooglerassociates.com.

Very truly yours,

KOOGLER & ASSOCIATES, INC.

John B. Koogler, Ph.D., P.E.
State of Florida License No. 12925

JBK/lt

cc: Ms. Cindy Mulkey
Mr. Al Linero
Mr. Jeet Gill
Mr. Mike Gonzales
Mr. Charlie Walz

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

Greg

December 12, 2006

RECEIVED
DEC 12 2006
BUREAU OF AIR REGULATION

Mr. Michael Gonzales, Plant Manager
CEMEX Cement, Inc.
Post Office Box 6
Brooksville, Florida 34605-0006

Re: CEMEX Cement, Inc.
Kiln 1 and Kiln 2 Initial Certification Tests

Dear Mr. Gonzales:

The Emissions Monitoring Section has reviewed the initial certification test report submitted by Koogler & Associates, Inc., on behalf of CEMEX Cement for Kilns 1 and 2. Systems to be certified are a CFRMS Instrument and Control Technologies, Inc, (ICT) Model 51 Airflow Monitor gas velocity measuring system, a Servomex Model 4900 multi component (NOx) Gas Analyzer, and a Servomex Model 4900 single componment (CO) Gas Analyzer.

The certification testing included the continuous emission rate monitoring system (CERMS) installation data, which is required to be in compliance with Performance Specification 6. Also included were the drift certification for the flow rate monitor, the zero and upscale calibration drift for the NO_x and CO monitors, and the relative accuracy test of the CERMS installed. The CERMS allows for the input of a constant moisture value to correct readings to a dry basis. The moisture of the stack gas in the two operating modes is typically in the range of 10-14 percent. In the initial certification report, CEMEX uses a value of 12 percent because it represents the lower bound of the stack gas moisture concentrations measured during the certification period and is a value typically found in the kiln's stack gas.

Based upon the review of the certification report, the CERMS installation appears to be in compliance with the requirements of Performance Specification 6 and the flow and pollutant monitoring systems successfully demonstrated compliance with the necessary accuracy requirements.

If you have any questions, please write or call me at 850/921-9510.

Sincerely,

Leigh-Ann Pell
Emissions Monitoring Section
Bureau of Air Monitoring
and Mobile Sources

/lp

cc: Bill Schroder, FDEP, Southwest District
Trina Vielhauer, Bureau of Air Regulation