REFUND APPLICATIONS RECEIVED—Continued

[Week of August 26 through August 30, 1996]

Date	Name of refund proceeding/name of refund application	Case No.
August 26 thru August 30, 1996	Crude oil supplemental refunds	RK272–3890 thru RK272–3899.

[FR Doc. 96–27027 Filed 10–21–96; 8:45 am]

BILLING CODE 6450–01–P

ENVIRONMENTAL PROTECTION AGENCY

[FRL–5638–3]

Retrofit/Rebuild Requirements for 1993 and Earlier Model Year Urban Buses; Certification of Equipment

AGENCY: Environmental Protection Agency.

ACTION: Notice of Certification of Equipment Supplied by Twin Rivers Technologies for the Urban Bus Retrofit/Rebuild Program.

SUMMARY: The Agency received a notification of intent to certify equipment signed August 21, 1995, from Twin Rivers Technologies (TRT) with principal place of business at 780 Washington Street, Quincy, Massachusetts 02159, for certification of urban bus retrofit/rebuild equipment pursuant to 40 CFR 85.1401–85.1415. On December 13, 1995, EPA published a notice (60 FR 64051) in the Federal Register that the notification had been received and made the notification available for public review and comment for a period of 45 days. The Agency has completed its review of this notification, and the comments received, and the Director of the Engine Programs and Compliance Division has determined that certain configurations of the candidate equipment meet the requirements for certification. Accordingly, today's Federal Register notice announces the Agency's decision to certify this equipment, as described below. The effective date of certification is established in a letter to TRT from the Director of the Engine Programs and Compliance Division, as described below.

Two configurations of equipment are certified for applicable engines: (1) A particular biodiesel fuel additive in combination with a particular exhaust system oxidation catalyst; and, (2) the additive and the catalyst, plus retarded fuel injection timing. The certified equipment is applicable to petroleum-fueled Detroit Diesel Corporation (DDC) two-stroke/cycle engines originally installed in urban buses of model years 1979 through 1993, excluding 1990 model year DDC 6L71TA engines. The oxidation catalyst of this equipment is the CMX™ catalyst which has been previously certified under the urban bus program by the Engelhard Corporation. Biodiesel is a potentially renewable, oxygen-containing fuel. As a component of this equipment, biodiesel is produced from original-use plant oil sources and methyl alcohol, consists of methyl esters of specified carbon chain-lengths, and must be blended at a ratio of 20 percent by volume with the balance federally required low-sulfur diesel fuel (having a maximum sulfur content of 0.05 weight percent). Some configurations of this equipment use retarded fuel injection timing to reduce exhaust emissions of NO_X.

Today's Federal Register notice announces certification of equipment having a biodiesel component of restricted specification. This notice, however, is not meant to preclude other Agency actions or considerations with respect to other specifications involving biodiesel in the urban bus retrofit/rebuild program or other programs. Use of biodiesel of other specifications, or without the specified exhaust catalyst, is not part of the equipment described in today's notice.

Some of the certified configurations do not reduce particulate matter (PM) emissions by at least 25 percent and, therefore, cannot be used to meet program requirements by bus operators that elect compliance option 1. Operators electing to use option 1 must, until such time that the 0.10 g/bhp-hr standard is triggered, use equipment certified to reduce PM emissions by at least 25 percent, when rebuilding or replacing engines.

Any certified configuration of the equipment may be used by operators electing compliance option 2, the fleet averaging option. Under option 2, an operator must use sufficient certified equipment so that its average fleet emission level complies with a specific annual target level.

Today's notice discusses limited data provided by TRT which indicate that engine emissions of unregulated aldehydes may increase when fuel injection timing is retarded. It is uncertain whether there would be an increase in ambient levels or, if there is an increase, whether it would become irritating to exposed populations. Operators concerned with the possibility for increased irritation to exposed populations may want to minimize the potential for increased ambient levels through management practices. The Agency concludes that the totality of available information support a net programmatic benefit from certifying B20 with the oxidation catalyst.

The specified biodiesel blend, in combination with the specified exhaust catalyst, has been demonstrated to reduce PM. This certification will make the specified biodiesel acceptable, when used in conjunction with the specified catalytic converter, for use by operators to comply with the urban bus program requirements. The TRT notification, as well as other materials specifically relevant to it, are contained in Public Docket A–93–42, category X, entitled ''Certification of Urban Bus Retrofit/Rebuild Equipment.'' This docket is located in room M–1500, Waterside Mall (ground floor), U.S. Environmental Protection Agency, 401 M Street SW, Washington, DC 20460.

Docket items may be inspected from 8:00 a.m. until 5:30 p.m., Monday through Friday. As provided in 40 CFR Part 2, a reasonable fee may be charged by the Agency for copying docket materials.

DATES: Today's Federal Register notice announces the Agency's decision to certify equipment, as described below. The effective date of certification was established in a letter dated September 20, 1996, to TRT from the Director of the Engine Programs and Compliance Division. (A copy of the letter is in the public docket, which is located at the address noted above.) This certified equipment may be used immediately by urban bus operators, as described below.

FOR FURTHER INFORMATION CONTACT: Mr. Bill Rutledge, Engine Programs and Compliance Division (6403–J), U.S. Environmental Protection Agency, 401 M St. SW, Washington, DC 20460. Telephone: (202) 233–9297.

SUPPLEMENTARY INFORMATION:

I. Background

By a notification of intent to certify signed August 21, 1995, TRT applied for certification of equipment applicable to petroleum-fueled Detroit Diesel Corporation (DDC) two-stroke/cycle engines originally equipped in urban buses from model year 1979 to model year 1993, excluding the 1990 model year DDC model 6L71TA engines. The notification of intent to certify contains two equipment configurations described more fully below: (1) A biodiesel fuel additive used in conjunction with an exhaust system catalytic converter muffler; and, (2) the biodiesel additive and catalytic converter used in conjunction with a fuel injection timing retard.

Using engine dynamometer (transient) testing in accordance with the Federal Test Procedure for heavy-duty diesel engines, TRT demonstrated reductions in PM emissions. Additional data were provided from chassis testing of an urban bus coach equipped with a 1988 model year 6V92TA DDEC II. The engine dynamometer data are shown below in Table 1, and are the bases for the PM reduction attributed to the equipment and the certification approval of the equipment when used on applicable engines. The emissions test data is part of TRT's notification of intent to certify, which is available in the public docket located at the above-mentioned address. All testing was conducted using soy methyl ester (SME) additive blended with #2 low-sulfur diesel fuel. Hereinafter, the term ''B20'' is used to mean biodiesel blended at the ratio of 20 percent by volume with federally required low-sulfur diesel fuel (with a maximum sulfur content of 0.05 weight percent).

TABLE 1.—TEST ENGINE EMISSIONS (TRANSIENT TEST)

	Gaseous and particulate					Smoke			Comment
	HC	CO	NO_X	PM	ΔPM (percent)	ACC	LUG	Peak	
Engine:	g/bhp-hr					percent opacity			
	1.3	15.5	10.7	0.60		20	15	50	1988 HDDE Standards.
Engine Dyno:									
1977 6V71N MUI [1]	0.86	3.18	11.72	0.282		1.2	1.8	1.8	Baseline (2D).
	0.42	1.64	11.72	0.159	–43.6	1.4	2.1	2.1	2D+cat.
	0.38	0.86	12.11	0.166	–41.1	0.9	1.7	1.7	B20[3]+cat[4].
	0.53	1.37	8.1	0.247	–12.4	4.6	5.4	5.6	2D, cat+4° retard.
	0.42	0.94	8.47	0.213	–24.5	2.2	2.8	2.9	B20, cat+4° retard.
1988 6V92TA DDEC [2] II	0.60	1.60	8.52	0.20		6.0	5.3	8.7	Baseline (2D).
	0.21	0.95	9.06	0.11	–45.0	3.7	1.7	6.9	B20+cat.
	0.29	1.21	8.18	0.14	–30.0	6.5	2.1	11.6	2D, cat+1° retard.
	0.25	1.05	8.35	0.12	–40.0	5.1	2.5	8	B20, cat+1° retard.

[1] MUI=Mechanical Unit Injector.
[2] DDEC=Detroit Diesel Electronic Control.
[3] The B20 used is SME blended 20 percent by volume with low-sulfur diesel fuel.
[4] The data include an invalid cold cycle. See the text for discussion.

Initial review of the test data of Table 1 indicated that the B20 plus catalyst configuration reduced PM by between 40 to 45 percent compared to the baseline of neat petroleum diesel. However, the test of the 6V71N using B20, catalyst, and stock timing, include data from a cold start cycle that is invalid because it does not meet the minimum statistic for cycle torque (40 CFR 86.1341–84 requires the coefficient of determination for the cold cycle to be at least 0.8500; for the test in question it is reported as 0.84815). This statistic is out-of-specification for the cold cycle indicating that the engine could not adequately follow the transient driving schedule, perhaps because engines in general are often less responsive during cold operation.

The cold cycle data of this test, although invalid, is important for determining whether a basic configuration of the equipment on applicable engines [B20 plus catalyst when used on engines having mechanical unit injectors (MUI)] meets the emission standard of reducing PM by at least 25 percent, and for determining the certification level of those engines having the TRT equipment. The certification level is used by operators choosing compliance program 2 to calculate fleet averages, and will also be used if the Agency conducts in-use testing.

Ideally, Agency decisions concerning certification are based on accurate and valid test data. In this situation, however, there are several circumstances that mitigate our concern regarding use of this data. First, the statistic is only marginally out of specification. Second, the impact of the out-of-specification statistic on the accuracy of the emissions data is probably minimal—the data of the cold start cycle are weighted only one-seventh of the composite test results. Third, all other cycle statistics are within the CFR specifications, including integrated brake horsepower-hour for the cold cycle (i.e., the cycle work), which is within three (3) percent of the reference driving cycle. Fourth, reliance on the invalid test in this case is not unreasonable due to the extent of other supporting emissions data. As shown in Table 1, testing of the same engine shows that B20, catalyst, and four (4) degrees of retard provide PM reductions of almost 25 percent relative to conventional diesel, which is significantly greater than when diesel fuel is used with the catalyst and retard. Additionally, engine dynamometer testing of the DDEC engine show that PM emissions are reduced roughly 45 percent when using B20 plus catalyst. Further, data from testing another DDEC engine on a chassis dynamometer (included with TRT's notification) show that PM reductions range from 20 to 50 percent, depending upon the driving cycle used. Because of the extent of these support data, plus the technical argument of the minimal impact on the accuracy of the emissions data due to the out-of-specification statistic, we believe that it is not unreasonable to use the data from the invalid test.

As stated above, we believe that the impact of the out-of-specification statistic on the accuracy of the emissions data is minimal because the data of the cold start cycle are weighted only one-seventh of the composite test results (per 40 CFR 86.1342 and 86.1343). Therefore, the reported PM level of the test in question is used to base PM reductions and certification levels for the applicable MUI engines equipped with B20, catalyst, and stock timing.

The testing data submitted by TRT (included with TRT's notification as part of the public docket) indicate that use of B20 increases the soluble organic fraction (SOF) and possibly decreases the soot fraction of the exhaust particulate matter. Engelhard Corporation (the manufacturer of the exhaust catalyst), in its comments to the public docket, states that the greater SOF associated with biodiesel provides greater reductions in total particulates by oxidation of SOF. The emissions data provided by Engelhard in support of certification of its CMX ™ catalyst (60 FR 28402 on May 31, 1995) indicate that the catalyst, when using diesel fuel, provides PM reduction of roughly 30 percent. The 41 percent reduction shown in Table 1 above, along with the other emissions data noted above, is supportive of B20 improving PM reduction compared with the CMX ™ and diesel fuel.

The data of the TRT notification also indicate that, while use of B20 with an exhaust catalyst decreases regulated emissions of hydrocarbons (HC) and carbon monoxide (CO), it may increase exhaust emissions of oxides of nitrogen (NO_x). TRT analyzed the impact of the NO_x increase to determine whether engines would exceed federal emissions standards, and determined that the increase predicted by the test data will not cause engines equipped with MUI to exceed the applicable federal NO_x standards. However, TRT's analysis indicates that 6V92TA DDEC engines of model years 1990 through 1993 (equipped with electronically-controlled fuel injection) exceed applicable federal NO_x standards. (Federal standards for NO_x dropped to 6.0 g/bhp-hr for model year 1990 engines and 5.0 g/bhp-hr for the 1991 model year engines.) The Agency agrees with this conclusion but recognizes that it is based on limited emission test data. Based on the analysis, the certification of equipment announced in today's Federal Register notice applies to the 6V92TA DDEC engines of model year 1990 through 1993 only when the fuel injection timing is retarded one (1) degree. TRT's analysis is included in the public docket and discussed in the Federal Register notice of December 13, 1995 (60 FR 64051).

The Agency concludes that the totality of data support a net programmatic benefit from certifying B20 with the oxidation catalyst, basically because it shows PM reductions compared with the baseline of conventional (low sulfur) diesel fuel without an exhaust catalyst. The Agency believes that most of the reduction in PM emissions from the kit is probably attributable to the exhaust catalyst, although some additional PM emissions reduction is expected to be realized from addition of biodiesel.

II. Equipment Description

Table 2 provides PM certification levels for TRT's certified equipment. These levels are determined by applying the PM percentage reductions, predicted by the test data of Table 1, to the pre-rebuild PM levels specified in the program regulations [§ 85.1403(c)]. The test data indicate that PM is reduced by 41.1 percent on the MUI engines (24.5 percent with 4 degrees retard) and 45.0 percent on DDEC engines (40.0 percent with 1 degree retard). No configuration of TRT's equipment is certified for the 6L71TA MUI of model year 1990, because the MUI test engine was determined not to be a ''worst-case'' test engine as required by the program regulations at § 85.1406(a)(2). This was discussed in the Federal Register of December 13, 1995 (60 FR 64051).

TABLE 2.—CERTIFIED CONFIGURATIONS AND PM CERTIFICATION LEVELS

Engine model	Model year	Equipment configuration	
		B20, Cat+stock timing	B20, Cat+retard [1]
6V92TA MUI	79–87	0.29	[2] 0.38
6V92TA MUI	88–89	0.18	[2] 0.23
6V92TA DDEC	86–87	0.16	0.18
6V92TA DDEC II	88–89	0.17	0.19
6V92TA DDEC II	90–91	([3])	0.19
6V92TA DDEC II	92–93	([3])	0.15
6V71N MUI	73–87	0.29	[2] 0.38
6V71N MUI	88–89	0.29	[2] 0.38
6V71T MUI	85–86	0.29	[2] 0.38
8V71N MUI	73–84	0.29	[2] 0.38
6L71TA MUI	90	([3])	([3])
6L71TA MUI	88–89	0.18	[2] 0.23
6L71TA MUI DDEC	90–91	0.16	0.18

[1] Up to and including four (4) degrees fuel injection retard for MUI engines, and one (1) degree retard for DDEC engines.
[2] Not certified for compliance program 1.
[3] Not certified.

The certification announced in today's Federal Register is provided to TRT for equipment configurations of B20, catalyst, and timing retard that comply with the following specifications.

The key component of the certified equipment is a particular oxidation catalyst-muffler unit designed to replace the typical noise muffler in the exhaust system of applicable recipient engines. The particular catalyst is the CMX™ manufactured by the Engelhard Corporation and certified for use in the urban bus retrofit/rebuild program on May 31, 1995 (60 FR 28402). The Agency limits this certification of TRT equipment to use of CMX™ catalyst muffler units supplied by Engelhard and meeting the specifications covered by

Engelhard's certification of May 31, 1995. The Agency requires that use of catalysts of any other specification, or supplied by any other catalyst supplier, be the subject of a separate notification of intent to certify. In a letter to the Agency dated August 19, 1995, Engelhard states that it will notify the Agency and TRT if the specifications for its catalyst change. Engelhard's letter is in the public docket.

Another component of the certified equipment is use of biodiesel provided by TRT as an additive that complies with the specifications below. In general, biodiesel is an ester-based fuel oxygenate derived from biological sources for use in compression-ignition (that is ''diesel'') engines. It is the alkyl ester product of the transesterification reaction of biological triglycerides, or biologically-derived oils. TRT indicates that any biological oil source, such as vegetable oils, animal fats or used cooking oils and fats, can produce esters through this reaction. While TRT has registered biodiesel under the Agency's Fuel/Fuel Additive Registration Program, which defines TRT biodiesel (marketed as ''EnviroDiesel™'' and ''EnviroDiesel Plus™'') as an alkyl ester containing C1–C4 alcohols and C6–C24 fatty acids, the certification announced in today's Federal Register is limited to biodiesel complying with the following specification.

The biodiesel component of the certified equipment is provided by TRT and must be blended at a nominal 20 percent volume with federally-required low sulfur diesel fuel (with a maximum sulfur content of 0.05 weight percent). This blend is referred to as ''B20'' in this notice. The B20 blend is required to be no less than 19 percent and no more than 21 percent by volume biodiesel, with the specified diesel. The use of B20 alone (that is, without the catalyst) is not certified because certification data is not available which sufficiently demonstrate that it will reduce PM. The biodiesel component of this certification is limited to mono-alkyl methyl esters meeting the following specifications:

TABLE 3.—BIODIESEL COMPONENT SPECIFICATIONS

Feedstock: Original-use, plant oil sources only.		
Composition: Methyl esters of the following carbon chain length:		
Sum of C16 + C18's.	90.5 wt% min	Determined by GC.
Fraction <C16	2.0 wt % max	Determined by GC.
Fraction >C18	7.5 wt % max	Determined by GC.
Blend Ratio: minimum 19 percent and maximum 21 percent by volume biodiesel complying with the above specifications for feedstock and composition, and the balance federally required low sulfur diesel fuel complying with 40 CFR Section 80.29.		

The biodiesel component of the certified equipment must comply with the specifications of Table 3. The biodiesel component of this certification is limited to a nominal B20 blend, and to biodiesel meeting the specified carbon chain-lengths and consisting of esters produced from methyl alcohol and feedstocks of original-use plant oil sources. Because the certification testing was conducted solely using soy methyl ester, the Agency believes that compliance with the carbon chain-length specifications of Table 3 and the blend ratio are appropriate to provide assurance of the emissions performance. This specification, including the feedstock and alcohol limitations, is discussed further in the following section. Blend ratios less than 19 percent or greater than 21 percent are not covered by this certification.

Based on the data presented by TRT, the certification announced in today's Federal Register notice includes a biodiesel component having a relatively limited specification. Biodiesel not complying with the specifications of Table 3, and biodiesel provided or produced by others, must be certified to be used in compliance with the urban bus program. Certification by other parties or involving other biodiesel specifications may be appropriate upon satisfactory compliance with the requirements of the urban bus program (40 CFR Part 85, Subpart O).

Additionally, we are aware that the biodiesel industry is working to address other regulatory issues related to the Agency's fuel and fuel additive requirements under 40 CFR Part 79. The certification announced in today's notice applies to the limited context of the urban bus program, and is not intended to set a precedent as a generic definition of ''biodiesel''.

The initial TRT notification lists ''typical'' physical and fuel properties of biodiesel. While such properties may be important with respect to the operational characteristics of biodiesel, their effect on emissions performance is not clear at this point in time. The Agency understands that industry consensus-based fuel specifications of such physical and fuel properties for biodiesel is being developed by the American Society for Testing and Materials (ASTM), in cooperation with petroleum, engine, and biodiesel industry interests. TRT has indicated that the ''typical'' properties listed in the initial notification were based on earlier proposed ASTM specifications, and that TRT will maintain compliance with ASTM specifications as they evolve.

In addition to the concern for the emissions performance of equipment certified under the urban bus program, the Agency has concerns that any property of neat biodiesel not cause any B20 blend to exceed any standards otherwise established for petroleum diesel (for example, 40 CFR 80.29). If the Agency learns that any biodiesel property requires further limitation, it may take appropriate action using its authority under the decertification provisions of the urban bus program (§ 85.1413).

The Agency is certifying certain configurations of the TRT equipment which include retarded fuel injection timing to decrease NO_X emissions. TRT requested certification of these configurations because some operators may wish to achieve NO_X reductions while still reducing PM emissions, and some electronically-controlled engines may exceed Federal NO_X standards without the timing retard. The Agency recognizes that certain configurations with retarded injection may be useful for reduction of NO_X emissions. However, certification of NO_X levels is outside the context of the urban bus program. Today's Federal Register notice provides certification levels only for PM emissions levels.

For the DDC engines equipped with MUI as indicated in Table 2, the Agency is certifying any timing retard from zero to four (4) degrees from stock timing. The emission data of TRT's notification indicate that PM is reduced 24.5 percent when timing is retarded four (4) degrees. While these data do not show 25 percent reduction, the Agency believes the data support certification of retard from zero to three (3) degrees as providing PM reduction of at least 25 percent on MUI engines. Zero to three (3) degree range of retard, then, can be used by operators electing either compliance program 1 or 2. MUI engines retarded four (4) degrees do not reduce PM emissions by at least 25 percent and, therefore, can be used only by operators electing compliance program 2. Operators electing compliance program 2 and using any retard, must use the PM certification level specified in Table 2 for the

applicable engine when calculating fleet emissions averages.

Injection retard on MUI engines is accomplished by adjusting fuel injector height (for four degrees retard, 0.028 inches is added to the stock injector timing height). The Agency understands that some engine models equipped with MUI should not, or cannot, be retarded the full four (4) degrees because the engine manufacturer (DDC) recommended maximum injector height is 1.520 inches. As explained above, engines having injection retarded more than 3 degrees cannot be used by operators for compliance with compliance program 1 because it does not reduce PM emissions by at least 25 percent. The Agency is certifying MUI engines, having injection retarded up to and including three (3) degrees, as reducing PM by at least 25 percent. Information provided with the TRT notification indicates that each additional 0.007 inch increase in injector height, above stock height, results in one (1) degree of retard.

As discussed in the Federal Register notice of December 13, 1995, TRT performed analysis which indicates that 1990 through 1993 model year Detroit Diesel Corporation 6V92TA DDEC engines (when using B20 with catalyst) will exceed applicable federal standards for NO_x unless timing retard is used. Therefore, the only configuration certified for these engines requires retarding the injection timing one (1) degree. The TRT notification states that one (1) degree retard on these DDEC engines is accomplished by relocating the reference timing sensor.

All certified configurations, that is, the biodiesel additive and catalyst, are covered by emissions performance and defect warranties offered by TRT described by the urban bus regulations at § 85.1409.

Section 211 of the Clean Air Act establishes fuel and fuel additive prohibitions, and gives the Agency authority to waive certain of those prohibitions. The Agency, however, does not believe that TRT must obtain a fuel additive waiver under § 211(f)(4) of the Clean Air Act before certifying its additive system for the following reasons.

The Act prohibits the introduction into commerce of any fuel or fuel additive that is not substantially similar to a fuel or fuel additive used in the certification of any model year 1975 or later vehicle or engine under § 206. The Administrator may waive this prohibition, if she determines that certain criteria are met. The Agency believes that certification of an urban bus retrofit system constitutes the certification of an engine under § 206 for the purposes of the urban bus retrofit/rebuild program, and, since the additive is used in the certification of the system, a waiver is not required to market the additive in the limited context of use with the certified retrofit system. This determination does not affect whether the additive is ''substantially similar to any fuel or fuel additive'' outside the context of the urban bus retrofit/rebuild program. The Agency's position on this matter is discussed in additional detail as it relates to use of another fuel additive (Lubrizol Corporation) at 60 FR 36139 on July 13, 1995.

III. Summary and Analysis of Comments and Concerns

The Agency received comments from ten (10) parties. Three transit operators, the Bi-State Development Agency, Southwest Ohio Regional Transit Authority, and Mass Transit Administration of Maryland provided comments that are favorable, indicating support for biodiesel as a viable alternative fuel. These agencies have participated in demonstrations of biodiesel and have found that biodiesel has an excellent operational record, and indicate that biodiesel maintains power and mileage without extra infrastructure costs. No difficulties with biodiesel were noted.

A fourth transit, New York City Transit Authority (NYCT), comments that it reviewed emissions data provided to it by TRT, and concluded that their operation would not realize an emission benefit by using biodiesel. The Agency respects the conclusion of NYCT, regarding use of biodiesel in its own operation. However, the Agency believes that this certified TRT equipment, which includes a catalyst component, will provide program benefits and additional options for operators. Further, certification is consistent with Agency support for fuels that may be renewable. A copy of NYCT's comments are available, as are all comments, in the public docket for review.

While the PM reduction attributable to the B20 component may be of general interest, a quantifiable reduction is not a specific necessity for the certification announced in today's Federal Register notice. The PM reduction attributable to the B20 component of the equipment is difficult to quantify because of inconsistent test data. The data do not consistently show that, when a catalyst is used, B20 reduces PM more than diesel fuel. Test data from the MUI engine indicates that using B20 with the catalyst may increase PM by roughly four (4) percent when compared with diesel fuel plus the catalyst, which may raise a question regarding the contribution of the biodiesel component in the ability of the TRT kit to reduce PM. On the other hand, other data (see Table 1) from testing the MUI engine with timing retarded four (4) degrees, and from testing the DDEC engine with timing retarded one (1) degree, both indicate that the use of B20 with catalyst further improves PM reduction by roughly 14 percent over diesel fuel with catalyst. In summary, the Agency believes that this certified TRT equipment, which includes catalyst and B20 components, will provide program benefits by reducing PM relative to use of conventional diesel fuel without a catalyst.

Other comments supporting certification were received from the National Biodiesel Board (NBB) and the Fats and Proteins Research Foundation (FPRF). The NBB, a trade association dedicated to creating viable commercial markets for biodiesel, notes a number of benefits or advantages of biodiesel. For example, NBB notes that increased use of biodiesel within the urban bus program can improve the environment, enhance national energy security, and give affected transit systems greater flexibility in meeting requirements. NBB further indicates that more than 10 million miles of in-service demonstration projects involving urban bus transit systems across the nation have been conducted to test biodiesel's reliability and performance as a fuel technology under actual urban transit working conditions, and reports overwhelmingly favorable results. The NBB also states that it is coordinating the biodiesel industry's response to the request for emissions health effects data under the Agency's fuel and fuel additive (FFA) program (pursuant to § 211 of the Clean Air Act).

The NBB states that it is not aware of any data that would bring into question any adverse public health effects from the utilization of B20, compared with baseline use of diesel fuel in the same engines. Further, NBB does not interpret the Agency's request for comments on health effects related to use of B20 (contained in the Federal Register notice of December 13, 1995) to require separate and independent health effects determinations for urban bus equipment that would duplicate the requirements under the FFA program. Also, the NBB believes that the on-going data submission requirements of § 211 fully address the potential health effects issues raised in the Federal Register notice of December 13, 1995, unless significant, new health effects related data to the contrary is submitted to the

Agency as a consequence of this rulemaking.

FPRF is an organization dedicated to the development of new uses for and added value of animal by-products for the nation's meat producing industry. The FPRF expresses support for TRT's notification and believes that TRT has fully met EPA's regulatory requirements under the urban bus program regulations. FPRF also notes that, the Energy Policy Act of 1992 defines ''alternative fuels'' to include fuels derived from biological materials, or any other fuel determined to be substantially not petroleum and yielding substantial energy security benefits and substantial environmental benefits. FPRF requests that the Agency defer its consideration of any health effects under the urban bus program, until the full course of data development and collection requirements under the FFA program are met by the biodiesel industry.

The Agency notes the information and expressions of approval for certification of biodiesel provided by both NBB and FPRF.

Section 85.1406(d) of the urban bus regulations states that ''* * * installation of any certified * * * equipment shall not cause or contribute to an unreasonable risk to public health, welfare or safety,'' and this is the basis for the Agency's request in the December 13, 1995 notice, for any available information regarding health risk. While the general health concern of the urban bus program is similar to that of the FFA program, the scopes of the programs are different. The urban bus program, in general, does not require duplication of the on-going health-effects information and testing requirements under the FFA program, which need not be provided until May 1997. While emissions data made available by TRT on the use of biodiesel has been reviewed by the Agency, it is not an adequate basis on which to base a comprehensive health-risk evaluation. However, we have determined that it should not impede the certification announced in today's notice. (This information is discussed further below). The Agency does not propose, or believe that others are suggesting, to postpone the certification of today's notice until the testing under the FFA program are completed. Whether or not the data submission requirements of the FFA program address the issues of the urban bus program are not relevant at this point in time, because certification under the urban bus program does not guarantee completion, or the outcome, of the information or testing requirements under the FFA program. However, if information becomes available which indicates significant health risk associated with use of biodiesel relative to conventional diesel, then the certification announced in today's Federal Register notice may be re-evaluated. Section 85.1413 provides the Agency authority to decertify equipment.

As discussed in the December 13, 1995 Federal Register notice (60 FR 64051), the Agency has reviewed information submitted by TRT related to unregulated emissions. Information provided by TRT from testing a 1988 DDC 6V92TA DDEC II engine using three chassis driving cycles indicate that emissions of aldehydes and ketones are increased when the timing is retarded 1.5 degrees, compared with a baseline of diesel fuel #2 without a catalyst. The data were collected using three chassis dynamometer cycles for diesel #2 fuel, B20, B20 plus catalyst with stock timing, and B20 plus catalyst with retarded timing. The data indicate that aldehyde/ketone emissions increase on average about 40 percent when timing retard is used with B20 plus catalyst, compared to a baseline of diesel #2. The aldehyde/ketone emissions decrease on average about 20 percent when stock timing is used with B20 plus catalyst, compared to the diesel baseline.

The Agency, in general, is concerned when unregulated emissions increase. While the Agency has not conducted a formal health risk analysis associated with the above-mentioned increase in unregulated aldehyde emissions, it is uncertain whether there is any potential for an increased health risk. In the judgement of the Director of the Engine Programs and Compliance Division, the increase in emissions does not appear to be significant. Additionally, we believe that certifying the configurations with retarded timing is beneficial for several reasons. The configuration of B20, catalyst, and timing retard meet the program requirement to reduce PM emissions, when compared to the baseline of neat diesel fuel without catalyst, plus provide a benefit of reduced emissions of NO_X. This certification will make those configurations available as options to interested operators.

The Agency's decision to certify the configuration having retarded timing is mitigated by several factors. First, aldehyde emissions from diesel engines, in general, are very low. Second, TRT's emissions data indicate that engines using the TRT equipment with stock timing will reduce emissions of aldehydes and ketones. Third, TRT estimates that only one in eight buses using its equipment will use the configuration with timing retard. Due to the program restriction to pre-1994 model year buses, the number of these buses (using timing retard) will decline as older buses are retired from the affected fleet. In summary, while there are uncertainties, in our judgement, the program benefits and above factors offset these uncertainties. Therefore, the Agency is certifying configurations with retarded injection timing.

While unregulated aldehyde emissions data from buses using the certified equipment described in today's Federal Register notice are limited, they indicate that the directional changes in emissions relative to conventional diesel are dependent upon the fuel injection timing employed with a catalyst. If stock timing is used, aldehyde emissions can be expected to decrease relative to a baseline of conventional diesel without a catalyst. However, if retarded timing is used, then aldehyde emissions can be expected to increase relative to the baseline. We believe that transit operators should be aware that with configurations using retarded timing, there is a possibility for ambient levels of aldehydes to increase. An increase in ambient levels is most likely to occur in micro environments having topographic or construction features (e.g., without adequate ventilation) that limit ambient dispersion of pollutants, such as enclosed bus malls or maintenance bays. If there is an increase in ambient levels, then there may be increased respiratory irritation by exposed populations. In summary, it is uncertain whether there would be an increase in ambient levels or, if there is an increase, whether it would become irritating to exposed populations. Operators concerned with the possibility may want to minimize the potential for increased ambient levels through its management practices, such as bus routing, bus scheduling, and/or mix of emission reduction technologies.

The Agency is interested in gathering additional information on unregulated aldehyde emissions, and requests that the public and industry provide information with regard to the content of the exhaust of compression-ignition engines fueled with any blend of biodiesel. Additionally, we request operators using the retarded configuration to provide us as well as TRT, information on related public complaints or comments, and actions taken to avert or correct perceived problems.

With regard to FPRF's comment on ''alternative'' fuels, there are no specific provisions for designating ''alternative'' fuels under the urban bus program. However, the program regulations state

that urban buses using alternative fuel that ''* * * significantly reduces particulate emissions compared to emissions from diesel fuel'' can be assumed to be operating at a PM level of 0.10 g/bhp–hr [40 CFR 85.1403(d)]. Further, the preamble to the final rule (58 FR 21380, April 21, 1993), relates alternative fuel to ''* * * dedicated gaseous fueled or alcohol fueled * * * buses''. Based on the emissions performance demonstrated by the certification data, the B20 component of the certified equipment does not appear to fit the depiction of ''alternative'' fuel that ''significantly reduces particulate emissions'' in the context of this program.

Texaco comments that the Agency erred in the December 13, 1995, Federal Register notice when it stated that under compliance program 1, operators could use the TRT equipment, because TRT has not provided life cycle cost information according to 40 CFR 85.1403(b). Texaco indicates that because life cycle costs are not provided by TRT, the Agency cannot certify it for use under program compliance option one (1).

Section 85.1403(b)(2) states, in part: ''If no equipment meets the provisions of paragraph (b)(1) of this section for a particular model of urban bus engine, then any urban bus for which this Subpart is applicable shall use equipment that has been certified to achieve at least a 25 percent reduction in particulate emissions from the original certified particulate emission level of the urban bus engine model being rebuilt, if such equipment is available as specified in paragraph (b)(2)(i) of this section.'' In general, paragraph (b)(2)(i) defines ''available'' to mean equipment has been certified to reduce particulate emissions by at least 25 percent, has been approved for certification for at least 6 months, and has a life cycle cost of $2,000 (1992 dollars) or less.

The Agency believes that § 85.1403(b)(2) is clear—once equipment is ''available'' (that is, the PM standard has been ''triggered'') for particular engines, then an operator can select any equipment that is certified to comply with the standard, regardless of cost associated with the selected equipment. This provides operators with equipment options. The Engelhard CMX™ catalyst was certified on May 31, 1995, to reduce PM on all two stroke/cycle engines by at least 25 percent for less than the applicable life cycle cost. Until equipment is certified to meet the 0.10 g/bhp–hr standard for less than the applicable life cycle cost, all two stroke/cycle engine rebuilds or replacements by operators using compliance program 1 must use equipment certified to reduce PM by at least 25 percent. Some, but not all, configurations of the certified TRT equipment, reduce PM by at least 25 percent and can be used in compliance with the current requirement of compliance program 1.

Detroit Diesel Corporation (DDC), the manufacturer of the engines to which the TRT equipment applies, comments that it has experience with the fuel blend, the exhaust catalyst, and the timing retard technologies. DDC states that the emission data provided by TRT is generally consistent with DDC's understanding of the expected effects of these technologies and DDC believes that TRT used reasonable approaches to extrapolate the emission data to the other engine models, and does not question PM certification levels provided in the December 13, 1995, Federal Register notice. Also, ''While DDC is in fundamental agreement with the emission claims made in the notice * * *'' they express the following concerns relating to the use of the proposed technologies.

DDC is concerned that there is limited experience with long term effects of biodiesel use on engine durability. There are concerns about the low temperature behavior of biodiesel and its comparability with materials that could be found in some engine and vehicle fuel systems (especially relevant for retrofit usage of biodiesel fuels). DDC believes that if certified, the upper blend ratio should be clearly defined and no more than 20 percent.

DDC notes several concerns related to the exhaust catalyst and injection retard features of the equipment. DDC notes that some users may experience degraded engine performance or durability as a result of using the timing retard. DDC also notes several other effects that are, in general, associated with timing retard, including decreased fuel economy, poorer cold starting and white smoke control, increased exhaust temperature and reduced exhaust valve durability. DDC states that without a case-by-case assessments of each of the engine models, it cannot provide specific comments on the effects of the proposed levels of timing retard.

DDC also comments that the procedure provided in the TRT notification for checking catalyst backpressure is not adequate. DDC states that the backpressure specification (3 inches mercury) provided with the check should be conducted at wide open throttle, full engine load (not the wide open throttle, no load condition as stated in the Engelhard material provided as part of TRT's notification). DDC notes that its backpressure limits apply at all engine operating conditions, but are most applicable to maximum exhaust flow condition of the engine, which is most often at the rated speed, full load condition. If the engine backpressure limit is just met at the wide-open-throttle no-load condition, then the engine will be severely over-backpressured when it is operated at or near rated power.

The Agency appreciates that there may be short-comings, or room for improvement, in maintenance procedures of components or various aspects of equipment certified under the urban bus program. Such concerns, in general, can also occur with procedures relating to new engines. Indeed, the current backpressure specification and check procedure may not be entirely adequate. Perhaps a positive first step is user knowledge of these areas of potential concerns. The Agency encourages all certifiers to issue revised check procedures when appropriate. If, after review of DDC's concern, Engelhard determines another check procedure is more appropriate for purchasers of the CMX™, it should notify the Agency, the purchasers, and TRT. DDC also notes that the Engelhard service procedure calls for CMX™ inspection during normally scheduled vehicle maintenance, contrary to what was stated in the December 13, 1995, Federal Register notice.

The Agency appreciates the extensive substantive comments submitted by DDC, given its experience and expertise as manufacturer of the engines to which this certified equipment applies. Users of this equipment should be aware of the potential concern expressed by the engine manufacturer regarding the use of biodiesel, the exhaust catalyst, and injection timing retard. Some users may not be satisfied with some configurations of the certified equipment, but must recognize that a comprehensive and long-term durability demonstration of all possible engines and equipment configurations is not part of the certification process under the urban bus program. While the Agency recognizes these comments as areas of potential concern, it also believes that the data presented by TRT is adequate to justify certification. Further, several parties involved with demonstration programs of biodiesel have provided positive feedback, as mentioned previously. The effects involving the long-term use of biodiesel is important, given this certification. The Agency is requiring that the biodiesel component of the certified

equipment comply with the indicated specifications and, as DDC recommends, limiting biodiesel use to the nominal maximum 20 percent biodiesel blend discussed above. The Agency will continue to monitor the performance of equipment certified under the urban bus program, and encourages users to provide details of its specific experience with this certified equipment. As necessary, the Agency has authority to decertify equipment pursuant to program regulations at § 85.1413.

DDC also comments that the TRT equipment should not be certified for use under compliance program 1. The Agency discusses this concern above in relation to a comment by Texaco. While the TRT equipment is neither ''trigger'' technology nor required to be used, certain configurations have been demonstrated to reduce PM by at least 25 percent and therefore can be used under compliance option 1, until equipment is certified to meet the 0.10 g/bhp-hr standard for less than the applicable life cycle cost.

With its comments, DDC provided a copy of a report by the Engine Manufacturers Association (EMA) dated August 1995 and entitled ''Biodiesel Fuels and Their Use in Diesel Engine Applications''. DDC indicates that it provides a good discussion of the issues surrounding the use of biodiesel fuels in diesel engines, and notes that the report suggests some caution in using these fuels. While this report on biodiesel does not specifically address TRT's notification of intent to certify, several points may be relevant to the notification, and of interest to operators interested in biodiesel. Interested parties should refer to the EMA report (included with DDC's comments in the public docket) for additional information concerning the EMA position on biodiesel use.

The EMA report notes that a wide range of feedstock may be grown for fuel use, and states that different feedstocks have different relative proportions of specific fatty acids (e.g. oleic or linoleic acids) and, as a result, the finished fuel will have different characteristics. The report, however, does not elaborate on any different characteristics or concerns associated with them. As stated elsewhere, the biodiesel component that can be used with the certified equipment of today's notice is bounded by a chemical specification, which is based on the certification emissions data. Further, TRT has indicated that it will adhere to industry developed specifications for various fuel and physical properties of biodiesel, as those specifications evolve.

Today's Federal Register notice limits the biodiesel component of the certified equipment to the chemically-defined description of Table 3. This specification was proposed by TRT as one which meets its manufacturing needs. The Agency believes it acceptable because, as an approximation of esters produced from use of soybean oil, it provides assurance that emissions performance will be similar to that demonstrated by the certification testing.

TRT's initial notification proposed a broad specification for biodiesel (alkyl esters containing C1 through C4 alcohols and C6 through C24 fatty acids) to permit its production from a wide variety of feedstocks using four different alcohols. While the Agency has not seen any information which indicate concern for any particular feedstock or esters produced using other than methyl alcohol, the effect of these variables on either regulated or unregulated emissions is not clear at this time. For this reason, and because all of the certification testing was conducted using soy methyl ester, today's Federal Register notice limits the biodiesel component to the description of Table 3.

Based on information provided by the U.S. Department of Agriculture and on vocal communications with TRT, soybean oil is expected to be the predominant feedstock in the production of biodiesel. Methyl esters produced from soybean oil are predominantly molecules having carbon chain-lengths of C16 and C18. Other plant oil sources (such rape seed oil), however, can be used to produce ester molecules of this range depending upon factors, such as growing conditions. TRT indicates that the chemical structure of methyl esters are the same, regardless of feedstock origin, and therefore TRT proposed a specification based on chain-length which would allow use of other plant oil feedstocks. The carbon chain-length specifications will allow use of plant oil feedstocks other than soybean oil to make biodiesel for use in compliance with the urban bus program. Additionally, the specifications provide assurance that the demonstrated emissions performance will be attained in-use by virtue of imitating the primary carbon chain-lengths of soy methyl ester.

While the Agency recognizes that there may be uncertainties concerning different feedstocks, the information available do not support a need to restrict feedstocks for the biodiesel certified by TRT (assuming compliance with the specifications of Table 3). If significant information becomes available which indicates concern with specifications of today's Federal Register notice, then the Agency has authority through the decertification process to further restrict biodiesel used in compliance of the urban bus program.

Section 85.1412 of the program regulations requires that TRT, as the certifier, maintain data obtained during testing of the equipment, including the biodiesel, and a description of the quality control plan used to monitor production and assure compliance of the equipment with the certification requirements. This section of the regulations requires that the certifier provide this information to the Agency upon written request. Section 85.1404 requires urban bus operators maintain the purchase records for fuel additives and provide the Agency with access to such records. The Agency may conduct audits of operators and analyze fuel for compliance with specifications, and to perform in-use testing to measure emissions.

The EMA report states that ''If raw vegetable oil is used as feedstock in the esterification process, then the final biodiesel fuel may have high phosphorus content. High levels of phosphorus would reduce the life of a catalyst used to reduce soluble organic fractions of particulates.'' While raw vegetable oil is a common feedstock for biodiesel production, TRT has forwarded measured phosphorous levels, analyzed by the National Biodiesel Board, of samples of SME collected over an 18 month period from three suppliers. The results show the phosphorous level is very low (a maximum of 0.0000045 weight percent). There is currently no Federal specification for the phosphorous level in in-use diesel fuel. However, a comparison can be made with the maximum level permitted (40 CFR Part 80) for in-use gasoline (0.005 grams per gallon). (At an average weight per gallon for gasoline of 6.2 pounds, 0.005 grams is roughly 0.00018 weight percent.) The data supplied by TRT, when compared with the allowable phosphorous level for in-use gasoline, do not indicate that phosphorous level is a concern when B20 is used with a catalyst.

The EMA report also notes that ''In the absence of a fuel specification, the quality of the biodiesel fuel cannot be controlled. Therefore engine and vehicle manufacturers cannot warranty the product against failures attributed to the use of such fuels or their blends.'' As noted above, the Agency understands that physical and fuel specifications for biodiesel are being developed by ASTM, and will consider the interests of the engine manufacturers, and the petroleum and biofuel industries. The

Agency expects such a standard to reduce the potential for fuel quality to be a problem. Further, TRT has indicated that it will adhere to the ASTM specifications for biodiesel as it evolves and is finalized.

Conversations with DDC indicate that, as a general policy, they would not cover under warranty the cost of repairing a problem which was caused by use of biodiesel. DDC's instructions to owners state that the recommended fuels are diesel #1 and #2. The Agency believes that the potential lack of coverage by the original engine manufacturer will not be a significant problem under the urban bus program because the affected engines are generally out of warranty due to age. There are, of course, other warranty provisions applicable to certification of retrofit/rebuild equipment under the urban bus program.

The EMA report also indicates that oil change intervals for vehicles operating on biodiesel blends need to be shortened to avoid durability problems. Operators using biodiesel may want to monitor oil parameters more closely until they determine appropriate change intervals.

The EMA reports concludes that biodiesel blends can improve visible smoke and particulate emissions in older diesel engines.

The California Air Resources Board (CARB) provides comments on a number of concerns. Many of these comments apply to the testing performed by TRT on an engine calibrated to meet federal standards using diesel fuel meeting federal requirements, but not requirements of that State. The Agency recognizes the special situations existing in California, which are reflected in the unique emissions standards, engine calibrations, and fuel specifications of the State. While the requirements of the federal urban bus program apply to several metropolitan areas in California, the Agency understands CARB's view that equipment certified under the urban bus program, to be used in California, must be provided with an executive order exempting it from the anti-tampering prohibitions of that State. Those interested in additional information should contact the Aftermarket Part Section of CARB, at (818) 575–6848.

Engelhard commented on the use of its CMX™ exhaust catalyst in conjunction with biodiesel. Engelhard notes that the two technologies complement each other—biodiesel increases the SOF of particulates while the CMX™ catalyst reduces total particulates by oxidation of SOF. The greater the SOF, the greater reductions obtained. No concerns were expressed by Engelhard regarding use of biodiesel with its catalyst.

Copies of all comments can be found in the public docket located at the above address.

IV. Certification

The Agency has reviewed the notification of intent to certify and other information provided by TRT, along with comments received from interested parties, and finds, based on available data, that the equipment described above:

(1) Reduces particulate matter exhaust emissions (some configurations by at least 25 percent), without causing the applicable engine families to exceed other exhaust emissions standards;

(2) Will not cause an unreasonable risk to the public health, welfare, or safety;

(3) Will not result in any additional range of parameter adjustability; and,

(4) Meets other requirements necessary for certification under the Retrofit/Rebuild Requirements for 1993 and Earlier Model Year Urban Buses (40 CFR 85.1401 through 85.1415).

Therefore, today's Federal Register notice announces certification of the above-described TRT equipment for use in the urban bus retrofit/rebuild program as discussed below in section V. The effective date of certification is the date of the letter, as noted above, provided earlier from the Director of the Engine Programs and Compliance Division to TRT. A copy of the letter can be found in the public docket at the address listed above.

V. Operator Requirements and Responsibilities

As discussed below, the certified TRT equipment announced in today's Federal Register notice may be used immediately in compliance with the urban bus program. Certain configurations apply only to compliance program 1. All configurations apply to compliance program 2.

In a Federal Register notice dated May 31, 1995 (60 FR 28402), the Agency certified an exhaust catalyst manufactured by the Engelhard Corporation, as a trigger of the program requirement to reduce PM by at least 25 percent. Until such time that the 0.10 g/bhp-hr standard is triggered, that certification of the Engelhard catalyst means that operators who elect to use compliance program 1 must use equipment certified to reduce PM emissions by at least 25 percent, when rebuilding or replacing engines. With the following exception, the certified TRT equipment may be used by operators in compliance with these current program 1 requirements. The configuration of the TRT equipment using fuel injection timing retard of four (4) degrees is not certified to reduce PM by at least 25 percent and, therefore, cannot be used by operators to comply with program 1.

Operators who choose to comply with compliance program 2 may use any configuration of the certified TRT equipment announced in today's Federal Register notice. Under option 2, an operator must use sufficient certified equipment so that its actual fleet emission level complies with the target level for its fleet. These operators must use the appropriate PM emission level from Table 2 when calculating their fleet level attained (FLA).

As stated in the program regulations (40 CFR 85.1401 through 85.1415), operators should maintain records for each engine in their fleet to demonstrate that they are in compliance with the requirements beginning in January 1, 1995. These records include purchase records, receipts, and part numbers for the parts and components used in the rebuilding of urban bus engines. In accordance with the program requirements of § 85.1404(a), operators using the certified equipment of today's notice must maintain purchase or delivery records of the B20 blend if the operator purchases the premixed blend from a fuel supplier, or, of biodiesel and low-sulfur diesel fuel if the operator mixes the B20. During compliance audits of transit operators, the Agency may review fuel purchase records and sample fuel supplies to verify blend ratios. To be in compliance with program requirements, operators must be able to demonstrate that biodiesel of the proper specification is being used in the proper proportions required by this certification.

Dated: October 15, 1996.

Mary D. Nichols,

Assistant Administrator for Air and Radiation.

[FR Doc. 96–27049 Filed 10–21–96; 8:45 am]

BILLING CODE 6560–50–P

[FRL–638–6]

Clean Air Act Advisory Committee Meeting

ACTION: Notice.

SUMMARY: The Environmental Protection Agency (EPA) established the Clean Air Act Advisory Committee (CAAAC) on November 19, 1990 to provide independent advice and counsel to EPA