

US EPA ARCHIVE DOCUMENT



MOBILE5 Information Sheet #6

Effect of New National
Low Emission Vehicle
Standard for Light-Duty
Gasoline Fueled Vehicles



MOBILE5

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July 1998

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I. Introduction

MOBILE5 Information sheets are a series of documents intended to give users detailed information about techniques that can be used to more accurately model highway mobile source emissions and avoid potential errors or resolve limitations to modeling capabilities. When referring to MOBILE5 in this and other Information Sheets, we will mean the latest officially released version of the MOBILE model, unless otherwise specifically noted. At the time of this Information Sheet, two versions of the model were actively being used. The most current version of the model, MOBILE5b, was released in October of 1996 while the other version, MOBILE5a, was released in March of 1993.

All of the MOBILE5 Information Sheets will be made available on the EPA Office of Mobile Sources site on the World Wide Web (WWW). The WWW site is available to users 24 hours a day, 7 days a week, and may be reached at "<http://www.epa.gov/omswww/models.htm>".

If you would like to be added to our mailing list, please follow the instructions included in the last section of the Information Sheet. This only need be done once. You do not need to send in this information if you are already on our mailing list.

II. Problem Description

On March 2, 1998, EPA completed the final step necessary for the voluntary National Low Emission Vehicle (LEV) program to come into effect. Because it is a voluntary program, it could only come into effect if agreed upon by the northeastern states and the auto manufacturers. EPA received notifications from all the auto manufacturers and the relevant states lawfully opting into the program. Consequently, on March 2, 1998, EPA found that the necessary criteria for the Agency to find the National LEV program in effect had been met, and published such a

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finding in the Federal Register on March 9, 1998 (63 FR 11374). As a result, starting in the northeastern states in model year 1999 and nationally in model year 2001, new cars and light-duty trucks up to 6000 pounds gross vehicle weight will meet tailpipe standards that are more stringent than EPA can mandate prior to model year 2004. Now that the program is agreed upon, these standards will be enforceable in the same manner as any other federal new motor vehicle program. Information regarding the National LEV program, including all relevant Federal Register publications, is available on the EPA web site:

<http://www.epa.gov/OMSWWW/lev-nlev.htm>.

The National LEV program will reduce air pollution nationwide, harmonize federal and California motor vehicle standards to reduce manufacturers' design and testing costs, avoid a patchwork of state regulatory requirements, and achieve emission reductions in the northeast equivalent to or better than would be achieved if each northeastern state adopted the California Low Emission Vehicle program. Although it originated as a way to help the northeastern states address their smog problems, the National LEV program will have public health and environmental benefits nationwide. Across the country, the National LEV program will reduce ground level ozone, the principle harmful component in smog, as well as emissions of other pollutants, including particulate matter, benzene and formaldehyde. This will assist states in achieving cleaner air while the economy grows.

This program is the result of a remarkable effort by EPA, the northeastern states, the auto industry and other interested parties. EPA applauds the effort, time and energy that all parties have invested in the National LEV program. As a result of this cooperative, partnership approach, we now have a smarter, cheaper, cleaner program that reduces regulatory burden while increasing protection of the environment and public health.

For further information on the National LEV Program, please contact Karl Simon at:

U.S. Environmental Protection Agency
Office of Mobile Sources (6401)
401 M Street SW
Washington, DC 20460
(202) 260-3623
simon.karl@epamail.epa.gov

Currently, no version of the MOBILE5 model includes the emissions impact of the recently finalized EPA rulemaking on the National Low Emission Vehicle Program. This Information Sheet provides users of any version of the MOBILE5 model with information for including the expected effects of the new standards in their modeling.

EPA had provided guidance for the modeling of the effects of inspection and maintenance

(I/M) programs on California LEV program vehicles in the memorandum, "Emission Reduction Credits for California Low Emission Vehicles (LEV's)," dated April 8, 1994, which can be found in Appendix 2B in the MOBILE5 User Guide. The April 8, 1994 guidance is superseded by the instructions included in MOBILE5 Information Sheet #6 (i.e., this document). The current instructions are predicated on the assumption that traditional, enhanced I/M testing will be successfully replaced with the On-Board Diagnostic (OBD) checks that will be required of all 1996 and later OBD-equipped vehicles subject to I/M testing, beginning January 1, 2001. EPA is currently conducting pilot testing to investigate the soundness of this assumption. Should it prove overly optimistic, or otherwise erroneous, EPA will revisit the guidance provided in this information sheet at that time.

III. Remedy

Only areas which will be affected by the National LEV rule should consider making these changes to their mobile source inventory estimates. This includes most Northeastern States beginning with the 1999 model year and will include all States beginning with the 2001 model year. Please see the "NLEV Phase-In Values" sub-section below for more information on when NLEV is effective in your state.

Normally it is possible to alter the basic exhaust emission rates used by MOBILE5 by using the NEWFLG option to allow user entry of new basic exhaust emission factors. This option cannot be easily used to simulate low emitting vehicles, since MOBILE5 expects new basic exhaust emission rates to be in total hydrocarbons and low emitting vehicle standards are measured in non-methane hydrocarbons. However, MOBILE5 already contains the emission rates for low emitting vehicles in the options for the REGION flag on the Scenario Record, which allows users to simulate the adoption of the California Low Emission Vehicle Program in non-California areas. The default phase in period for the California program can be altered using undocumented diagnostic capabilities of the MOBILE5 model in order to access the phase-in for the California program to simulate the National Low Emission Vehicle Program. There are four necessary steps:

- o Change the PROMPT Flag setting in the Control section.
- o Change the REGION Flag setting on the Scenario Record.
- o Enter the LEV Parameter Record.
- o Provide an alternative LEV phase in using an external data file.

These changes will not affect the emission rates for Light-Duty Diesel Vehicles (diesel passenger cars) or for Light-Duty Diesel Trucks. These vehicle classes normally make up a small fraction of the highway vehicle fleet and any effect on National Low Emission Vehicle Program benefits from light duty diesel vehicles should be negligible. The new version of the MOBILE model, MOBILE6, will appropriately handle all of the NLEV program effects when the model is released.

PROMPT Flag

The National Low Emission Vehicle (NLEV) Program can be modeled in any version of MOBILE5 by setting the first flag in the Control section of the input file, the PROMPT flag (Section 2.1.1 of the MOBILE5 User Guide). The PROMPT flag is described as having only four settings in the MOBILE5 User Guide. However, setting the PROMPT flag to “5” initiates a diagnostic input to override the default phase in for the California Low Emission Vehicle Program. This diagnostic input takes the form of a separate data file containing the alternate phase in schedule desired by the user. All other Control flags must be entered in the vertical format (same as if the user had indicated PROMPT=1).

MOBILE5 will prompt the user for the name of a data file which must contain the phase-in information necessary to replace the LEVIMP array stored in Block Data 05 in the MOBILE5 source code. This prompt will occur on the screen after the entry of the output file name and the file name must be entered interactively. If this data file is not provided, the MOBILE run will stop. This information is provided only once per MOBILE run, and different phase-in arrays cannot be used for different scenarios within a single MOBILE run. Since this is a diagnostic input, the MOBILE model does not check the input for consistency or errors, so the user must carefully enter the data and must manually check the input for errors. There is no output generated by MOBILE5 to indicate that a user supplied phase in has been used. The user should make use of the PROJID and the scenario name on the Local Area Parameter Record to label the MOBILE runs using an altered phase in.

REGION Flag and the LEV Parameter Record

The National Low Emission Vehicle Program is initiated in a MOBILE5 scenario by setting the REGION flag on each Scenario Record (Section 2.3.1 of the MOBILE5 User Guide) to “4” indicating implementation of the California Low Emission Vehicle Program and requiring the input of the LEV Parameter Record (Section 2.3.7 of the MOBILE5 User Guide). Normally the start year (the first value in the LEV Parameter Record) should be 1999 (“99”) for most OTR states and 2001 (“01”) for non-OTR states. Please see the “NLEV Phase-In Values” sub-section below for more information on when NLEV is effective in your state.

In areas with I/M programs which, by the date of the evaluation (the calendar year and month in the relevant Scenario Record), will have completed one full cycle of OBD system inspections pursuant to federal or state requirements for such inspections, set the second flag of the LEV Parameter Record to be “2”. If you do not have an I/M program or your state has not completed one full cycle of OBD system inspections, set this flag to “1”. Refer to Section 2.3.7 of the MOBILE5 User Guide for more information about the LEV Parameter Record. MOBILE5b users have an additional flag on the LEV Parameter Record. This third flag must be set to “1,” indicating that the LEV program does not apply to light-duty trucks above 6000 pounds gross vehicle weight.

EPA had provided guidance for the modeling of the effects of inspection and maintenance (I/M) programs on California LEV program vehicles in the memorandum, "Emission Reduction Credits for California Low Emission Vehicles (LEV's)," dated April 8, 1994, which can be found in Appendix 2B in the MOBILE5 User Guide. The April 8, 1994 guidance is superseded by the instructions included in MOBILE5 Information Sheet #6 (i.e., this document). The current instructions are predicated on the assumption that traditional, enhanced I/M testing will be successfully replaced with the On-Board Diagnostic (OBD) checks that will be required of all 1996 and later OBD-equipped vehicles subject to I/M testing, beginning January 1, 2001. EPA is currently conducting pilot testing to investigate the soundness of this assumption. Should it prove overly optimistic, or otherwise erroneous, EPA will revisit the guidance provided in this information sheet at that time.

LEV Phase-In Data File Format

The data file necessary when the PROMPT flag is set to "5" must contain the phase-in information for both passenger cars and light-duty trucks. Each row represents a model year, starting with the 1994 model year. Each column represents vehicles built to a particular certification standard level. Each number represents the fraction of vehicles sold in that model year which are built to that certification standard level. Each row must sum to "1.000". MOBILE5 will *not* check this sum and cannot warn the user if these values do not sum to 1.000. If these values do not sum to 1.000, the emission levels for that model year will be incorrectly calculated.

This information sheet will not attempt to explain the current California certification standards, the vehicle classification definitions or the default phase-in used in MOBILE5. Information about the California certification standards and vehicle standards can be found on their web site:

<http://arbis.arb.ca.gov/msprog/levprog/levprog.htm>

Information about the default phase-in used in MOBILE5 and the assumed emission rates for LEVs can be obtained from Volume II (Mobile Sources) of the Compilation of Air Pollutant Emission Factors AP-42, Appendix H (Tables 1.1C and 2.1C), available from the EPA web site:

<http://www.epa.gov/omswww/models.htm>

There are eight columns of numbers in a phase in data file. The FORTRAN format for the columns is 8(F5.3,1X). This means that the first number starts in the first space of the first column and that each number is 5 characters long with a decimal. The decimal may occur anywhere within the five characters, but if no decimal appears, the last 3 numbers are assumed to be to the right of the decimal. Each number must be between 0.000 and 1.000 and the sum of any row must equal 1.000. There is a space between each of the eight numbers. Each number in

each column represents the fraction of vehicles of a given model year and vehicle class certified to the particular emission standard. The eight columns (in order from left to right) are:

- o Tier 1 - Federally certified vehicles
- o Inter TLEV - Intermediate Transitional LEV
- o TLEV - Transitional LEV
- o Inter LEV - Intermediate LEV
- o LEV - Low Emitting Vehicle
- o Inter ULEV - Intermediate Ultra-LEV
- o ULEV - Ultra-LEV
- o ZEV - Zero Emitting Vehicle

The distribution of each row can be adjusted to reflect the fraction of all vehicles expected to be sold in each model year for each vehicle class. The sum of the fractions must equal 1.000 and the MOBILE model will not check the input or warn the user if there is an input error. Text may be added to the end of each row (in any column beyond 40) to annotate the input file. This text will not be read by the model.

There are five blocks of rows with 12 rows in each block. Each block represents a vehicle classification. Each vehicle class can have a separate phase in of certification standards. The five vehicle classes are:

- o LDGV - Gasoline fueled passenger cars
- o LDGT1 - Gasoline fueled light-duty trucks
<3750 lbs. LVW & 0-6000 lbs. GVW
- o LDGT2 - Gasoline fueled light-duty trucks
>3750 lbs. LVW & 0-6000 lbs. GVW
- o LDGT3 - Gasoline fueled light-duty trucks
<3750 lbs. LVW & 6001-8500 lbs. GVW
- o LDGT4 - Gasoline fueled light-duty trucks
>3750 lbs. LVW & 6001-8500 lbs. GVW

Where LVW is the loaded vehicle weight classification and GVW is the gross vehicle weight rating. These classifications are identical to those used for all 1994 and newer model year passenger cars and light duty trucks for Federal vehicle emission certification. (Note that the definitions for light-duty trucks are different (more detailed) than are used in the MOBILE5 model documentation and that the same labels mean different groupings of trucks. For comparison, see Chapter 3.0 of the MOBILE5 User Guide.)

With 12 rows in each block and five blocks, the total data file will contain 60 rows with 8 numbers in each row. The twelve rows in each block represent the twelve model years starting with the 1994 model year. The last model year (2005) is also used to model all subsequent (2006

and later) model years. Values for all vehicle classes, certification standards and model years must be entered for the data file to be valid.

NLEV Phase-In Values

In order to calculate the impact of NLEV, it is important to know (1) whether a state has opted into the NLEV program, and (2) if not, whether that state has adopted the California Low Emission Vehicle Program and (3) in which model year the program becomes effective.

There are nine OTC states (NH, CT, RI, PA, NJ, DE, MD, VA, DC) which have opted into the NLEV program for the 1999 model year. Four OTC states (NY, MA, VT, CT) have opted into the California Low Emission Vehicle Program using Clean Air Act Section 177. Massachusetts began implementation of the California Low Emission Vehicle Program in the 1995 model year. New York began implementation in the 1994 model year, reverted to federal standards in the 1995 model year and then resumed implementation of the California Low Emission Vehicle Program in the 1996 model year. Vermont begins adopting the California Low Emission Vehicle Program in the 1999 model year, but does not include the Zero Emission Vehicle (ZEV) mandate. Connecticut has the California Low Emission Vehicle Program for the 1998 model year, but will switch to the NLEV program beginning with the 1999 model year.

The remaining Ozone Transport Commission state (ME) is not yet in NLEV, yet also does not have California standards in place for the 1999 model year. Maine should be modeled using Federal standards, the same as for most non-OTC states. However, Maine plans to be implementing the California program starting in the 2001 model year and should be modeled using the California Low Emission Vehicle Program beginning in 2001 once the regulations are finalized and submitted to EPA for inclusion in the SIP.

All of the above program descriptions are our current understanding of the plans by individual States and are subject to change at any time. Please consult with the individual States or the appropriate Regional EPA office before modeling these programs.

The nine states within the OTC and opting into the National Low Emission Vehicle Program would use the following phase in schedule for passenger cars and for all light duty trucks less than 6,000 lbs. GVW (now called LDGT1 and LDGT2):

Model Year	

1999	30% Tier 1, 40% TLEV, 30% LEV
2000	0% Tier 1, 40% TLEV, 60% LEV
2001+	0% Tier 1, 0% TLEV, 100% LEV

Only these nine states (NH, CT, RI, PA, NJ, DE, MD, VA, DC) should model the NLEV program beginning in the 1999 model year.

States opting into California Low Emission Vehicle Program (including NY, MA, VT, CT and ME) should follow the guidance for modeling the California LEV program found in the MOBILE5 User Guide for using the LEV Parameter Record to indicate the model year which begins the LEV phase in (Section 2.3.7).

Any non-OTC state not opting into California Low Emission Vehicle Program will use the standard schedule of 100% LEVs beginning in the 2001 model year. The appendix contains an example input for the nine OTC states that opt into the NLEV program for the 1999 model year and an example for all other states not opting into the California Low Emission Vehicle Program. The start year (the first value in the LEV Parameter Record described above) must be 1999 ("99") for OTC states opting into NLEV and 2001 ("01") for all other states not opting into the California Low Emission Vehicle Program. If you have doubts about the appropriate phase-in for your area, be sure to consult with the appropriate EPA Regional office.

IV. Additional Information/ Listserver Subscription

The Emission Inventory Group, Assessment and Modeling Division, EPA Office of Mobile Sources maintains a listserver named EPA-MOBILENEWS. A listserver is an electronic mailing list service that will send messages to all of the persons with e-mail addresses who have "subscribed" to that particular listserver. This listserver has largely replaced physical mailings of information to those interested in general mobile source emission factor and inventory information (including particulate emissions and the PART emission factor model, and nonroad mobile sources).

To subscribe to the EPA-MOBILENEWS listserver send the following message:

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subscribe EPA-MOBILENEWS FIRSTNAME LASTNAME
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where FIRSTNAME and LASTNAME is your name (for example: Fred Flintstone) to the EPA List server address. The list server e-mail address is:

```
listserver@unixmail.rtpnc.epa.gov
```

Your e-mail address will then be added to the list of subscribers and a confirmation message will be sent to your e-mail address. Whenever a message is posted to the EPA-MOBILENEWS listserver by the listserver owner (The Assessment and Modeling Division of the EPA Office of Mobile Sources), a copy of that message will be sent to every person who has subscribed.

You can remove yourself from the list by sending another message to the listserver address. This message must be sent from the same e-mail address that you used to subscribe, and should contain the message:

unsubscribe EPA-MOBILENEWS

The Emission Inventory Group encourages all persons interested in mobile source vehicle emission factors, including particulate matter, the MOBILE and PART emission factor models, and non-road vehicle emission factors and modeling, as well as guidance issued from OMS on the use of these models and development of emission inventories for all mobile sources, to take advantage of the EPA-MOBILENEWS listserver as the best and most efficient way to get up-to-date information about these issues.

We recognize that some parties interested in these topics may not be able to subscribe to the listserver, and will continue to mail paper copies of information to those parties on request. If you cannot subscribe to the EPA-MOBILENEWS listserver at this time and wish to continue to receive paper copies of information by regular mail, please mail or fax your current information (name, company name, mailing address, phone and fax numbers) to us at the address below and clearly indicate that you wish to continue receiving paper copies of all information distributed over the listserver. Send this request to:

MOBILE/PART Mailing Lists
US EPA NVFEL
Assessment and Modeling Division
2000 Traverwood Road
Ann Arbor, MI 48105-2498

or fax the information to: (734) 214-4939

and note "Attention: MOBILE/PART Mailing Lists" on the fax.

Appendix - Example LEV Phase In Data Files

Example Input File NLEVOTC.D
For OTC States Opting into the NLEV Program Beginning in 1999
(Tier1/ITLEV,TLEV,ILEV,LEV,IULEV,ULEV,ZEV)

1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1994	LDGV
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	97	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	98	
0.300	0.000	0.400	0.000	0.300	0.000	0.000	0.000	99	
0.000	0.000	0.400	0.000	0.600	0.000	0.000	0.000	2000	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	01	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	02	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	03	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	04	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	05	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1994	LDGT1
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	97	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	98	
0.300	0.000	0.400	0.000	0.300	0.000	0.000	0.000	99	
0.000	0.000	0.400	0.000	0.600	0.000	0.000	0.000	2000	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	01	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	02	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	03	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	04	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	05	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1994	LDGT2
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	97	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	98	
0.300	0.000	0.400	0.000	0.300	0.000	0.000	0.000	99	
0.000	0.000	0.400	0.000	0.600	0.000	0.000	0.000	2000	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	01	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	02	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	03	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	04	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	05	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1994	LDGT3
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	97	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	98	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	99	

1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2000
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	01
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	02
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	03
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	04
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	05
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1994 LDGT4
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	97
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	98
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	99
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2000
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	01
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	02
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	03
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	04
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	05

Example Input File NLEVSTD.D
Standard Input for the NLEV Program With 2001 Start
(Tier1/ITLEV,TLEV,ILEV,LEV,IULEV,ULEV,ZEV)

1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1994	LDGV
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	97	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	98	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	99	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2000	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	01	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	02	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	03	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	04	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	05	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1994	LDGT1
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	97	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	98	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	99	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2000	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	01	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	02	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	03	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	04	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	05	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1994	LDGT2
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	97	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	98	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	99	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2000	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	01	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	02	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	03	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	04	
0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	05	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1994	LDGT3
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	97	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	98	
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	99	

1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2000
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	01
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	02
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	03
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	04
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	05
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1994 LDGT4
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	97
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	98
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	99
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2000
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	01
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	02
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	03
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	04
1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	05