

APRIL

2022

**Yakima Regional Clean
Air Agency
Board Meeting**



Yakima Regional Clean Air Agency
MEETING LOCATION: AGENCY'S CONFERENCE ROOM
186 Iron Horse Court, Suite 101
Yakima, WA 98901
www.yakimacleanair.org

April 14, 2022

REGULAR BOARD OF DIRECTORS' MEETING at 2:00 P.M.

AGENDA

1. Call to Order

2. Roll Call

3. Additions or Deletions to the Agenda

4. Public Comments

If you wish to address any matter relevant to the business of the Board, you may do so now. Please, state your name and the item you wish to address. Please limit your comments to three (3) minutes.

5. Consent Agenda

5.1 By consent, approve March 10, 2022 Board Meeting Summary

5.2 By consent, accept March 2022 YRCAA Monthly Activity Report

Action Requested: Approve Consent Agenda Items 5.1 through 5.2

6. Regular Agenda

6.1 Interim Executive Director's Report

7. Action Items

7.1 Approve Fiscal Vouchers and Payroll Authorization Transfers for March 2022.

Action Requested: Approve Fiscal Vouchers and Payroll Authorization Transfers.

8. Other business

8.2 Updates on the Search Process for Air Pollution Control Officer (APCO)/Executive Director

9. Adjournment

If you wish to attend the YRCAA Board meeting and require an accommodation due to a disability or Language Interpretative Services, call 509-834-2050, ext. 100 or send us an email at admin@yrcaa.org.



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14 de abril de 2022

REUNIÓN ORDINARIA DE LA JUNTA DIRECTIVA a las 2:00 p.m.

AGENDA

1. Llamada al orden

2. Registro de asistencia

3. Incorporaciones o eliminaciones al orden del día

4. Comentarios públicos

Si desea tratar cualquier asunto pertinente a los temas del consejo, puede hacerlo en este momento. Acérquese al podio, diga su nombre e indique el tema que desea abordar. Limite sus comentarios a tres (3) minutos.

5. Aprobación de la agenda de consentimiento

5.1 Por consentimiento, apruebe el Resumen de la Reunión de la Junta del 10 de marzo de 2022

5.2 Por consentimiento, acepte el Informe Mensual de Actividad de YRCAA de marzo de 2022

Acción solicitadas: Aprobar el consentimiento Puntos 5.1 a 5.2 del orden del día

6. Agenda de asambleas ordinarias

6.1 Informe del Director Ejecutivo Interino

7. Elementos de acción

7.1 **Aprobar comprobantes fiscales y transferencias de autorización de nómina para marzo de 2022**

Acción solicitada: Aprobar comprobantes fiscales y transferencias de autorización de nómina,

8. Otros asuntos

8.2 Actualizaciones sobre el proceso de búsqueda de Oficial de Control de la Contaminación del Aire (APCO)/Director Ejecutivo

9. Cierre

Si desea asistir a la asamblea del consejo de YRCAA y requiere servicios especiales por discapacidad o de interpretación llame al 509-834-2050, ext 100 o escribanos a admin@yrcaa.com

CONSENT AGENDA ITEMS



**SUMMARY OF THE GOVERNINGBOARD OF DIRECTORS
REGULAR MEETING**

March 10, 2022

Location and Time:
YRCAA Office

Started at 2:00 PM

REGULAR MEETING

1. Vice Chair Trevino called the meeting to order at 2:00 p.m.

2. Hasan Tahat, Ph.D., Interim Executive Director, conducted roll call. There was a quorum.

PRESENT WERE: Jon DeVaney, Member-at-Large(Teleconference) Steven Jones, Ph.D., County Representative Jose Trevino, Small City Representative Janice Deccio, Large City Representative (Teleconference)	
ABSENT: Amanda McKinney, County Commissioner	
BOARD MEMBERS: Steven Jones, Ph.D., County Representative Jon DeVaney, Member-at-Large Amanda McKinney, County Commissioner Jose Trevino, Small City Representative Janice Deccio, Large City Representative	LEGAL COUNSEL: Gary Cuillier STAFF: Hasan Tahat, Ph.D., Interim Executive Director

3. Additions or Deletions to the Agenda

Vice Chairman Trevino asked if there were any additions or deletions to the Agenda.

Dr. Tahat stated there was none.

4. Public Comment

Vice Chairman Trevino asked if there were any public comments.

The following individual(s) offered spoken comments:

- Jean Mendoza, White Swan FOTC, commented regarding the hiring process for the new APCO. She reminded the board of 2016-2017 hiring process, she added there were three final candidates during that process, and who was the board final selection.



5. Approval of Consent Agenda

- 5.1 By consent, approve February 10, 2022 Board Meeting Summary
- 5.2 By consent, accept February 2022 YRCAA Monthly Activity Report

Dr. Jones moved and Chairman DeVaney seconded to approve.
Motion approved with no dissension.

6. Regular Agenda

- 6.1 Interim Executive Director's Report

Dr. Tahat presented the report. Refer to Board packet.

Dr. Jones inquired about the total number of woodstoves changed every year.

7. Action Items

- 7.1 Approve Fiscal Vouchers and Payroll Authorization Transfers for February 2022.

Action Requested: Approve Fiscal Vouchers and Payroll Authorization Transfers.

Dr. Jones moved and Mr. Jon DeVaney seconded to approve.
Motion approved with no dissension.

8. Other business

- 8.2 Updates on the Search Process for Air Pollution Control Officer (APCO)/Executive Director

- Chairman DeVaney gave an update and he added how the process will go forward and based on suggestions offered to YRCAA Board of Directors from Yakima County Human Resources. He added that the HR received 12 applications some of which are not complete according the HR. The County HR suggests that they keep position open and not close it to give people more time. The HR will screen the first group of applicant and send the ranking to the board.



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Mayor Deccio joined the meeting via Teleconference, however, it was not clear when did Mayor Deccio joined the meeting.

9. Adjournment

Vice Chairman Trevino adjourned the meeting at 2:49 p.m.

Jose Trevino, Board of Directors

Christa Owen, Clerk of the Board

Date of Release: April 7, 2022
Date of Consideration: April 14, 2022
To: Honorable YRCAA Board of Directors and Alternates
From: Office of the Interim Executive Director
Subject: Monthly Activity Report

Current Quarter

Activity	FY21 Total	Jan FY22	Feb FY22	Mar FY22	FY22 Total to Date
Minor Source Inspections	129	0	0	7	35
Complaints Received	295	7	3	3	83
NOVs Issued	94	7	0	1	21
AODs Issued	10	0	0	0	0
Warning Notices Issued	11	0	0	0	0
NOPs Issued	52	0	3	5	26
SEPA Reviews	433	23	18	49	356
AOP Applications Received	0	0	0	0	0
AOPs Issued or Renewed	0	0	0	0	0
Deviations/Upsets Reported	31	1	2	2	16
AOP Inspections	4	0	0	0	1
Public Workshops	0	0	0	0	1
Media Events	2	1	0	0	1
Media Contacts	7	2	1	0	6
Education Outreach Events	1	0	0	1	1
Sources Registered	353	49	58	79	191
NSR Applications Received	26	1	2	0	9
NSR Approvals Issued-Temporary	2	0	0	0	0
NSR Approvals Issued-Permanent	31	2	3	0	19
NODRs Received	195	10	15	16	104
Agricultural Burn Permits Issued	97	8	29	14	54
Conditional Use Permits Issued	8	0	0	1	3
Residential Burn Permits Issued	724	0	0	259	471
Burn Ban Days	58	21	0	0	84
Public Records Requests Fulfilled	41	1	6	4	28

Acronyms:

AOP - Air Operating Permit; **NODR** - Notification of Demolition and Renovation; **NOP** - Notice of Penalty; **NOV** - Notice of Violation; **NSR** - New Source Review; **SEPA** - State Environmental Policy Act

REGULAR

AGENDA



Executive Memorandum

Date of Release: April 7, 2022
Date of Consideration: April 14, 2022
To: Honorable YRCAA Board of Directors and Alternates
From: Office of the Interim Executive Director / Air pollution Control Officer
Subject: Interim Executive Director’s Report for the Month of March 2022

1. Proposed Heavy-Duty Trucks Rules

Environmental Protection Agency (EPA) published a proposed heavy-duty truck rule on March 28, 2022 *Federal Register*:

<https://www.govinfo.gov/content/pkg/FR-2022-03-28/pdf/2022-04934.pdf>. The proposed rules about 475 pages. Attached are the first 16 pages of the proposed rules. This rule when finalized, it will help in the transportation air emissions reduction and along the I-82 corridor.

2. Budget FY 2023- Revised Code of Washington (RCW) 70A.15.1590- Air pollution control authority—Fiscal year—Adoption of budget—Contents

We have been working on the budget for FY 2023. We have a draft and we will publish it for comments from May 1st to May 31st to be ready for the June board meeting. The budget is based on 10 FTE.

3. Pay Scale- old Resolution and YRCAA Administration Code

Staff would like to share some prospective with the Board of Directors regarding this specific issue, the pay scale in particular. I have attached several resolutions; the first one was in 2003 when the agency started doing its own payroll, etc. In 2004 we had the steps from 1 to 80 the resolution is also attached. In 2008 there was another approval and became part of the YRCAA Administrative code. The last one was in April 2021; however, still several questions needs be clarified. Staff is seeking guidance from the Board as the staff increases due for the past three years needed to be included in the FY 2023 budget.

4. FY 2022 Woodstove Change- out

For the month of March a total of 22 woodstoves at \$97,293.49 which includes 8 rebates, 2 bounties and 12 low income. The total woodstoves for this FY-2022 through March 31, 2022 are as follows:

- 60 Low income change-outs \$351,591.35
- 85 Rebates \$167,500.00
- 16 Bounties \$3,700.00
- Admin \$67,975.71
- Promo \$20,066.86

Total spent through 3/31/2022 \$610,833.92

5. Engineering & Compliance

Registration program starts in January of every year. We registered 79 sources for the month of March. We processed 16 Notifications of Demolition / Renovation (NODR). Agricultural burning and burn bans pursuant to WAC 173-430 and WAC 173-433 requires daily allocation / metering and three days weather forecast, hence, the division do the daily allocation and forecast (dispersion). We had 7 inspections and investigated 3 complaints. Issued 5 NOP's.

The following Table itemizes, by type, the number of complaints received and the number of NOV's issued, if any, for the month of March 2022:

Type of Complaint	Number of Complains	Number of NOV's*	Number of AOD's**
Residential Burning	0	1	0
Agricultural Burning	0	0	0
Other Burning and SFBD***	2	0	0
Fugitive / Construction Dust	1	0	0
Agricultural Dust	0	0	0
Agricultural Odor	0	0	0
Other Dust	0	0	0
Surface Coating	0	0	0
Odor	0	0	0
Asbestos	0	0	0
Others and NSR****	0	1	0
Registration	0	0	0
Industrial Sources	0	0	0
TOTALS	3	2	0

*NOV- Notice of Violation

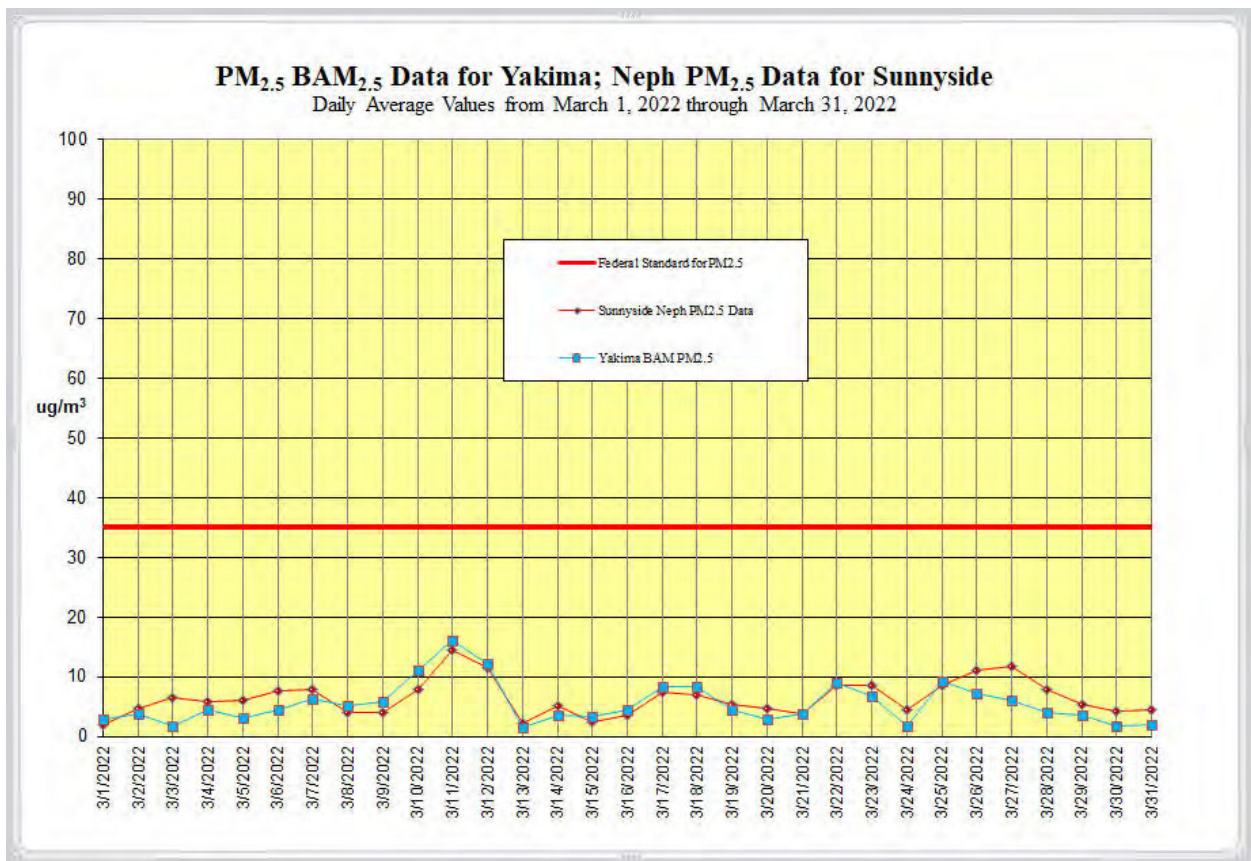
**AOD- Assurance of Discontinues

*** Solid Fuel Burning Device **** New Source Review

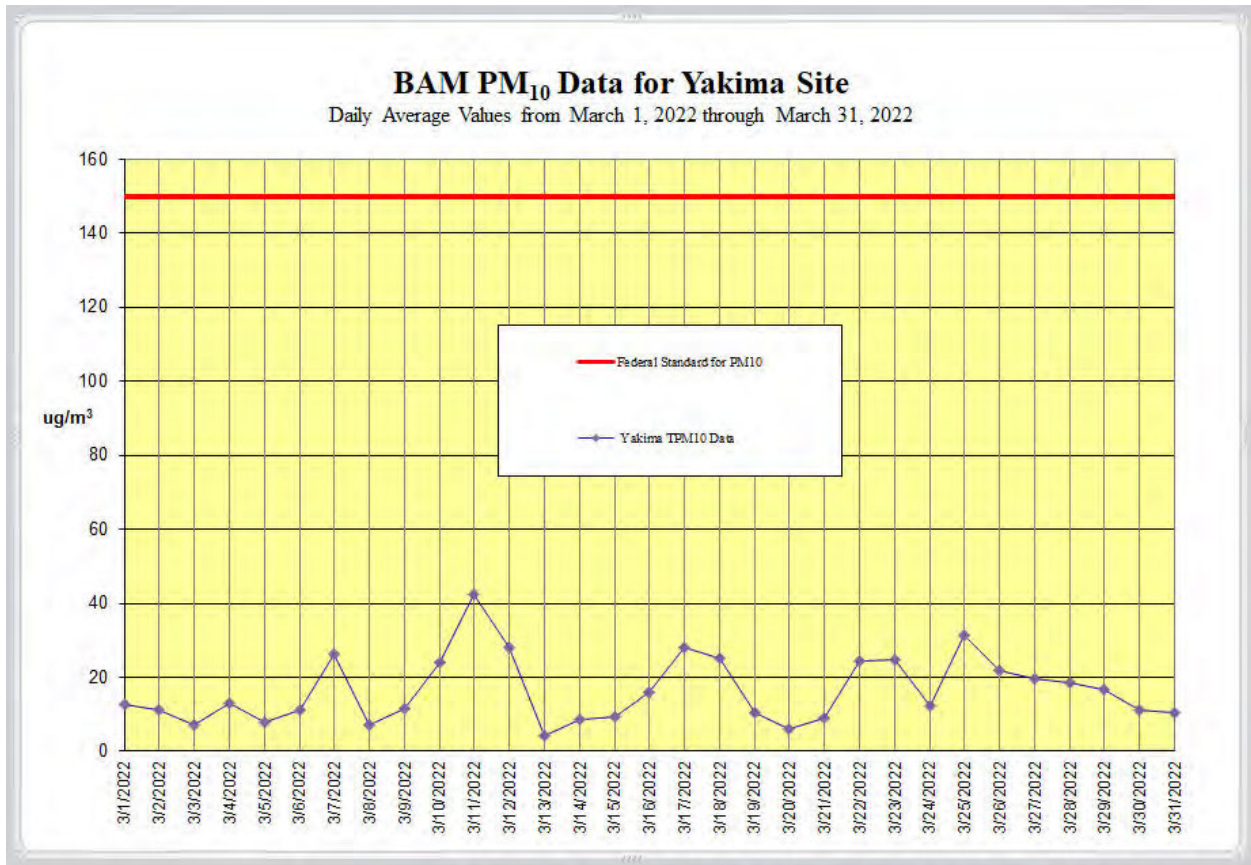
6. Air Monitoring Data for March 2022

Collected and shipped for analysis approximately 15 Air Monitoring Samples and completed 6 Quality Control (QC) checks on 5 Air Monitors.

- **PM_{2.5} Data**
 - We expect no PM_{2.5} exceedances for the month.

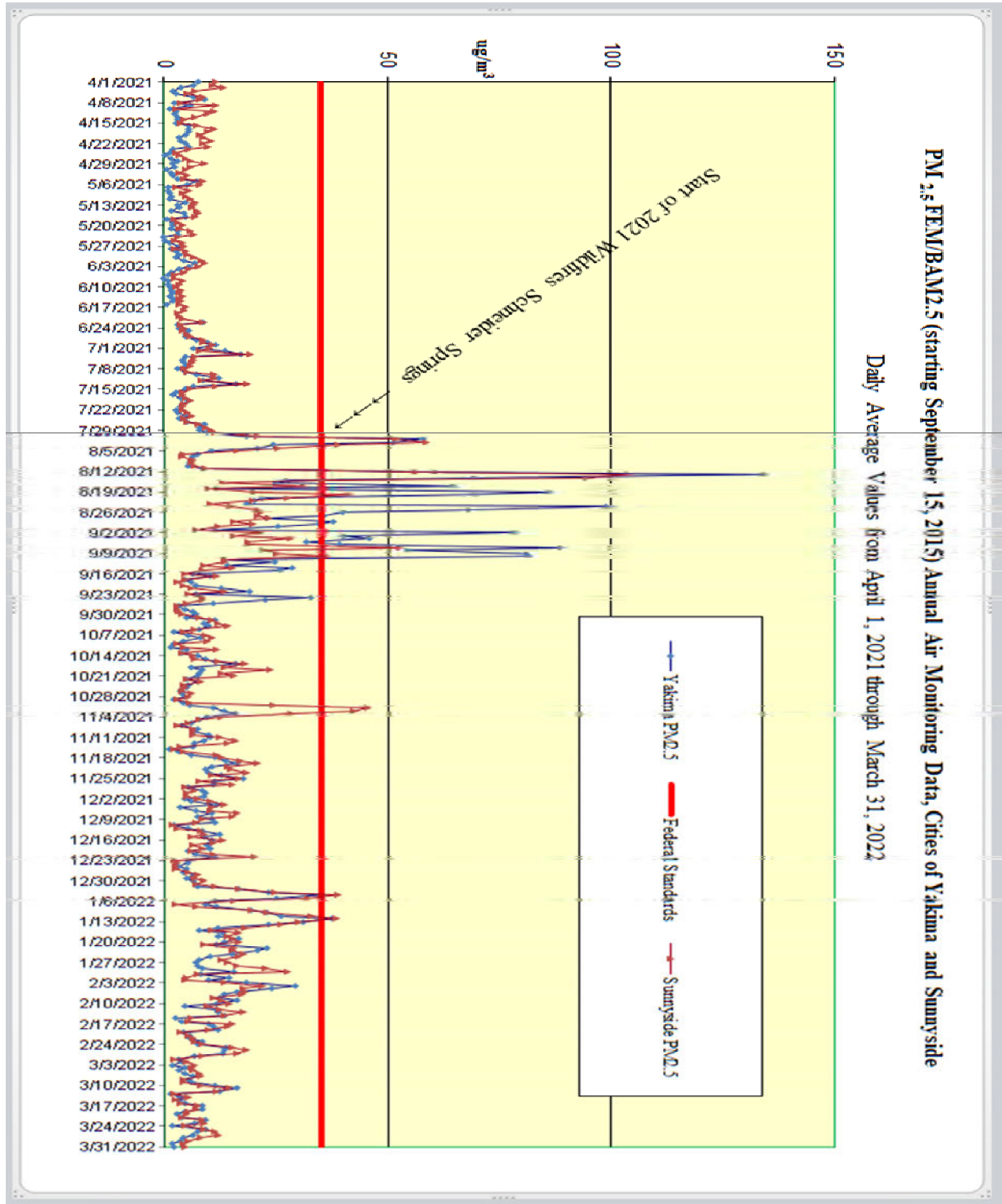


- **PM₁₀**
 - PM₁₀ data for March 2022, we expect no PM₁₀ exceedance for the month.



- **Annual PM_{2.5} Data**

- Annual PM_{2.5} for Yakima and Sunnyside monitors.
- Exceedances since August 2021 for this year are due to the wildfire (Schneider Springs Fire) as indicated in the graph below.



ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 2, 59, 60, 80, 85, 86, 87, 600, 1027, 1030, 1033, 1036, 1037, 1039, 1042, 1043, 1045, 1048, 1051, 1054, 1060, 1065, 1066, 1068, and 1090

[EPA-HQ-OAR-2019-0055; FRL-7165-03-OAR]

RIN 2060-AU41

Control of Air Pollution From New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing a rule that would reduce air pollution from highway heavy-duty vehicles and engines, including ozone, particulate matter, and greenhouse gases. This proposal would change the heavy-duty emission control program—including the standards, test procedures, useful life, warranty, and other requirements—to further reduce the air quality impacts of heavy-duty engines across a range of operating conditions and over a longer period of the operational life of heavy-duty engines. Heavy-duty vehicles and engines are important contributors to concentrations of ozone and particulate matter and their resulting threat to public health, which includes premature death, respiratory illness (including childhood asthma), cardiovascular problems, and other adverse health impacts. This proposal would reduce emissions of nitrogen oxides and other pollutants. In addition, this proposal would make targeted updates to the existing Heavy-Duty Greenhouse Gas Emissions Phase 2 program, proposing that further GHG reductions in the MY 2027 timeframe are appropriate considering lead time, costs, and other factors, including market shifts to zero-emission technologies in certain segments of the heavy-duty vehicle sector. We also propose limited amendments to the regulations that implement our air pollutant emission standards for other sectors (e.g., light-duty vehicles, marine diesel engines, locomotives, various types of nonroad engines, vehicles, and equipment).

DATES: *Comments:* Written comments must be received on or before May 13, 2022. Under the Paperwork Reduction Act (PRA), comments on the information collection provisions are best assured of consideration if the Office of Management and Budget

(OMB) receives a copy of your comments on or before April 27, 2022.

Public Hearing: EPA plans to hold a virtual public hearing on April 12, 2022. An additional session may be held on April 13, 2022. Please refer to Participation in Virtual Public Hearing in the **SUPPLEMENTARY INFORMATION** section for additional information on the public hearing.

ADDRESSES: You may send comments, identified by Docket ID No. EPA-HQ-OAR-2019-0055, by any of the following methods:

- *Federal eRulemaking Portal:* <https://www.regulations.gov/> (our preferred method). Follow the online instructions for submitting comments.
- *Email:* a-and-r-Docket@epa.gov. Include Docket ID No. EPA-HQ-OAR-2019-0055 in the subject line of the message.
- *Mail:* U.S. Environmental Protection Agency, EPA Docket Center, OAR, Docket EPA-HQ-OAR-2019-0055, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.
- *Hand Delivery or Courier (by scheduled appointment only):* EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. The Docket Center's hours of operations are 8:30 a.m.–4:30 p.m., Monday–Friday (except Federal Holidays).

Instructions: All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to <https://www.regulations.gov/>, including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the “Public Participation” heading of the **SUPPLEMENTARY INFORMATION** section of this document. Out of an abundance of caution for members of the public and our staff, the EPA Docket Center and Reading Room are open to the public by appointment only to reduce the risk of transmitting COVID-19. Our Docket Center staff also continues to provide remote customer service via email, phone, and webform. Hand deliveries and couriers may be received by scheduled appointment only. For further information on EPA Docket Center services and the current status, please visit us online at <https://www.epa.gov/dockets>.

Public Hearing. EPA plans to hold a virtual public hearing for this rulemaking. Please refer to *Participation in Virtual Public Hearing* in the **SUPPLEMENTARY INFORMATION** section for additional information.

FOR FURTHER INFORMATION CONTACT:

Brian Nelson, Assessment and Standards Division, Office of Transportation and Air Quality, Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; telephone number: (734) 214-4278; email address: nelson.brian@epa.gov.

SUPPLEMENTARY INFORMATION:

A. Public Participation

Written Comments

Submit your comments, identified by Docket ID No. EPA-HQ-OAR-2019-0055, at <https://www.regulations.gov> (our preferred method), or the other methods identified in the **ADDRESSES** section. Once submitted, comments cannot be edited or removed from the docket. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e., on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <https://www.epa.gov/dockets/commenting-epa-dockets>.

Due to public health concerns related to COVID-19, the EPA Docket Center and Reading Room are open to the public by appointment only. Our Docket Center staff also continues to provide remote customer service via email, phone, and webform. Hand deliveries or couriers will be received by scheduled appointment only. For further information and updates on EPA Docket Center services, please visit us online at <https://www.epa.gov/dockets>.

The EPA continues to carefully and continuously monitor information from the Centers for Disease Control and Prevention (CDC), local area health departments, and our Federal partners so that we can respond rapidly as conditions change regarding COVID-19.

Participation in Virtual Public Hearing

Please note that because of current CDC recommendations, as well as state and local orders for social distancing to

limit the spread of COVID-19, EPA cannot hold in-person public meetings at this time.

The EPA plans to hold a virtual public hearing on April 12, 2022. An additional session may be held on April 13, 2022. This hearing will be held using Zoom. In order to attend the virtual public hearing, all attendees (including those who will not be presenting verbal testimony) must register in advance. EPA will begin registering speakers for the hearing upon publication of this document in the **Federal Register**. To register, please use the registration link that will be available on the EPA rule web page once registration begins: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-and-related-materials-control-air-1>. A separate registration form must be submitted for each person attending the hearing.

The last day to register to speak at the hearing will be five working days before the first public hearing date. The EPA will post a general agenda for the hearing with the order of speakers at: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-and-related-materials-control-air-1>. This agenda will be available no later than two working days before the first public hearing date.

In order to allow everyone to be heard, EPA is limiting verbal testimony to three minutes per person. Speakers will not be able to share graphics via the virtual public hearing. Speakers will be able to request an approximate speaking time as part of the registration process, with preferences considered on a first-come, first-served basis. EPA also recommends submitting the text of oral comments as written comments to the rulemaking docket.

EPA will make every effort to follow the schedule as closely as possible on the day of the hearing; however, please plan for the hearings to run either ahead of schedule or behind schedule.

The EPA may ask clarifying questions during the oral presentations, but will not respond to the presentations at that time. Written statements and supporting information submitted during the comment period will be considered with the same weight as oral comments and supporting information presented at the public hearing.

Please note that any updates made to any aspect of the hearing will be posted online at: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-and-related-materials-control-air-1>. While the EPA expects the hearing to go forward as described here, please monitor our

website or contact Tuana Phillips, (202)-565-0074, phillips.tuana@epa.gov to determine if there are any updates. The EPA does not intend to publish a document in the **Federal Register** announcing updates.

If you require the services of a translator or special accommodations such as audio description, please identify these needs when you register for the hearing or by contacting Tuana Phillips at (202)-565-0074, phillips.tuana@epa.gov. EPA may not be able to arrange accommodations without advance notice.

B. General Information

Does this action apply to me?

This action relates to companies that manufacture, sell, or import into the United States new heavy-duty highway engines. Additional amendments apply for gasoline refueling facilities and for manufacturers of all sizes and types of motor vehicles, stationary engines, aircraft and aircraft engines, and various types of nonroad engines, vehicles, and equipment. Regulated categories and entities include the following:

NAICS codes ^a	NAICS title
326199	All Other Plastics Product Manufacturing.
332431	Metal Can Manufacturing.
335312	Motor and Generator Manufacturing.
336111	Automobile Manufacturing.
336112	Light Truck and Utility Vehicle Manufacturing.
336120	Heavy Duty Truck Manufacturing.
336211	Motor Vehicle Body Manufacturing.
336212	Truck Trailer Manufacturing.
336213	Motor Home Manufacturing.
336411	Manufacturers of new aircraft.
336412	Manufacturers of new aircraft engines.
333618	Other Engine Equipment Manufacturing.
336999	All Other Transportation Equipment Manufacturing.
423110	Automotive and Other Motor Vehicle Merchant Wholesalers.
447110	Gasoline Stations with Convenience Stores.
447190	Other Gasoline Stations.
454310	Fuel dealers.
811111	General Automotive Repair.
811112	Automotive Exhaust System Repair.
811198	All Other Automotive Repair and Maintenance.

^a NAICS Association. NAICS & SIC Identification Tools. Available online: <https://www.naics.com/search>.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your entity is regulated by this action, you should carefully examine the

applicability criteria found in Sections XII and XIII of this preamble. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the **FOR FURTHER INFORMATION CONTACT** section.

What action is the agency taking?

The Environmental Protection Agency (EPA) is proposing a rule that would reduce air pollution from highway heavy-duty vehicles and engines. This proposal would change the heavy-duty emission control program—including the standards, test procedures, regulatory useful life, emission-related warranty, and other requirements—to further reduce the air quality impacts of heavy-duty engines across a range of operating conditions and over a longer period of the operational life of heavy-duty engines. Heavy-duty vehicles and engines are important contributors to concentrations of ozone and particulate matter and their resulting threat to public health, which includes premature death, respiratory illness (including childhood asthma), cardiovascular problems, and other adverse health impacts. This proposal would reduce emissions of nitrogen oxides and other pollutants. In addition, this proposal would make targeted updates to the existing Heavy-Duty Greenhouse Gas Emissions Phase 2 program, proposing that further GHG reductions in the MY 2027 timeframe are appropriate considering lead time, costs, and other factors, including market shifts to zero-emission technologies in certain segments of the heavy-duty vehicle sector.

What is the agency's authority for taking this action?

Section 202(a)(1) of the Clean Air Act requires the EPA to set emission standards for air pollutants from new motor vehicles or new motor vehicle engines, which the Administrator has found cause or contribute to air pollution that may endanger public health or welfare. See Sections I.A.4, I.F, and XIV of this preamble for more information on the agency's authority for this action.

What are the incremental costs and benefits of this action?

We compare total monetized health benefits to total costs associated with the proposed Options 1 and 2 in Section IX. Our results show that annual benefits of the proposed Option 1 would be larger than the annual costs in 2045, a year when the program would be fully implemented and when most of the regulated fleet would have turned over,

with annual net benefits of \$9 and \$31 billion assuming a 3 percent discount rate, and net benefits of \$8 and \$28 billion assuming a 7 percent discount rate.¹ Annual benefits would also be larger than annual costs in 2045 for the proposed Option 2, although net benefits would be lower than from the proposed Option 1 (net benefits of proposed Option 2 would be \$6 and \$23 billion at a 3 percent discount rate, and net benefits of \$5 and 21 billion at a 7 percent discount rate). See Section VIII for more details on the net benefit estimates. For both the proposed Options 1 and 2, benefits also outweigh the costs when expressed in present value terms and as equalized annual values.

Did EPA conduct a peer review before issuing this action?

This regulatory action was supported by influential scientific information. Therefore, EPA conducted peer reviews in accordance with OMB's Final Information Quality Bulletin for Peer Review. Specifically, we conducted peer reviews on five analyses: (1) Analysis of Heavy-Duty Vehicle Sales Impacts Due to New Regulation (Sales Impacts), (2) Exhaust Emission Rates for Heavy-Duty Onroad Vehicles in MOVES_CTI NPRM (Emission Rates), (3) Population and Activity of Onroad Vehicles in MOVES_CTI NPRM (Population and Activity), (4) Cost teardowns of Heavy-Duty Valvetrain (Valvetrain costs), and (5) Cost teardown of Emission Aftertreatment Systems (Aftertreatment Costs). These peer reviews were all letter reviews conducted by a contractor. The peer review reports for each analysis are located in the docket for this action and at EPA's Science Inventory (<https://cfpub.epa.gov/si/>).

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- XIV. Statutory Provisions and Legal Authority

Executive Summary

A. Purpose of the Regulatory Action

The Environmental Protection Agency (EPA) is proposing a multipollutant rule to further reduce air pollution from heavy-duty engines and vehicles across the United States, including ozone and particulate matter (PM). In addition, as part of this rulemaking we are proposing

¹ The range of benefits and net benefits reflects a combination of assumed PM_{2.5} and ozone mortality risk estimates and selected discount rate.

targeted updates to the existing Heavy-Duty Greenhouse Gas Emissions Phase 2 program (HD GHG Phase 2). This proposed rulemaking builds on and improves the existing emission control program for on-highway heavy-duty engines and vehicles. This proposal is pursuant to EPA's authority under the Clean Air Act to regulate air pollutants emitted from mobile sources. The proposal is also consistent with Executive Order (E.O.) 14037, which directed EPA to consider setting new oxides of nitrogen (NO_x) emission standards and updating the existing GHG emissions standards for heavy-duty engines and vehicles.^{2,3} In this proposed action, EPA is co-proposing two regulatory options for new NO_x standards: Proposed Option 1 and proposed Option 2. As discussed in Section B.1 of this Executive Summary and throughout this preamble, we request comment on the options presented, as well as the full range of options between them.

Heavy-duty (HD) engines operating across the U.S. emit NO_x and other pollutants that contribute to ambient levels of ozone, PM, and NO_x. These pollutants are linked to premature death, respiratory illness (including childhood asthma), cardiovascular problems, and other adverse health impacts. Data show that heavy-duty engines are important contributors to concentrations of ozone and PM_{2.5} and their resulting threat to public health.^{4,5}

The proposed rulemaking would change key provisions of the heavy-duty emission control program—including the standards, test procedures, regulatory useful life, emission-related warranty, and other requirements; the two regulatory options (proposed Options 1 and 2) would result in different numeric levels of the standards and lengths of useful life and warranty periods. The proposed Options 1 and 2 and the range between them provide the numeric values for these key provisions that we focus on for this proposal. Together, the key provisions in the proposal would further reduce the air quality impacts of heavy-duty engines

across a range of operating conditions and over a longer period of the operational life of heavy-duty engines (see Section I.B for an overview of the proposed program). The requirements in the proposed Option 1 and the proposed Option 2 would lower emissions of NO_x and other air pollutants (PM, hydrocarbons (HC), air toxics, and carbon monoxide (CO)) beginning as early as model year (MY) 2027. The emission reductions from both the proposed Option 1 and the proposed Option 2 would increase over time as more new, cleaner vehicles enter the fleet.

We estimate that if finalized as proposed, the proposed Option 1 would reduce NO_x emissions from heavy-duty vehicles in 2040 by more than 50 percent; by 2045, a year by which most of the regulated fleet would have turned over, heavy-duty NO_x emissions would be more than 60 percent lower than they would have been without this action. Our estimates show proposed Option 2 would reduce heavy-duty NO_x emissions in 2045 by 47 percent (see Section I.D for more information on our projected emission reductions from proposed Option 1 or 2). These emission reductions would result in air quality improvements in ozone and PM_{2.5}; we estimate that in 2045, the proposed Option 1 would result in total annual monetized ozone- and PM_{2.5}-related benefits of \$12 and \$33 billion at a 3 percent discount rate, and \$10 and \$30 billion at a 7 percent discount rate. In the same calendar year, proposed Option 2 would result in total annual monetized ozone- and PM_{2.5}-related benefits of \$9 and \$26 billion at a 3 percent discount rate, and \$8 and \$23 billion at a 7 percent discount (see Section VIII for discussion on quantified and monetized health impacts). Given the analysis we present in this proposal, we currently believe that Option 1 may be a more appropriate level of stringency as it would result in a greater level of achievable emission reduction for the model years proposed, which is consistent with EPA's statutory authority under Clean Air Act section 202(a)(3). These emission reductions would result in widespread decreases in ambient concentrations of pollutants such as ozone and PM_{2.5}. These widespread projected air quality improvements would play an important role in addressing concerns from states, local communities, and Tribal governments about the contributions of heavy-duty engines to air quality challenges they face such as meeting their obligations to attain or continue to meet National Ambient Air Quality

Standards (NAAQS), and to reduce other human health and environmental impacts of air pollution.

In addition to further reducing emissions of NO_x and other ozone and PM_{2.5} precursors, as part of this rulemaking we are proposing targeted updates to the existing Heavy-Duty Greenhouse Gas Emissions Phase 2 program (HD GHG Phase 2).⁶ The proposed updates would apply to certain CO₂ standards for MYs 2027 and later trucks that are appropriate considering lead time, costs, and other factors, including market shifts to zero-emission technologies in certain segments of the heavy-duty vehicle sector. The proposed updates are intended to balance further incentivizing zero and near-zero emissions vehicle development with ensuring that the standards achieve an appropriate fleet-wide level of CO₂ emissions reductions.

1. Industry Overview

Heavy-duty highway vehicles (also referred to as "trucks" in this preamble) range from vocational vehicles that support local and regional construction, refuse collection, and delivery work to long-haul tractor-trailers that move freight cross-country. This diverse array of vehicles is categorized into weight classes based on gross vehicle weight ratings (GVWR) that span Class 2b trucks and vans greater than 8,500 lbs GVWR through Class 8 long-haul tractors and other commercial vehicles that exceed 33,000 lbs GVWR.⁷ These vehicles are primarily powered by diesel-fueled, compression-ignition (CI) engines, although gasoline-fueled, spark-ignition (SI) engines are common in the lighter weight classes, and

⁶ 81 FR at 73478 (October 25, 2016).

⁷ This proposed rulemaking includes revised criteria pollutant standards for engine-certified Class 2b through 8 heavy-duty engines and vehicles; this proposal also includes revised GHG standards for Class 4 through 8 vehicles. Class 2b and 3 vehicles with GVWR between 8,500 and 14,000 pounds are primarily commercial pickup trucks and vans and are sometimes referred to as "medium-duty vehicles". The majority of Class 2b and 3 vehicles are chassis-certified vehicles, and EPA intends to include them in a future combined light-duty and medium-duty rulemaking action, consistent with E.O. 14037, Section 2a. Heavy-duty engines and vehicles are also used in nonroad applications, such as construction equipment; nonroad heavy-duty engines and vehicles are not the focus of this proposal. See Section I for more discussion on the spectrum of heavy-duty vehicles and how they relate to the proposed rule. As outlined in Section C of this Executive Summary and detailed in Section XII, this proposal also includes limited amendments to regulations that implement our air pollutant emission standards for other industry sectors, including light-duty vehicles, light-duty trucks, marine diesel engines, locomotives, and various types of nonroad engines, vehicles, and equipment.

² President Joseph Biden. Executive Order on Strengthening American Leadership in Clean Cars and Trucks. 86 FR 43583, August 10, 2021.

³ Oxides of nitrogen (NO_x) refers to nitric oxide (NO) and nitrogen dioxide (NO₂).

⁴ Zawacki et al. 2018. Mobile source contributions to ambient ozone and particulate matter in 2025. *Atmospheric Environment*, Vol 188, pg 129–141. Available online: <https://doi.org/10.1016/j.atmosenv.2018.04.057>.

⁵ Davidson et al. 2020. The recent and future health burden of the U.S. mobile sector apportioned by source. *Environmental Research Letters*. Available online: <https://doi.org/10.1088/1748-9326/ab83a8>.

smaller numbers of alternative fuel engines (e.g., liquified petroleum gas, compressed natural gas) are found in the heavy-duty fleet. Vehicles powered by electricity, either in the form of battery electric vehicles (BEVs) or fuel cell electric vehicles (FCEVs) are also increasingly entering the heavy-duty fleet. The operational characteristics of some commercial applications (e.g., delivery vehicles) can be similar across several vehicle weight classes, allowing a single engine, or electric power source in the case of BEVs and FCEVs, to be installed in a variety of vehicles. For instance, engine specifications needed for a Class 4 parcel delivery vehicle may be similar to the needs of a Class 5 mixed freight delivery vehicle or a Class 6 beverage truck. Performance differences needed to operate across this range of vehicles can be achieved through adjustments to chassis-based systems (e.g., transmission, cooling system) external to the engine.

2. The Need for Additional Emission Control of NO_x and Other Pollutants From Heavy-Duty Engines

Across the U.S., NO_x emissions from heavy-duty engines are important contributors to concentrations of ozone and PM_{2.5} and their resulting health effects.^{8,9} Heavy-duty engines will continue to be one of the largest contributors to mobile source NO_x emissions nationwide in the future, representing 32 percent of the mobile source NO_x emissions in calendar year 2045.¹⁰ Furthermore, it is estimated that heavy-duty engines would represent 89 percent of the onroad NO_x inventory in calendar year 2045.¹¹ Reducing NO_x emissions is a critical part of many areas' strategies to attain and maintain the ozone and PM NAAQS; many state and local agencies anticipate challenges in attaining the NAAQS, maintaining the NAAQS in the future, and/or preventing nonattainment (see Section II). Some nonattainment areas have already been "bumped up" to higher

⁸ Zawacki et al. 2018. Mobile source contributions to ambient ozone and particulate matter in 2025. *Atmospheric Environment*, Vol 188, pg 129–141. Available online: <https://doi.org/10.1016/j.atmosenv.2018.04.057>.

⁹ Davidson et al. 2020. The recent and future health burden of the U.S. mobile sector apportioned by source. *Environmental Research Letters*. Available online: <https://doi.org/10.1088/1748-9326/ab83a8>.

¹⁰ U.S. Environmental Protection Agency (2021). 2016v1 Platform. <https://www.epa.gov/air-emissions-modeling/2016v1-platform>.

¹¹ Han, Jaehoon. Memorandum to the Docket EPA–HQ–OAR–2019–0055: "MOVES Modeling-Related Data Files (MOVES Code, Input Databases and Runspecs) for the Proposed Heavy-Duty 2027 Standards". February 2022.

classifications because of challenges in attaining the NAAQS.¹²

In addition, emissions from heavy-duty engines can significantly affect individuals living near truck freight routes. Based on a study EPA conducted of people living near truck routes, an estimated 72 million people live within 200 meters of a truck freight route (see discussion in Section II.B.7). Relative to the rest of the population, people of color and those with lower incomes are more likely to live near truck routes (see Sections II.B and VII.H for additional discussion on our analysis of environmental justice impacts of this proposal). This population includes children, and in addition, childcare facilities and schools can be in close proximity to freight routes.¹³

Clean Air Act section 202(a)(3)(A) requires EPA to set emission standards for NO_x, PM, HC, and CO that reflect the greatest degree of emission reduction achievable through the application of technology that will be available for the model year to which such standards apply. Although heavy-duty engines have become much cleaner over the last decade, catalysts and other technologies have evolved such that harmful air pollutants can be reduced even further.

Heavy-duty emissions that affect local and regional populations are attributable to several engine operating modes and processes. Specifically, the operating modes and processes projected to contribute the most to the heavy-duty NO_x emission inventory in 2045 are medium-to-high load (36 percent), low-load (28 percent), and aging (24 percent) (i.e., deterioration and mal-maintenance of the engine's emission control system) (see Section VI for more information on projected inventory contributions from each operating mode or process). These data suggest that medium- and high-load operating conditions continue to merit concern, while also showing that opportunities for significant additional emission reductions and related air quality improvements can be achieved through provisions that encourage emission control under low-load operation and throughout an engine's

¹² For example, in September 2019 several 2008 ozone nonattainment areas were reclassified from moderate to serious, including Dallas, Chicago, Connecticut, New York/New Jersey and Houston, and in January 2020, Denver. The 2008 NAAQS for ozone is an 8-hour standard with a level of 0.075 ppm, which the 2015 ozone NAAQS lowered to 0.070 ppm.

¹³ Kingsley, S., Eliot, M., Carlson, L. et al. Proximity of US schools to major roadways: a nationwide assessment. *J Expo Sci Environ Epidemiol* 24, 253–259 (2014). <https://doi.org/10.1038/jes.2014.5>.

operational life. Our approach for provisions that address these aspects of the emission inventory is outlined below and described in more detail in sections that follow.

As described in Section III, the standards in proposed Options 1 and 2 would reduce emissions during a broader range of operating conditions that span nearly all in-use operation. The standards in proposed Options 1 and 2 are based on technology improvements which have become available over the 20 years since the last major rule was promulgated to address emissions of NO_x, PM, HC, and CO (hereafter referred to as "criteria pollutants") and toxic pollutants from heavy-duty engines. As further detailed in Section III, available data indicate that emission levels demonstrated for certification are not achieved under the broad range of real-world operating conditions.^{14,15,16,17} In fact, less than ten percent of the data collected during a typical test while the vehicle is operated on the road is subject to EPA's in-use, on-the-road emission standards.¹⁸ These testing data further show that NO_x emissions from heavy-duty diesel vehicles are high during many periods of vehicle operation that are not subject to current on-the-road emission standards. For example, "low-load" engine conditions occur when a vehicle operates in stop-and-go traffic or is idling; these low-load conditions can result in exhaust temperature decreases that then lead to the diesel engine's selective catalytic reduction (SCR)-based emission control system becoming less effective or ceasing to function. Test data collected as part of EPA's manufacturer-run in-use testing program indicate that this low-load operation could account for more than half of the NO_x emissions from a

¹⁴ Hamady, Fakhri, Duncan, Alan. "A Comprehensive Study of Manufacturers In-Use Testing Data Collected from Heavy-Duty Diesel Engines Using Portable Emissions Measurement System (PEMS)." 29th CRC Real World Emissions Workshop, March 10–13, 2019.

¹⁵ Sandhu, Gurdas, et al. "Identifying Areas of High NO_x Operation in Heavy-Duty Vehicles". 28th CRC Real-World Emissions Workshop, March 18–21, 2018.

¹⁶ Sandhu, Gurdas, et al. "In-Use Emission Rates for MY 2010+ Heavy-Duty Diesel Vehicles". 27th CRC Real-World Emissions Workshop, March 26–29, 2017.

¹⁷ As noted in Section C of this Executive Summary and discussed in Section III, testing engines and vehicles while they are operating over the road without a defined duty cycle is referred to as "off-cycle" testing; as detailed in Section III, we are proposing new off-cycle test procedures and standards as part of this rulemaking.

¹⁸ Heavy-duty CI engines are currently subject to off-cycle standards that are not limited to specific test cycles, but we use the term "on-the-road" here for readability.

vehicle during a typical workday.¹⁹ Similarly, heavy-duty SI engines also operate in conditions where their catalyst technology becomes less effective, resulting in higher levels of air pollutants; however, unlike CI engines, it is sustained medium-to-high load operation where emission levels are less certain.

As noted in this Section A.2 of the Executive Summary, deterioration and mal-maintenance of the engine's emission control system is also projected to result in NO_x emissions that would represent a substantial part of the HD inventory in 2045. To address this problem, as part of our comprehensive approach, both proposed Options 1 and 2 include longer regulatory useful life and emission-related warranty requirements that would maintain emission control through more of the operational life of heavy-duty vehicles (see Section IV for more discussion on the proposed useful life and warranty requirements).

Reducing NO_x emissions from heavy-duty vehicles would address health and environmental issues raised by state, local, and Tribal agencies in their comments on the Advance Notice of Proposed Rule (ANPR).²⁰ In addition to concerns about meeting the ozone and PM_{2.5} NAAQS, they expressed concerns about environmental justice, regional haze, and damage to terrestrial and aquatic ecosystems. They mentioned the impacts of NO_x emissions on numerous locations, such as the Chesapeake Bay, Narragansett Bay, Long Island Sound, Joshua Tree National Park and the surrounding Mojave Desert, the Adirondacks, and other areas. Tribes and agencies commented that NO_x deposition into lakes is harmful to fish and other aquatic life forms on which they depend for subsistence livelihoods. They also commented that regional haze and increased rates of weathering caused by pollution are of particular concern and can damage culturally significant archeological sites.

3. The Historic Opportunity for Clean Air Provided by Zero-Emission Vehicles

We are at the early stages of a significant transition in the history of the heavy-duty on-highway sector—a shift to zero-emission vehicle (ZEV) technologies. This change is underway and presents an opportunity for

significant reductions in heavy-duty vehicle emissions. Major trucking fleets, manufacturers and U.S. states have announced plans to transition the heavy-duty fleet to zero-emissions technology, and over just the past few years we have seen the early introduction of zero-emission technology into a number of heavy-duty vehicle market segments.

Executive Order 14037 identifies three potential regulatory actions for EPA to consider: (1) This proposed rule for heavy-duty vehicles for new criteria pollutant standards and strengthening of the Model Year 2027 GHG standards; (2) a separate rulemaking to establish more stringent criteria and GHG emission standards for medium-duty vehicles for Model Year 2027 and later (in combination with light-duty vehicles); and (3) a third rulemaking to establish new GHG standards for heavy-duty vehicles for Model Year 2030 and later. This strategy will establish the EPA regulatory path for the future of the heavy-duty vehicle sector, and in each of these actions EPA will consider the critical role of ZEVs in enabling stringent emission standards.

In addition to the proposed standards and requirements for NO_x and other air pollutant emissions, we are also proposing targeted revisions to the already stringent HD GHG Phase 2 rulemaking, which EPA finalized in 2016.²¹ The HD GHG Phase 2 program includes GHG emission standards tailored to certain regulatory vehicle categories in addition to heavy-duty engines including: Combination tractors; vocational vehicles; and heavy-duty pickup trucks and vans. The HD GHG Phase 2 program includes progressively more stringent CO₂ emission standards for HD engines and vehicles; these standards phase in starting in MY 2021 through MY 2027. The program built upon the GHG Phase 1 program promulgated in 2011, which set the first-ever GHG emission standards for heavy-duty engines and trucks.²²

When the HD GHG Phase 2 rule was promulgated in 2016, we established the Phase 2 GHG standards and advanced technology incentives on the premise that electrification of the heavy-duty market was unlikely to occur in the timeframe of the program. However, several factors have arisen since the

adoption of Phase 2 that have changed our outlook for heavy-duty electric vehicles. First, the heavy-duty market has evolved such that in 2021, there are a number of manufacturers producing fully electric heavy-duty vehicles in a number of applications. Second, the State of California has adopted an Advanced Clean Trucks program that includes a manufacturer sales requirement for zero-emission truck sales, specifically that “manufacturers who certify Class 2b–8 chassis or complete vehicles with combustion engines would be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035.”²³ Finally, other states have signed a Memorandum of Understanding establishing goals to increase the heavy-duty electric vehicle market.²⁴ We are proposing that further GHG reductions in the MY 2027 timeframe are appropriate considering lead time, costs, and other factors, including these developments to zero-emission technologies in certain segments of the heavy-duty vehicle sector. We discuss the impacts of these factors on the heavy-duty market in Section XI. As outlined in Section I.B and detailed in Section XI, we are proposing to increase the stringency of the existing MY 2027 standards for many of the vocational vehicle and tractor subcategories, specifically those where we project early introduction of ZEVs. We are also considering whether it would be appropriate in the final rule to increase the stringency of the standards even more than what we propose for MYs 2027–2029, including the potential for progressively more stringent CO₂ standards across these three model years. Progressively strengthening the stringency of the standards for model years 2028 and 2029 could help smooth the transition to ambitious greenhouse gas standards for the heavy-duty sector starting as soon as model year 2030. We believe there is information and data that could support higher projected penetrations of HD ZEVs in the MY 2027 to 2029 timeframe and we request comment and additional supporting information and data on higher penetration rates, which could serve as the basis for the increase in the stringency of the CO₂ standards for specific Phase 2 vehicle subcategories. For example, what information and data are available that

¹⁹ Sandhu, Gurdas, et al. “Identifying Areas of High NO_x Operation in Heavy-Duty Vehicles”. 28th CRC Real-World Emissions Workshop, March 18–21, 2018.

²⁰ The Agency published an ANPR on January 21, 2020 to present EPA's early thinking on this rulemaking and solicit feedback from stakeholders to inform this proposal (85 FR 3306).

²¹ 81 FR 73478 (October 25, 2016). Note that the HD GHG Phase 2 program also includes coordinated fuel efficiency standards established by the U.S. Department of Transportation through the National Highway Traffic Safety Administration, and those standards were established in a joint rulemaking process with EPA.

²² 76 FR 57106, September 15, 2011.

²³ CARB. “Notice of Decision: Advanced Clean Truck Regulation.” June 2020. Available online at: <https://ww3.arb.ca.gov/regact/2019/act2019/nod.pdf>.

²⁴ Fifteen states and one district sign Multi-State MOU. <https://www.nescaum.org/documents/multistate-truck-zev-governors-mou-20200714.pdf>

would support HD ZEV penetration rates of 5 percent or 10 percent (or higher) in this timeframe, and in what HD vehicle applications and categories. We are also requesting comment on an aspect of the HD GHG Phase 2 advanced technology incentive program.

EPA has heard from a number of stakeholders urging EPA to put in place policies to rapidly advance ZEVs in this current rulemaking, and to establish standards requiring 100 percent of all new heavy-duty vehicles be zero-emission no later than 2035. The stakeholders state that accelerating ZEV technologies in the heavy-duty market is necessary to prioritize environmental justice in communities that are impacted by freight transportation and already overburdened by pollution.²⁵ One policy EPA has been asked to consider is the establishment of a ZEV sales mandate (*i.e.*, a nationwide requirement for manufacturers to produce a portion of their new vehicle fleet as ZEVs). EPA is not proposing in this action to establish a heavy-duty ZEV mandate. EPA in this action is considering how the development and deployment of ZEVs can further the goals of environmental protection and best be reflected in the establishment of EPA's standards and regulatory program for MY 2027 and later heavy-duty vehicles. As discussed earlier in this section, EPA will also be considering the important role of ZEV technologies in the upcoming light-duty and medium-duty vehicle proposal for MY 2027 and later, and in the heavy-duty vehicle proposal for MY 2030 and later. EPA requests comment under this proposal on how the Agency can best consider the potential for ZEV technologies to significantly reduce air pollution from the heavy-duty vehicle sector (including but not limited to the topic of whether and how to consider including specific sales requirements for HD ZEVs).

4. Statutory Authority for This Action

As discussed in Section I, EPA is proposing revisions to emission standards and other requirements applicable to emissions of NO_x, PM, HC, CO, and GHG from new heavy-duty engines and vehicles under our broad statutory authority to regulate air pollutants emitted from mobile sources, consistent with our history of using a multi-pollutant approach to regulating criteria pollutants and GHG emissions from heavy-duty engines and vehicles. Section 202(a)(1) of the Clean Air Act

(CAA) requires the EPA to “by regulation prescribe (and from time to time revise) . . . standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines . . . , which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare”. Standards under CAA section 202(a) take effect “after such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period.” Thus, in establishing or revising CAA section 202(a) standards designed to reduce air pollution that endangers public health and welfare, EPA also must consider issues of technological feasibility, compliance cost, and lead time. EPA may consider other factors such as safety. There are currently heavy-duty engine and vehicle standards for emissions of NO_x, PM, HC, CO, and GHGs.

Under CAA section 202(a)(3)(A), standards for emissions of NO_x, PM, HC, and CO emissions from heavy-duty vehicles and engines are to “reflect the greatest degree of emission reduction achievable through the application of technology which the Administrator determines will be available for the model year to which such standards apply, giving appropriate consideration to cost, energy, and safety factors associated with the application of such technology.”²⁶ Section 202(a)(3)(C) requires that these standards apply for no less than 3 model years and apply no earlier than 4 years after promulgation.

Emission standards set under CAA section 202(a) apply to vehicles and engines “for their useful life.” CAA section 202(d) directs EPA to prescribe regulations under which the useful life of vehicles and engines shall be determined, and for heavy-duty vehicles and engines establishes minimum values of 10 years or 100,000 miles, whichever occurs first, unless EPA determines that greater values are appropriate. CAA section 207(a) further requires manufacturers to provide an emissions warranty, and EPA set the current warranty periods for heavy-duty engines in 1983.²⁷

As outlined in this executive summary, the proposed program would reduce heavy-duty emissions through

²⁶ Section 202(a)(3)(A) and (C) apply only to regulations applicable to emissions of these four pollutants and do not apply to regulations applicable to GHGs.

²⁷ 48 FR 52170, November 16, 1983.

several major provisions pursuant to the CAA authority described in this section. Sections I.F and XIV of this preamble further discuss our statutory authority for this proposal; Section I.G further describes the basis of our proposed NO_x, PM, HC, CO, and GHG emission standards and other requirements. Section XIII describes how this proposal is also consistent with E.O. 14037, “Strengthening American Leadership in Clean Cars and Trucks” (August 5, 2021), which directs EPA to consider taking action to establish new NO_x standards for heavy-duty engines and vehicles beginning with model year 2027.

B. Overview of the Regulatory Action

Our approach to further reduce air pollution from highway heavy-duty engines and vehicles through the proposed program features several key provisions. We co-propose options to address criteria pollutant emissions from heavy-duty engines. In addition, this proposal would make targeted updates to the existing Heavy-Duty Greenhouse Gas Emissions Phase 2 program, proposing that further GHG reductions in the MY 2027 timeframe are appropriate considering lead time, costs, and other factors, including market shifts to zero-emission technologies in certain segments of the heavy-duty vehicle sector. We also propose limited amendments to the regulations that implement our air pollutant emission standards for other sectors (*e.g.*, light-duty vehicles, marine diesel engines, locomotives, various types of nonroad engines, vehicles, and equipment). Our proposed provisions are briefly described in this Section I.B and summarized in Section I.C. We describe the proposed Options 1 and 2 in detail in the Sections III, IV, and XI. We discuss our analyses of estimated emission reductions, air quality improvements, costs, and monetized benefits of the proposed program in Section I.D below, and these are detailed in Sections V through X.

1. Overview of Criteria Pollutant Program

The proposed provisions to reduce criteria pollutant emissions can be thought of in three broad categories: (1) Controlling emissions under a broader range of engine operating conditions, (2) maintaining emission control over a greater portion of an engine's operational life,²⁸ and (3) providing manufacturers with flexibilities to meet

²⁸ As further discussed in Section IV.A, we use “operational life” to refer to when engines are in use on the road.

²⁵ Letter to EPA Administrator Michael Regan from the Moving Forward Network. October 26, 2021.

the proposed standards while clarifying our regulations. Specifically, provisions in the first category would include updated test procedures and revised emission standards, while those in the second category would include lengthened regulatory useful life and emission warranty periods, as well as several other updates to encourage proper maintenance and repair. These provisions would apply to heavy-duty engines used in Class 2b through 8 vehicles.²⁹ Provisions in the third category would provide opportunities to generate NO_x emission credits that provide manufacturers with flexibilities to meet the proposed standards and encourage the introduction of new emission control technologies earlier than required. This category also includes our proposal to modernize our current regulatory text, including clarifications and updates for hybrid electric, battery-electric, and fuel cell electric heavy-duty vehicles.

Our discussion below focuses on the revised emission standards and useful life and warranty periods contained in two regulatory options that we are proposing: The proposed Option 1 and the proposed Option 2. Although we refer to the two regulatory options as the proposed Option 1 and the proposed Option 2, we are giving full consideration to both options, as well as the full range of options between them. Both the proposed Option 1 and the proposed Option 2 would begin in MY 2027, but the proposed Option 1 would have a second step in MY 2031. Overall, proposed Option 2 is less stringent than the MY 2031 standards in the proposed Option 1 because the proposed Option 2 has higher numeric NO_x emission standards and shorter useful life periods. As discussed in Section D of this Executive Summary and Section VI, we project proposed Option 1 would result in greater emission reductions than proposed Option 2; Section I.G summarizes the basis of our proposed Options 1 and 2 with details on our feasibility analysis for each option presented in Section III. In addition to the proposed Options 1 and 2, we present an alternative (the Alternative) that we also considered. The Alternative is more stringent than either the proposed Option 1 MY 2031 standards or the proposed Option 2 because the

²⁹ EPA plans to consider new standards for chassis-certified Class 2b and 3 vehicles (GVWR between 8,500 and 14,000 pounds) as part of a future combined light-duty and medium-duty rulemaking action, consistent with E.O. 14037. We are not proposing changes to the standards or test procedures for chassis-certified heavy-duty vehicles. Instead, this proposal focuses on engine-certified products.

Alternative has shorter lead time, lower numeric NO_x emission standards and longer useful life periods. We note that we currently are unable to conclude that the Alternative is feasible in the MY 2027 timeframe over the useful life periods in the Alternative in light of deterioration in the emission control technologies that we have evaluated to date, and we expect that we would need additional supporting data or other information in order to determine that the Alternative is feasible in the MY 2027 timeframe to consider adopting it in the final rule.

The proposed Option 1 and proposed Option 2 generally represent the range of regulatory options, including the standards and test procedures, regulatory useful life and emission-related warranty periods and implementation schedules that we are currently considering in this rulemaking, depending in part on any additional comments and other information we receive on the feasibility, costs, and other impacts of the proposed Options 1 and 2. We request comment on all aspects of the proposed Options 1 and 2, or other alternatives roughly within the range of options covered by the proposed Options 1 and 2, including the revised emission standards and useful life and warranty periods, one and two-step approaches, model years of implementation and other provisions described in this proposal. Based on currently available information, in order to consider adopting the Alternative in the final rule, we believe we would need additional supporting data or other information to be able to conclude that the Alternative is feasible in the MY 2027 timeframe. We request comment, including relevant data and other information, related to the feasibility of the implementation model year, numeric levels of the emission standards, and useful life and warranty periods included in the Alternative, or other alternatives outside the range of options covered by the proposed Options 1 and 2.

We will continue learning about the capability and durability of engine and aftertreatment technologies through our ongoing technology evaluations, as well as any information provided in public comments on this proposal. Section III describes our plans for expanding on the analyses developed for this proposal.

2. Overview of Targeted Revisions to the HD GHG Phase 2 Program

In addition to the proposed criteria pollutant program provisions, we are proposing to increase the stringency of

the existing GHG standards for MY 2027 trucks and requesting comment on updates to the advanced technology incentive program for electric vehicles. We propose updates to select MY 2027 GHG standards after consideration of the market shifts to zero-emission technologies in certain segments of the heavy-duty vehicle sector. These proposed GHG provisions are based on our evaluation of the heavy-duty EV market for the MY 2024 through 2027 timeframe. While the HD Phase 2 GHG standards were developed in 2016 based on the premise that electrification of the heavy-duty market beyond low volume demonstration projects was unlikely to occur in the timeframe of the program, our current evaluation shows that there are a number of manufacturers producing fully electric heavy-duty vehicles in several applications in 2021—and this number is expected to grow in the near term. These developments along with considerations of lead time, costs and other factors have demonstrated that further GHG reductions in the MY 2027 timeframe are appropriate. We expect school buses, transit buses, delivery trucks (such as box trucks or step vans), and short haul tractors to have the highest EV sales of all heavy-duty vehicle types between now and 2030.³⁰ We have given careful consideration to an approach that would result in targeted updates to reflect the emerging HD EV market without fundamentally changing the HD GHG Phase 2 program as a whole. Thus, we are proposing targeted updates to the HD Phase 2 GHG standards to account for the current electrification of the market by making changes to only those standards that are impacted by these four types of electric vehicles. We believe this proposal considered the feasibility of technologies, cost, lead time, emissions impact, and other relevant factors, and therefore these standards are appropriate under CAA section 202(a). We also are seeking comment on changes to the advanced technology credit program since the current level of HD GHG Phase 2 incentives for electrification may no longer be appropriate for certain segments of the HD EV market considering the projected rise in electrification. We provide an overview of this approach in this Section I.C and detail our proposal in Section XI.

³⁰ See Section XI.B for more on the growing EV market for these four vehicle types.

C. Summary of the Major Provisions in the Regulatory Action

1. Controlling Criteria Pollutant Emissions Under a Broader Range of Engine Operating Conditions

In the first broad category of provisions to reduce criteria pollutant emissions in this rulemaking, we are proposing to reduce emissions from heavy-duty engines under a range of operating conditions through revisions to our emissions standards and test procedures. These revisions would apply to both laboratory-based standards and test procedures for both heavy-duty CI and SI engines, as well as the standards and test procedures for heavy-duty CI engines on the road in the real world.³¹

i. Proposed Laboratory Standards and Test Procedures

For heavy-duty CI engines, we are proposing new standards for laboratory-based tests using the current duty cycles, the transient Federal Test Procedure (FTP) and the steady-state Supplemental Emission Test (SET) procedure. These existing test procedures require CI engine manufacturers to demonstrate the effectiveness of emission controls when the engine is transitioning from low-to-high loads or operating under sustained high load, but do not provide for demonstrating emission control under sustained low-load operations. We are proposing that laboratory demonstrations for heavy-duty CI

engines would also include a new low-load cycle (LLC) test procedure to demonstrate that emission controls are meeting proposed LLC standards when the engine is operating under low-load and idle conditions. The proposed addition of the LLC would help ensure lower NO_x emissions in urban areas and other locations where heavy-duty vehicles operate in stop-and-go traffic or other low-load conditions.

For heavy-duty SI engines, we are proposing new standards for their laboratory demonstrations using the current FTP duty cycle, and updates to the current engine mapping procedure to ensure the engines achieve the highest torque level possible during testing. We are proposing to add the SET procedure to the heavy-duty SI laboratory demonstrations; it is currently only required for heavy-duty CI engines. Heavy-duty SI engines are increasingly used in larger heavy-duty vehicles, which makes it more likely for these engines to be used in higher-load operations covered by the SET. We are further proposing a new refueling emission standard for incomplete vehicles above 14,000 lb GVWR starting in MY 2027.³² The proposed refueling standard is based on the current refueling standard that applies to complete heavy-duty gasoline-fueled vehicles. Consistent with the current evaporative emission standards that apply for these same vehicles, we are proposing that manufacturers could use an engineering analysis to demonstrate

that they meet our proposed refueling standard.

Our proposed Option 1 and proposed Option 2 NO_x emission standards for all defined duty cycles for heavy-duty CI and SI engines are detailed in Table 1. As shown, the proposed Option 1 NO_x standards would be implemented in two steps beginning with MY 2027 and becoming more stringent in MY 2031. The proposed Option 2 NO_x emission standards would be implemented with a single step in MY 2027. As noted in Section B.1 of this Executive Summary, overall, we consider proposed Option 2 to be less stringent than the standards in the proposed Option 1 because proposed Option 2 has higher numeric NO_x emission standards with similar useful life periods as the proposed Option 1 in MY 2027, and shorter length of useful life periods than the proposed Option 1 in MY 2031. In contrast, the Alternative is more stringent than proposed Option 1's MY 2031 standards (see Section III), and we currently do not have information to support the conclusion that the combination of shorter lead time, lower numeric levels of the standards and longer useful life periods in the Alternative is feasible in the MY 2027 timeframe based on the emission control technologies we have evaluated to date. See Section III for more discussion on feasibility. Consistent with our current approach for criteria pollutants, the standards in proposed Options 1 and 2, presented in Table 1, are numerically identical for SI and CI engines.³³

TABLE 1—PROPOSED OPTIONS 1 AND 2 NO_x EMISSION STANDARDS FOR HEAVY-DUTY CI AND SI ENGINES ON SPECIFIC DUTY CYCLES

[Milligrams/horsepower-hour (mg/hp-hr)]^a

Duty cycle	Proposed Option 1				Proposed Option 2
	Model years 2027–2030	Model years 2031 and later			Model years 2027 and later
		Spark ignition HDE, light HDE, and medium HDE	Heavy HDE through intermediate useful life (IUL)	Heavy HDE from IUL to full useful life (FUL)	
FTP (transient mid/high load conditions)	35	20	20	40	50
SET (steady-state conditions)	35	20	20	40	50
LLC (low-load conditions)	90	50	50	100	100

^a The current FTP and SET standard for all HD engines is 0.20 g/hp-hr or 200 mg/hp-hr; we are proposing the LLC test procedure and therefore there is not a current standard for the LLC.

³¹ Duty cycle test procedures measure emissions while the engine is operating over precisely defined duty cycles in an emissions testing laboratory and provide very repeatable emission measurements. "Off-cycle" test procedures measure emissions while the engine is not operating on a specified duty-cycle; this testing can be conducted while the engine is being driven on the road (e.g., on a package delivery route), or in an emission testing

laboratory. We may also refer to off-cycle test procedures in this preamble as "on the road" testing for simplicity. Both duty cycle and off-cycle testing are conducted pre-production (e.g., for certification) or post-production to verify that the engine meets applicable duty cycle or off-cycle emission standards throughout useful life (See Section III.A and IV.K for more discussion).

³² Some vehicle manufacturers sell their engines or "incomplete vehicles" (i.e., chassis that include their engines, the frame, and a transmission) to body builders who design and assemble the final vehicle.

³³ See Section III for our proposed and alternative PM, HC, and CO standards.

ii. Proposed On-the-Road Standards and Test Procedures

In addition to demonstrating emission control over defined duty cycles in a laboratory, heavy-duty CI engines must be able to demonstrate emission control over an undefined duty cycle while engines are in use on the road in the real world. Both proposed Options 1 and 2 include updates to the procedure for “off-cycle” testing, such that data collected during a wider range of operating conditions would be valid, and therefore subject to emission standards.³⁴

Similar to the current approach, emission measurements collected during off-cycle testing would be collected on a second-by-second basis. We are proposing the emissions data would be grouped into 300-second windows of operation. Each 300-second window would then be binned based on the type of operation that the engine performs during that 300-second period.

Specifically, the average power of the engine during each 300-second window would determine whether the emissions during that window are binned as idle (Bin 1), low-load (Bin 2), or medium-to-high load (Bin 3).³⁵

Our proposed 3-bin approach would cover a wide range of operations that occur in the real world—significantly more in-use operation than today’s requirements. Bin 1 would include extended idle and other very low-load operations, where engine exhaust temperatures may drop below the optimal temperature where SCR-based aftertreatment works best. Bin 2 would include a large fraction of urban driving conditions, during which engine exhaust temperatures are generally moderate. Bin 3 would include higher-power operations, such as on-highway driving that typically results in higher exhaust temperatures and high catalyst efficiencies.³⁶ Given the different operational profiles of each of these

three bins, we are proposing a separate standard for each bin. The proposed structure follows that of our current not-to-exceed (NTE) off-cycle standards, while covering a much broader range of engine operation.

Table 2 presents our proposed Option 1 and Option 2 off-cycle standards for NO_x emissions from heavy-duty CI engines. The proposed Option 2 off-cycle NO_x standards are higher (less stringent) and have a shorter useful life than the proposed Option 1 standards in MY 2031. For the Alternative, our assessment of currently available data indicates that the off-cycle standard for the medium/high load bin (Bin 3) would not be feasible in the MY 2027 timeframe, and additional or different technology would be necessary to meet the Alternative off-cycle standards. See Section III for details on the off-cycle standards for other pollutants in the proposed Options 1 and 2 and the Alternative.

TABLE 2—PROPOSED OPTIONS 1 AND 2 OFF-CYCLE NO_x STANDARDS FOR HEAVY-DUTY CI ENGINES

Operation bin	Proposed Option 1				Proposed Option 2
	Model years 2027–2030	Model years 2031 and later			
		All HD engines	Light HDE, and medium HDE	Heavy HDE through IUL	Heavy HDE from IUL to FUL
idle (g/hr)	10	7.5	7.5	7.5	15
low load (mg/hp-hr)	180	75	7.5	150	150
medium/high load (mg/hp-hr)	70	30	30	60	75

In addition to the proposed standards for the defined duty cycle and off-cycle test procedures, the proposed Options 1 and 2 include several other provisions for controlling emissions from specific operations in CI or SI engines. First, we are proposing to allow CI engine manufacturers to voluntarily certify to the California Air Resources Board (CARB) clean idle standards by adding to EPA regulations an idle test procedure that is based on an existing CARB procedure.³⁷ We are also proposing to require a closed crankcase ventilation system for all highway CI engines to prevent crankcase emissions from being emitted directly to the atmosphere. See Section III.B for more discussion on both the proposed idle and crankcase provisions. For heavy-duty SI, we are proposing refueling

emission standards for incomplete vehicles above 14,000 lb GVWR (see Section III.E for more discussion).

2. Maintaining Criteria Pollutant Emission Control Over a Greater Portion of an Engine’s Operational Life

Reducing emissions under a broad range of engine operating conditions is one category of our proposed program provisions. Maintaining emission control over a greater portion of an engine’s operational life is the second broad category of proposed provisions. The major elements in this category include proposals to (1) extend the regulatory useful life of heavy-duty engines, (2) provide an opportunity for manufacturers to use rapidly aged parts necessary to demonstrate emission performance over the regulatory useful

life, (3) lengthen emission warranty periods, and 4) increase the likelihood that emission controls will be maintained properly through more of the service life of heavy-duty engines. Our proposals for each of these elements is outlined below and detailed in Section IV; unless explicitly stated otherwise, proposals for each of these elements would apply under both proposed Options 1 and 2, as well as the full range of options in between them.

i. Proposed Useful Life Periods

EPA is proposing to increase the regulatory useful life mileage values for new heavy-duty engines to better reflect real-world usage, extend the emissions durability requirement for heavy-duty engines, and ensure certified emission performance is maintained throughout

³⁴ As discussed in Section III, “off-cycle” testing measures emissions while the engine is not operating on a specified duty-cycle; this testing can be conducted while the engine is being driven on the road (e.g., on a package delivery route), or in an emission testing laboratory.

³⁵ Due to the challenges of measuring engine power directly on in-use vehicles, we are proposing

to use the CO₂ emission rate (grams per second) as a surrogate for engine power; further, we propose to normalize CO₂ emission rates relative to the nominal maximum CO₂ rate of the engine (e.g., when an engine with a maximum CO₂ emission rate of 50 g/sec emits at a rate of 10 g/sec, its normalized CO₂ emission rate is 20 percent).

³⁶ Because the proposed approach considers time-averaged power, any of the bins could include some idle operation and any of the bins could include some high-power operation.

³⁷ 13 CCR 1956.8 (a)(6)(C)—Optional NO_x idling emission standard.

more of an engine's operational life. For proposed Option 1, Increases to useful life values for heavy-duty engines would apply in two steps, as discussed in Section IV.A. For the first step for CI engines, MY 2027 through 2030, we are proposing useful life mileage values that are approximately a midpoint between the current useful life mileages and our proposed CI engines MY 2031 and later mileages. For the second step, we are proposing useful life mileage values for MY 2031 and later CI engines that cover

a majority of the estimated operational life mileages, but less than the first out-of-frame rebuild for these engines. The proposed Option 1 first step for SI engines in MY 2027 through 2030 would better align with the current useful life mileages for GHG emission standards applicable to these engines. The proposed Option 1 second step useful life mileage for SI engines for MY 2031 and later is based on the published engine service life for heavy-duty gasoline engines in the market today.

The useful life mileages in the proposed Option 2 are shorter than those in the proposed Option 1; we are giving full consideration to the useful life periods of proposed Options 1 and 2, and the range between the useful life periods in the proposed Options. Our proposed Option 1 and Option 2 useful life periods for heavy-duty CI and SI engines are presented in Table 3. See Section IV for the useful periods of the Alternative.³⁸

TABLE 3—PROPOSED OPTIONS 1 AND 2 USEFUL LIFE PERIODS FOR HEAVY-DUTY CI AND SI ENGINES CRITERIA POLLUTANT STANDARDS

Model year	Spark-ignition HDE		Compression-ignition					
	Miles	Years	Light HDE		Medium HDE		Heavy HDE ^{b,c}	
			Miles	Years	Miles	Years	Miles	Years
Current ^a	110,000	10	110,000	10	185,000	10	435,000	10
Proposed Option 1: 2027–2030	155,000	12	190,000	12	270,000	11	600,000	11
Proposed Option 1 ^d : 2031 and later	200,000	15	270,000	15	350,000	12	800,000	12
Proposed Option 2: 2027 and later	150,000	10	250,000	10	325,000	10	650,000	10

^aCurrent useful life period for Spark-ignition HDE and Light HDE for GHG emission standards is 15 years or 150,000 miles. See 40 CFR 1036.108(d).

^bWe are also proposing to increase the hours-based useful life criterion from the current 22,000 hours for Heavy HDE to 32,000 hours for model years 2027–2030 and 40,000 hours for model years 2031 and later.

^cThe Heavy HDE class includes certain SI engines (e.g., natural gas-fueled engines) intended for use in Class 8 vehicles.

^dFor MY 2031 and later Heavy HDE, the proposed Option 1 would include intermediate useful life periods of 435,000 miles, 10 years, or 22,000 hours, whichever comes first. See Section III for a discussion of the proposed Option 1 standards we propose to apply for the intermediate and full useful life periods.

ii. Proposed Durability Demonstration Updates

The proposed longer useful life periods outlined in Table 3 would require manufacturers to extend their durability demonstrations, which show that the engines will meet applicable emission standards throughout their regulatory useful life. EPA regulations require manufacturers to include durability demonstration data as part of an application for certification of an engine family. Manufacturers typically complete this demonstration by following regulatory procedures to calculate a deterioration factor (DF).

To address the need for accurate and efficient emission durability demonstration methods, EPA worked with manufacturers and CARB to address this concern through guidance for MY 2020 and later engines.³⁹ In Section IV.F, we propose three methods for determining DFs, consistent with the recent guidance, including a new option to bench-age the aftertreatment system to limit the burden of generating a DF over the proposed lengthened useful life

periods. We also propose to codify in the EPA regulations three DF verification options available to manufacturers in recent guidance. The proposed verification options would confirm the accuracy of the DF values submitted by manufacturers for certification. We also introduce a test program to evaluate a rapid-aging protocol for diesel catalysts that we may consider as an option for CI engine manufacturers to use in their durability demonstration.

iii. Proposed Emissions Warranty Periods

EPA's current emission-related warranty periods range from 22 percent to 54 percent of regulatory useful life. As EPA is proposing to lengthen the useful life periods in this rulemaking, we are also proposing to lengthen the emission warranty periods and increase the fraction of useful life miles covered under warranty. These proposed revised warranty periods are expected to result in better engine maintenance and less tampering, helping to maintain the

benefits of the emission controls. In addition, longer regulatory warranty periods may lead engine manufacturers to simplify repair processes and make them more aware of system defects that would be tracked and reported to EPA over a longer period.

In Section IV.B, we provide detailed discussion and request comment on these four ways that longer emission warranty periods may enhance long-term performance of emission-related devices and systems. We also discuss other impacts of lengthening regulatory emission warranty periods and other approaches that vary coverage and may similarly ensure long-term in-use emission performance.

EPA is proposing to lengthen the emissions warranty periods for all primary intended service classes to cover a larger portion of the operational lives of new heavy-duty engines. Our proposed Option 1 warranty mileages for MY 2031 are approximately 80 percent of the proposed useful life mileages. The proposed Option 1 MY 2027 through 2030 mileages are

³⁸As noted in this Section C of the Executive Summary, we are proposing refueling standards for HD SI engines that are certified as incomplete vehicles that are equivalent to the standards in effect for complete heavy-duty vehicles. We propose to apply the existing useful life periods for

the complete vehicle refueling standards (15 years or 150,000 miles; see 40 CFR 1037.103(f) and 86.1805–16(d) for "MDPV" and "HDV") to the HD SI engines certified as incomplete vehicles. See preamble Section IV.A for more details.

³⁹U.S. EPA. "Guidance on Deterioration Factor Validation Methods for Heavy-Duty Diesel Highway Engines and Nonroad Diesel Engines equipped with SCR." CD–2020–19 (HD Highway and Nonroad). November 17, 2020.

approximately midpoints between the current and proposed Option 1 MY 2031 and later mileages. The proposed Option 2 set of emission warranty periods would match CARB's Step 1 warranty periods that will already be in effect beginning in model year 2022 for engines sold in California.⁴⁰ We believe

the proposed Option 2 mileages represent an appropriate lower end of the range we are considering for the revised regulatory emission warranty periods. Our proposed Option 1 and proposed Option 2 emission warranty periods are presented in Table 4.⁴¹ See Section IV.B for updates in proposed

Options 1 and 2 to our years-based warranty periods and add hours-based warranty periods for all engine classes to cover low average annual mileage applications. We also considered an alternative set of warranty periods that are presented in Section IV.B.

TABLE 4—PROPOSED OPTIONS 1 AND 2 EMISSION-RELATED WARRANTY PERIODS FOR HEAVY-DUTY CI AND SI ENGINES CRITERIA POLLUTANT STANDARDS

Model year	Spark-ignition HDE		Compression-ignition						Years
	Miles	Hours	Light HDE		Medium HDE		Heavy HDE		
			Miles	Hours	Miles	Hours	Miles	Hours	
Current	50,000	NA	50,000	NA	100,000	NA	100,000	NA	5
Proposed Option 1: 2027–2030	110,000	6,000	150,000	7,000	220,000	11,000	450,000	22,000	7
Proposed Option 1: 2031 and later	160,000	8,000	210,000	10,000	280,000	14,000	600,000	30,000	10
Proposed Option 2: 2027 and later	110,000	NA	110,000	NA	150,000	NA	350,000	NA	5

iv. Proposed Provisions To Ensure Long-Term Emissions Performance

In the ANPR, we introduced several ideas for an enhanced, comprehensive strategy to increase the likelihood that emission controls will be maintained properly through more of the operational life of heavy-duty engines, including beyond their useful life periods. Our proposed updates to maintenance provisions include defining the type of maintenance manufacturers may choose to recommend to owners in maintenance instructions, updating minimum maintenance intervals for certain critical emission-related components, and outlining specific requirements for maintenance instructions provided in the owner's manual.

We are proposing changes to the owner's manual and emissions label requirements to ensure access to certain maintenance information and improve serviceability. We expect this additional maintenance information to improve factors that contribute to mal-maintenance, which would result in better service experiences for independent repair technicians, specialized repair technicians, owners who repair their own equipment, and possibly vehicle inspection and maintenance technicians. We also

believe that improving owner experiences with operating and maintaining heavy-duty engines can reduce the likelihood of tampering.

v. Proposed Inducement Provisions

ANPR commenters indicated that engine derates or "inducements" are a significant source of operator frustration.⁴² EPA currently has guidance on potential options manufacturers might utilize to meet existing requirements through an inducement strategy for their SCR-based aftertreatment system.⁴³ We are proposing to codify inducement provisions after considering manufacturer designs and operator experiences with SCR-based aftertreatment systems. In Section IV.D, we present the key principles we followed in developing the proposed inducement provisions, which includes a focus on conditions that are within an operator's control, a multi-step derate schedule, and a backup check to override false inducements. We also include a detailed set of requests for comment highlighting the wide range of adjustments we are currently considering.

vi. Proposed Onboard Diagnostics Provisions

Onboard diagnostics (OBD) refer to systems of electronic controllers and sensors required by current regulation to detect malfunctions of engines and emission controls. EPA's existing OBD program, promulgated in 2009, allows manufacturers to demonstrate how the OBD system they have designed to comply with California OBD requirements also complies with the intent of the EPA OBD requirements.⁴⁴ Although EPA maintains separate OBD regulations, all manufacturers currently seek OBD approval from CARB for OBD systems in engine families applying for 50-state certification, and then use this approval to demonstrate compliance with EPA requirements.

In Section IV.C, we are proposing to update our OBD regulations both to better address newer diagnostic methods and available technologies, and to streamline provisions where possible. We propose to incorporate by reference the existing CARB OBD regulations updated in 2019 as the starting point for our updated OBD regulations.⁴⁵ We are proposing to exclude or revise certain CARB provisions that we believe are not appropriate for a federal program and are proposing to include additional elements to improve the usefulness of

⁴⁰ For SI engines, the Alternative 1 warranty mileage matches the current useful life, consistent with the approach for Light HDE Alternative 1 warranty.

⁴¹ In addition to exhaust standards, we are proposing refueling standards for HD SI engines that are certified as incomplete vehicles. The onboard refueling vapor recovery systems necessary to meet the proposed refueling standards will likely build on existing evaporative emissions systems, and we propose to apply the existing warranty periods for evaporative emission control systems to

the ORVR systems (5 years or 50,000 miles). See Preamble IV.B.1.

⁴² Engine derating is an aftertreatment design strategy that reduces engine performance to induce operators to maintain appropriate levels of high-quality diesel emission fluid (DEF) in their SCR-based aftertreatment systems. Throughout this preamble we refer to engine derates that derive from DEF-related triggers as "inducements."

⁴³ Kopin, Amy. Memorandum to docket EPA-HQ-OAR-2019-0055. "Inducement-Related

Guidance Documents, and Workshop Presentation." October 1, 2021.

⁴⁴ See 40 CFR 86.010-18(a)(5).

⁴⁵ CARB Final Rulemaking to Consider Technical Status and Proposed Revisions to On-Board Diagnostic System Requirements for Heavy-Engines, Passenger Cars, Light-Duty Trucks, Medium Duty Vehicles and Engines was approved and became effective on July 31, 2013. California Code of Regulations sections 1968.2 and 1971.1 available at: <https://www3.arb.ca.gov/regact/2012/hdobd12/hdobd12.htm>.

OBD systems for users (see Section IV.C for details).

EPA is specifically proposing additional OBD elements to improve the robustness and usefulness of OBD systems. These additional elements include emission system health monitors, an expanded list of publicly available OBD parameters, additional freeze frame data parameters, and enabling certain self-testing capabilities for owners. These proposed changes would benefit the environment by helping to reduce malfunctioning emission systems in-use through access to additional data that may be useful for service technicians, state and local inspection and maintenance operations, and owners.

3. Other Proposed Compliance Provisions and Flexibilities

In addition to the key program provisions, we are also proposing several provisions to provide manufacturers with flexibility to meet the proposed standards and encourage the introduction of new emission control technologies earlier than required; these provisions would apply under both proposed Options 1 and 2, as well as the full range of options in between them. These provisions include our proposal to migrate and update the compliance provisions of 40 CFR part 86, subpart A, to 40 CFR part 1036; continue averaging, banking, and trading (ABT) of credits generated against our heavy-duty engine criteria pollutant standards; provide incentives for early adoption of technologies to meet the standards; allow manufacturers to generate NO_x emission credits for hybrid electric, battery electric, and fuel cell electric vehicles (HEVs, BEVs, and FCEVs); and make limited amendments to regulations that implement our air pollutant emission standards for other industry sectors, including light-duty vehicles, light-duty trucks, marine diesel engines, locomotives, and various types of nonroad engines, vehicles, and equipment.

i. Proposed Migration From 40 CFR Part 86, Subpart A

Heavy-duty criteria pollutant regulations were originally codified into 40 CFR part 86, subpart A, in the 1980s. We believe this rulemaking provides an opportunity to clarify (and otherwise improve) the wording of our existing heavy-duty criteria pollutant regulations in plain language and migrate them to 40 CFR part 1036.⁴⁶ Part 1036, which

⁴⁶ We are proposing to migrate some provisions to parts 1065 and 1068 to apply broadly to other sectors. Additionally, some current vehicle

was created for the Phase 1 GHG program, provides a consistent, updated format for our regulations, with improved organization. In general, this migration is not intended to change the compliance program previously specified in part 86, except as specifically proposed in this rulemaking. See our summary of the proposed migration in Section III.A, and additional details in our memorandum to the docket.⁴⁷ The proposed provisions of part 1036 would generally apply for model years 2027 and later, unless noted, and manufacturers would continue to use part 86 in the interim.

ii. Proposed Opportunities for NO_x Emission Credits

We are proposing targeted revisions to the current emissions ABT provisions to account for specific aspects of the broader proposed program. We are also proposing an early adoption incentive program that would recognize the environmental benefits of lower-emitting vehicles entering the fleet ahead of required compliance dates for the proposed standards. Through this optional program, manufacturers who demonstrate early compliance with the proposed MY 2027 or MY 2031 standards would apply a multiplier to emission credits generated under the proposed ABT program (see Section IV.H for details). We are also proposing to offer NO_x emission credits for HEVs, BEVs and FCEVs based on the near-zero or zero-tailpipe emissions performance of these technologies, for HEVs or BEVs and FCEVs, respectively, and after consideration of ANPR comments. We are choosing not to propose emission credit multipliers for HEVs, BEVs, and FCEVs. We believe that the potential loss of emission reductions that could result from providing credit multipliers is not justified in light of the current extent of technology development and implementation. Manufacturers choosing to generate NO_x emission credits from BEVs or FCEVs would need to conduct testing and meet durability requirements discussed in Section IV.

iii. Other Amendments

EPA has promulgated emission standards for highway and nonroad engines, vehicles, and equipment. Section XII of this proposed rule

provisions in part 1037 refer to part 86 and we are proposing to update those references in part 1037 as needed.

⁴⁷ Stout, Alan; Brakora, Jessica. Memorandum to docket EPA-HQ-OAR-2019-0055. "Technical Issues Related to Migrating Heavy-Duty Highway Engine Certification Requirements from 40 CFR part 86, subpart A, to 40 CFR part 1036". October 1, 2021.

describes several amendments to correct, clarify, and streamline a wide range of regulatory provisions for many of those different types of engines, vehicles, and equipment. Section XII.A includes technical amendments to compliance provisions that apply broadly across EPA's emission control programs to multiple industry sectors, including light-duty vehicles, light-duty trucks, marine diesel engines, locomotives, and various other types of nonroad engines, vehicles, and equipment. Some of those amendments are for broadly applicable testing and compliance provisions in 40 CFR parts 1065, 1066, and 1068. Other cross-sector issues involve making the same or similar changes in multiple standard-setting parts for individual industry sectors. The rest of Section XII describes proposed amendments that apply uniquely for individual industry sectors.

We are proposing amendments in two areas of note for the general compliance provisions in 40 CFR part 1068. First, we are proposing to take a comprehensive approach for making confidentiality determinations related to compliance information that companies submit to EPA. We are proposing to apply these provisions for all highway, nonroad, and stationary engine, vehicle, and equipment programs, as well as aircraft and portable fuel containers.

Second, we are proposing provisions that include clarifying text to establish what qualifies as an adjustable parameter and to identify the practically adjustable range for those adjustable parameters. The proposed adjustable-parameter amendments also include specific provisions related to electronic controls that aim to deter tampering.

4. Targeted Revisions to the HD GHG Phase 2 Program

As noted at the start of this Section I.B, we have developed a proposed approach to make targeted updates that take into consideration the growing HD electric vehicle market without fundamentally changing the HD GHG Phase 2 program as a whole. These developments along with considerations of lead time, costs and other factors have demonstrated that further GHG reductions in the MY 2027 timeframe are appropriate. Specifically, we propose to adjust the HD GHG Phase 2 vehicle GHG emission standards by sales-weighting the projected heavy-duty EV production levels of school buses, transit buses, commercial delivery trucks, and short-haul tractors and by lowering the applicable emission standards in MY 2027 accordingly. We project these four vehicle types will have the highest EV sales of all heavy-

duty vehicle types between now and 2030. Because these four EV vehicle types do not correspond directly with the specific subcategories for standards that we developed in HD GHG Phase 2 (subcategories differentiated by vehicle weight, use, fuel type, etc.), we use EPA certification data to determine which subcategories of standards would be impacted by EV production in MY 2027. By sales-weighting the projected production levels of the four EV vehicle types in 2027, our proposed approach adjusts 17 of the 33 MY 2027 Phase 2 vocational vehicle and tractor standards and does not change any MY 2021 or MY 2024 standards or any of the Class 2b/3 pickup truck and van standards. We request comment on the proposed approach to determine the threshold.

In addition to these proposed standard adjustments, we are requesting comment on options to update the advanced technology incentive program for electric and plug-in hybrid vehicles beginning in MY 2024. These changes may be appropriate to reflect that such levels of incentives for electrification may no longer be appropriate for certain segments of the HD EV market. We are trying to balance providing additional incentives for the continued development of zero and near-zero emission vehicles without inadvertently undermining the GHG emission reductions from the HD GHG Phase 2 program with inappropriate incentives.

D. Projected Emission Reductions, Air Quality Improvements, Costs, and Benefits

Our analysis of the estimated emission reductions, air quality improvements, costs, and monetized benefits of the proposed criteria pollutant program is outlined below and detailed in Sections V through X. While the discussion below generally focuses on our analysis of the proposed Option 1, we also discuss the proposed Option 2; additional information on analyses of proposed Options 1 and 2 is included in the sections that follow. As discussed in Section III, we currently lack information to show that the Alternative is feasible in the MY 2027 timeframe based on the emission control technologies that we have evaluated to date, and therefore we are not presenting an analysis of the costs or benefits of the Alternative. We expect that we would need additional data supporting the feasibility of the Alternative to further consider it in the development of the final rule.

The proposed provisions in Options 1 and 2, which are described in detail in Sections III and IV, are expected to reduce emissions from highway heavy-

duty engines in several ways. We project the proposed emission standards for heavy-duty CI engines would reduce tailpipe emissions of NO_x; the combination of the proposed low-load test cycle and off-cycle test procedure for CI engines would help to ensure that the reductions in tailpipe emissions are achieved in-use, not only under high-speed, on-highway conditions, but also under low-load and idle conditions. We also project reduced tailpipe emissions of NO_x, CO, PM, VOCs, associated air toxics, and methane from the proposed emission standards for heavy-duty SI engines, particularly under cold-start and high-load operating conditions. The longer emission warranty and regulatory useful life requirements for heavy-duty CI and SI engines in the proposed Options 1 and 2 would help maintain the expected emission reductions for all pollutants, including primary exhaust PM_{2.5}, throughout the useful life of the engine. The onboard refueling vapor recovery requirements for heavy-duty SI engines in the proposed Options 1 and 2 would reduce VOCs and associated air toxics. Table 5 summarizes the projected reductions in heavy-duty emission from the proposed Options 1 and 2 in 2045 and shows the significant reductions in NO_x emissions from the proposal. In general, we estimate that Option 2 would result in lower emission reductions because of the less stringent emission standards combined with shorter useful life and warranty periods than the proposed Option 1 in MY 2031. Section VI and draft Regulatory Impact Analysis (RIA) Chapter 5 provide more information on our projected emission reductions for proposed Options 1 and 2, as well as the Alternative.

TABLE 5—PROJECTED HEAVY—DUTY EMISSION REDUCTIONS IN 2045 FROM THE PROPOSED OPTIONS 1 AND 2 STANDARDS

Pollutant	Percent reduction in highway heavy-duty emissions	
	Proposed Option 1	Proposed Option 2
NO _x	61	47
Primary PM _{2.5} ...	26	24
VOC	21	20
CO	17	16

The proposed criteria pollutant program in proposed Options 1 and 2 would also reduce emissions of other pollutants. For instance, the proposed Option 1 would result in a 27 percent reduction in benzene and a 0.7 percent reduction in methane from highway heavy-duty engines in 2045. Leading up to 2045, emission reductions are

expected to increase over time as the fleet turns over to new, compliant engines.

Reductions in emissions of NO_x, VOC, PM_{2.5}, and CO from the proposed rule are projected to lead to decreases in ambient concentrations of ozone, PM_{2.5}, NO₂, and CO. The proposed Option 1 standards would significantly decrease ozone concentrations across the country, with a population-weighted average decrease of over 2 ppb in 2045.⁴⁶ Ambient PM_{2.5}, NO₂ and CO concentrations are also predicted to improve in 2045 as a result of the proposed Option 1 program. The emission reductions provided by the proposed standards would be important in helping areas attain the NAAQS and prevent future nonattainment. In addition, the proposed Option 1 standards are expected to result in improvements in nitrogen deposition and visibility, but they are predicted to have relatively little impact on ambient concentrations of air toxics.

We also used our air quality data from modeling Option 1 to conduct a demographic analysis of human exposure to future air quality in scenarios with and without the proposed criteria pollutant standards in place. To compare demographic trends, we sorted 2045 baseline air quality concentrations from highest to lowest concentration and created two groups: Areas within the contiguous U.S. with the worst air quality and the rest of the country. We found that in the 2045 baseline, the number of people of color living within areas with the worst air quality is nearly double that of non-Hispanic Whites. We also found that the largest predicted improvements in both ozone and PM_{2.5} are estimated to occur in areas with the worst baseline air quality, where larger numbers of people of color are projected to reside. More details on our air quality modeling and demographic analyses are included in Section VII and draft RIA Chapter 6.

Our estimates of reductions in heavy-duty engine emissions, and associated air quality impacts, are based on manufacturers adding emissions-reduction technologies in response to the proposed Options 1 or 2 criteria pollutant standards, along with making emission control components more durable in response to the longer regulatory useful life periods in the proposed Options 1 or 2. We also estimate costs to both truck owners and manufacturers attributable to the longer emission warranty for both the proposed Options 1 and 2. We estimate costs of

⁴⁶ Due to resource constraints, we only conducted air quality modeling for the proposed Option 1.

the proposed Options 1 and 2 to both manufacturers and truck owners in our program cost analysis in Section V and draft RIA Chapter 7.

Our evaluation of costs to manufacturers includes direct costs (*i.e.*, cost of materials, labor costs) and indirect manufacturing costs (*e.g.*, warranty, research and development). The direct manufacturing costs include individual technology costs for emission-related engine components and for exhaust aftertreatment systems. Importantly, our analysis of direct manufacturing costs includes the costs of the existing emission control technologies because we expect the emissions warranty and regulatory useful life provisions in the proposed Options 1 and 2 to have some impact on not only the new technology added to comply with the proposed standards, but also on any existing emission control components. The cost estimates thus reflect the portion of baseline case engine hardware and aftertreatment systems for which new costs would be incurred due to the proposed warranty and useful life provisions, even absent any changes in the level of emission standards. The indirect manufacturing costs in our analysis include warranty costs, research and development costs, profits and other indirect costs. We combine direct and indirect manufacturing costs to calculate total technology costs, which we then add to operating costs in our calculation of program costs.

As part of our evaluation of operating costs, we estimate costs truck owners incur to repair emission control system components. Our repair cost estimates are based on industry data showing the amount spent annually by truck owners on different types of repairs, and our estimate of the percentage of those repairs that are related to emission control components. Our analysis of this data shows that extending the useful life and emission warranty periods would lower emission repair costs during several years of operation for several vehicle types. More discussion on our emission repair costs estimates of the

proposed Options 1 and 2 criteria pollutant standards is included in Section V, with additional details presented in draft RIA Chapter 7.

We combined our estimates of emission repair costs with other operating costs (*i.e.*, urea/DEF, fuel consumption) and technology costs to calculate total program costs. Our analysis of proposed Option 1 shows that total costs for the criteria pollutant program relative to the baseline (or no action scenario) range from \$1.8 billion in 2027 to \$2.3 billion in 2045 (2017 dollars, undiscounted, see Table V–16). We estimate that proposed Option 2 would result in higher costs than the proposed Option 1 in 2045. We expect that the same emission control technologies would be needed to meet both the proposed Option 1 and 2 standards, which would result in the same direct technology costs in both cases. The higher projected costs of the proposed Option 2 relative to the proposed Option 1 result from our expectation that the shorter useful life and emission warranty periods of the proposed Option 2 compared to proposed Option 1 in MY 2031 and later would lead to higher emission control system repair costs for proposed Option 2 than the proposed Option 1 (*i.e.*, shorter emissions warranty periods result in higher emission repair costs in proposed Option 2) (see Section V for details). Overall, the analysis shows that the costs of proposed Option 1 are less than the costs of proposed Option 2. The present value of program costs for proposed Options 1 and 2, and additional details are presented in Section V.

Section VIII presents our analysis of the human health benefits associated with the proposed Options 1 and 2. We estimate that in 2045, the proposed Option 1 would result in total annual monetized ozone- and PM_{2.5}-related benefits of \$12 and \$33 billion at a 3 percent discount rate, and \$10 and \$30 billion at a 7 percent discount rate.⁴⁹ In the same calendar year, proposed Option 2 would result in total annual monetized ozone- and PM_{2.5}-related

benefits of \$9 and \$26 billion at a 3 percent discount rate, and \$8 and \$23 billion at a 7 percent discount. These benefits only reflect those associated with reductions in NO_x emissions (a precursor to both ozone and secondarily-formed PM_{2.5}) and directly-emitted PM_{2.5} from highway heavy-duty engines. There are additional human health and environmental benefits associated with reductions in exposure to ambient concentrations of PM_{2.5}, ozone, and NO₂ that EPA has not quantified due to data, resource, or methodological limitations. There would also be benefits associated with reductions in air toxic pollutant emissions that result from the proposed program, but we did not attempt to monetize those impacts due to methodological limitations. The estimated benefits of the proposed Options 1 and 2 would be larger if we were able to monetize all unquantified benefits at this time. More detailed information about the benefits analysis conducted for the proposal, including the present value of program benefits for Options 1 and 2, is included in Section VIII and draft RIA Chapter 8.

We compare total monetized health benefits to total costs associated with the proposed Options 1 and 2 in Section IX. Table 6 shows that annual benefits of the proposed Option 1 would be larger than the annual costs in 2045, with annual net benefits of \$9 and \$31 billion assuming a 3 percent discount rate, and net benefits of \$8 and \$28 billion assuming a 7 percent discount rate.⁵⁰ Annual benefits would also be larger than annual costs in 2045 for the proposed Option 2, although net benefits would be slightly lower than from the proposed Option 1 (net benefits of proposed Option 2 would be \$6 and \$23 billion at a 3 percent discount rate, and net benefits of \$5 and 21 billion at a 7 percent discount rate). For both the proposed Options 1 and 2, benefits also outweigh the costs when expressed in present value terms and as equalized annual values.

TABLE 6—2045 COSTS, BENEFITS AND NET BENEFITS OF THE PROPOSED OPTION 1 AND OPTION 2
[Billions, 2017\$]^{a b}

	Proposed Option 1		Proposed Option 2	
	3% discount	7% discount	3% discount	7% discount
2045:				
Benefits	\$12–\$33	\$10–\$30	\$9.1–\$26	\$8.2–\$23
Costs	2.3	2.3	2.9	2.9

⁴⁹ 2045 is a snapshot year chosen to approximate the annual health benefits that occur in a year in which the proposed program would be fully

implemented and when most of the regulated fleet would have turned over.

⁵⁰ The range of benefits and net benefits reflects a combination of assumed PM_{2.5} and ozone mortality risk estimates and selected discount rate.

TABLE 6—2045 COSTS, BENEFITS AND NET BENEFITS OF THE PROPOSED OPTION 1 AND OPTION 2—Continued
[Billions, 2017\$]^{a, b}

	Proposed Option 1		Proposed Option 2	
	3% discount	7% discount	3% discount	7% discount
Net Benefits	9.2–31	8.1–28	6.2–23	5.3–21

^a All benefits estimates are rounded to two significant figures; numbers may not sum due to independent rounding. The range of benefits (and net benefits) in this table are two separate estimates and do not represent lower- and upper-bound estimates, though they do reflect a grouping of estimates that yield more and less conservative benefits totals. The costs and benefits in 2045 are presented in annual terms and are not discounted. However, all benefits in the table reflect a 3 percent and 7 percent discount rate used to account for cessation lag in the valuation of avoided premature deaths associated with long-term exposure.

^b The benefits associated with the standards presented here do not include the full complement of health, environmental, and climate-related benefits that, if quantified and monetized, would increase the total monetized benefits.

Section X examines the potential impacts of the proposed standards on heavy-duty vehicles (sales, mode shift, fleet turnover) and employment in the heavy-duty industry. The proposed standards may impact vehicle sales due to both changes in purchase price and longer emission warranty mileage requirements; these effects may show up as increased purchases of more new vehicles than usual before the proposed standards come into effect, in anticipation of higher prices after the proposed standards (“pre-buy”). The proposed standards may also reduce sales after the proposed standards would be in place (“low-buy”). In this proposal, we suggest an approach to quantify potential impacts on vehicle sales due to new emission standards; we also provide an example of how the results could be applied to the final regulatory analysis for this rule in draft RIA Chapter 10.1. Our example results for proposed Option 1 suggest pre- and low-buy for Class 8 trucks may range from zero to approximately two percent increase in sales over a period of up to 8 months before the 2031 standards begin (pre-buy), and a decrease in sales from zero to approximately two percent over a period of up to 12 months after the 2031 standards begin (low-buy). We have provided the example results as information for commenters to consider and provide input to EPA on this type of approach for quantifying how emissions regulations may impact heavy-duty vehicle sales fleet turnover. Based on input we receive, we may consider using this type of analysis in the final rule to inform both the potential impacts on vehicle sales, and the related impacts on employment in the heavy-duty industry. We expect little mode shift due to the proposed standards because of the large difference in cost of moving goods via trucks versus other modes of transport (e.g., planes or barges).

Employment impacts of the proposed standards depend on the effects of the standards on sales, the share of labor in

the costs of the standards, and changes in labor intensity due to the standards. We quantify the effects of costs on employment, and we discuss the effects due to sales and labor intensity qualitatively. This partial quantification of employment impacts estimates that increased costs of vehicles and parts would, by itself and holding labor intensity constant, be expected to increase employment by 400 to 2,200 job-years in 2027, and 300 to 1,800 job-years in 2032 under proposed Option 1.⁵¹ Employment would be expected to increase by 400 to 2,200 job years, and 300 to 1,500 job years in 2027 and 2032 respectively under proposed Option 2. See Section X for further detail on limitations and assumptions of this analysis.

Finally, the projected cost and GHG emission impacts of the proposed changes to the HD GHG Phase 2 program are described in Section XI.E.

E. Summary of Specific Requests for Comments

We are requesting comment on all aspects of this proposed rulemaking. In addition, as detailed in the sections that follow, we are specifically requesting comments from stakeholders on a variety of key topics throughout this proposed to inform the final rulemaking process. In this section we highlight topics on which we believe it would be especially beneficial to receive comments from stakeholders, or which may be of most interest to stakeholders.

Section III presents extensive information and analyses, including two options for the proposed criteria pollutant standards, to provide notice that EPA will be considering a range of numeric emission standard values and implementation dates in the final rule. We are requesting comment on the proposed Options 1 and 2, as well as the Alternative, standards for each duty cycle, as well as the one- and two-step

approaches in proposed Options 1 and 2, respectively, and the implementation dates of MYs 2027 and 2031. In addition, we are requesting input on several aspects of the proposed new LLC duty cycle for heavy-duty CI engines and applying the SET duty cycle to heavy-duty SI engines (see Section III). We are also requesting comment on several aspects of the proposed off-cycle standards for heavy-duty CI engines, including the levels of the standards in proposed Options 1 and 2 and the specific operating range covered by each bin, and whether off-cycle standards and in-use testing should also apply for SI engines. For SI engines, we request comment on our proposed refueling HC emission standard for incomplete vehicles above 14,000 lb GVWR, including requests for comment and data to inform test procedure updates we should consider to measure HC emissions from these larger fuel systems and vehicles. We are also requesting comment on whether EPA should finalize interim standards for testing used to verify that the engine meets the standards through useful life (i.e., in-use testing that occurs after the vehicle enters commerce). Typically, EPA sets the same standards for in-use testing and certification testing but, in some cases, we have provided higher in-use standards to give manufacturers time to gain experience with the new technology needed to meet the standards.⁵² As outlined in this Executive Summary and discussed in Sections III and IV, we are proposing to significantly lower NO_x emission standards and to significantly increase the regulatory useful life for heavy-duty on highway engines, which would require manufacturers to develop and produce additional engine and aftertreatment technology. Due to the combination of lower (more stringent) numeric standards and longer useful periods included in our proposal, we are requesting comment on whether

⁵¹ Where a job-year is, for example, one year of full-time work for one person, or one year of half-time work for two people.

⁵² See 81 FR 23414 (April 28, 2014).

BOARD OF THE YAKIMA REGIONAL CLEAN AIR AUTHORITY

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE YAKIMA REGIONAL CLEAN AIR AUTHORITY, ADOPTING EMPLOYEE JOB CLASSIFICATIONS

RESOLUTION No. 15-2003

RECITALS:

BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE YAKIMA REGIONAL CLEAN AIR AUTHORITY, on this tenth day of September, 2003, that:

WHEREAS, the Yakima Regional Clean Air Authority is a municipal corporation under RCW 70.94.081; and

WHEREAS, Yakima County has effectively provided human resource services to the Authority and it's employees; and

WHEREAS, Authority employee job classifications, were adopted by Yakima County Commissioners effective January 1, 1998; and

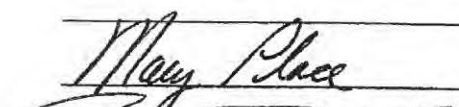


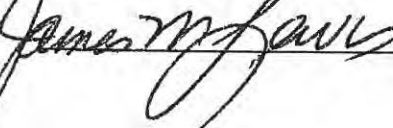
WHEREAS, the Authority must assume full responsibility for human resource services, including it's employee job classifications, effective January 1, 2004; and now therefore

BE IT RESOLVED, the new employee job classifications, summary attached hereto, are hereby adopted effective January 1, 2004; and

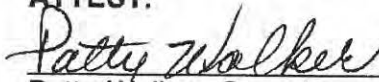
BE IT FURTHER RESOLVED, the Executive Director is instructed to develop detailed employee job classifications and establish hiring levels which shall be presented for Board approval prior to, or at the May, 2004 Board Meeting.

ADOPTED, this tenth day of September, 2003.

APPROVED:

	Chairman		Board Member
	Board Member		Board Member
	Board Member		

ATTEST:


Patty Walker, Secretary

Yakima Regional Clean Air Authority
6 So. 2nd St., Suite 1016, Yakima, WA 98901

Employee Job Classification System
Effective January 1, 2004

The following describes recommended classifications, effective January 1, 2004. Several Yakima County classifications assigned to YRCAA staff were not descriptive of actual work, or responsibilities of air quality staff. The recommended classification are consistent with other clean air agencies. It must be noted that the larger agencies have many more specialized classifications.

Classification Title: Executive Director

Classification Summary: Under policy direction of the agency Board of Directors, oversees technical, professional, engineering, and administrative staff and activities related to the implementation and monitoring of federal, state, and local air quality laws and policies. Incumbent serves as the executive director, air pollution control officer, and SEPA Responsible Official for delegated authorities from the Board of Directors, Department of Ecology, and the U. S. Environmental Protection Agency.

Sub Classes:
None.

Classification Title: Administrative

Classification Summary: Incumbents provide a full range of administrative services in support of the programs and mission of the Authority.

Sub Classes:

Administrative Officer: Receives general direction from the Director, and supervises one or more administrative employees to plan, implement, monitor, and report accomplishment for clerical and administrative services of the agency.

Administrative Specialist: A journey level. Receives general supervision from the Director or the administrative officer.

Trainee Administrative Specialist: A recruitment or entry level position who works under the close supervision of the administrative officer or a more experienced administrative specialist.

YAKIMA REGIONAL CLEAN AIR AUTHORITY

Old County Job Classifications vs New YRCAA Job Classifications

Effective January 1, 2004


Old County Classification	Staff Member	New YRCAA Classification
Director	Omelas	Executive Director
Project Engineer	Tahat	Supervisory Air Quality Engineer
Engineer	Vacant	Air Quality Engineer
Program Coordinator	Pruitt	Supervisory Air Quality Specialist
Air Quality Specialist	Yanez	Air Quality Specialist
Air Quality Specialist	Menard	Air Quality Specialist
Air Quality Specialist	Allen	Air Quality Specialist
Program Representative	Stansel	Air Quality Specialist
Program Representative	West	Air Quality Specialist
Program Representative	Vacant	Air Quality Specialist
Office Coordinator	Monroe	Administrative Officer
Office Technician	Walker	Administrative Specialist
Office Assistant	Ruud	Trainee Administrative Specialist
Maintenance Worker, Temporary	Erickson	Trainee Air Quality Specialist Temporary



**Yakima Regional
Clean Air Authority**

Six So. Second St., Suite 1016, Yakima, WA 98901
Phone: (509) 574-1410, Fax: (509) 574-1411
<http://www.co.yakima.wa.us/cleanair>

EXECUTIVE MEMORANDUM

DATE: January 14, 2004
TO: Honorable Members of the Board and Alternates
FROM:  Les Ornelas, Executive Director
Air Pollution Control Officer
SUBJECT: Establish an Agency Employee Pay Scale, Resolution 03-2004

RECOMMENDATION:

1. Review Staff Report
2. Adopt Employee Pay Scale, Resolution 03-2004

BACKGROUND:

While most public agencies incorporate automatic annual (seniority) pay increases for staff, your Board has elected to retain full discretion in granting pay adjustments. Board direction is for staff to present prior to, or with the annual Agency budget recommendations on budget condition, cost of living, or merit and staff salary adjustments if any.

In reviewing current salaries there was no consistency by which to compare or equate between them. Board increases, when granted, would probably not be granted in round numbers. Granting of increases by odd number, or fractions of percentages further exacerbate the incompatibility among salaries for a small Agency such as YRCAA.

CONCLUSIONS:

A standardized, equal increment pay scale is useful to the management and administration of the Agency. A standardized pay scale will:

1. Allow extrapolation of current employee pay for comparison from which to determine equity among similar classes.
2. Allows the Board to round up or down to the nearest set pay rate when considering adjustments for cost of living or merit.
3. Allows Agency managers to preestablish allowances and deductions on a single set of pay rates.
4. Avoids significant administrative burden and cost from each pay adjustment incurred to "translate" Board approved adjustments to each unique rate for each employee.
5. A Resolution to adopt a format YRCAA pay scale at 2% increments is appropriate and timely.

cc: Gary Cuillier, Board Counsel

BOARD OF THE YAKIMA REGIONAL CLEAN AIR AUTHORITY

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE YAKIMA REGIONAL CLEAN AIR AUTHORITY ADOPT YRCAA EMPLOYEE PAY SCALE.

RESOLUTION NO. 03-2004

RECITALS:

BE IT RESOLVED by the Board of Directors of the Yakima Regional Clean Air Authority that on this Fourteenth day of January, 2004, that:

WHEREAS, YRCAA is an independent municipal corporation per RCW 70.94.081; and

WHEREAS, YRCAA is authorized to employ staff per RCW 70.94.081; and

WHEREAS, it is in the interest and to the benefit of the Agency to establish a single employee pay scale at set increments; and now therefore

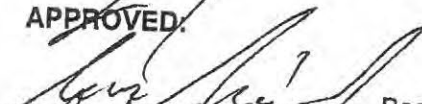
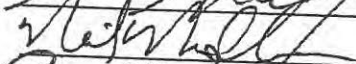

BE IT RESOLVED, that the incremental pay scale printed on the reverse of this Resolution are hereby adopted; and

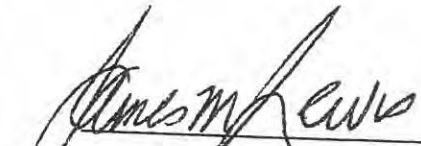
BE IT FURTHER RESOLVED, to use the adopted pay scale for future Board adjustments to existing salaries based on rounding to the nearest adopted rate; and

BE IT FURTHER RESOLVED, to authorize the Executive Director to oversee and direct implementation of Board policy on employee compensation by using the adopted pay scale and future Board decisions.

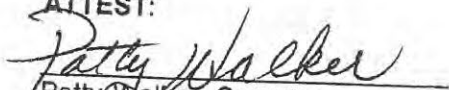
ADOPTED at a regular meeting of the YRCAA Board of Directors on this Fourteenth day of January, 2004.

APPROVED:

 Board Chairman
 Board Member
 Board Member

 Board Member
 _____ Board Member
 _____ Board Member

ATTEST:


Patty Walker, Secretary

YRCAA Pay Scale @2% Increments

Code	\$/hr.	\$/month	\$/year	Code	\$/hr.	\$/month	\$/year
00	Min State Rate			41	\$22.08	\$3,827.33	\$45,926
01	\$10.00	\$1,733.33	\$20,800	42	\$22.52	\$3,903.39	\$46,841
02	\$10.20	\$1,767.97	\$21,216	43	\$22.97	\$3,981.39	\$47,767
03	\$10.40	\$1,802.63	\$21,632	44	\$23.43	\$4,061.12	\$48,733
04	\$10.61	\$1,839.03	\$22,068	45	\$23.90	\$4,142.59	\$49,711
05	\$10.82	\$1,875.43	\$22,505	46	\$24.37	\$4,224.05	\$50,689
06	\$11.04	\$1,913.56	\$22,963	47	\$24.87	\$4,310.72	\$51,729
07	\$11.26	\$1,951.70	\$23,420	48	\$25.36	\$4,395.65	\$52,748
08	\$11.49	\$1,991.56	\$23,899	49	\$25.87	\$4,484.05	\$53,809
09	\$11.72	\$2,031.42	\$24,377	50	\$26.39	\$4,574.18	\$54,890
10	\$11.95	\$2,071.29	\$24,855	51	\$26.91	\$4,664.31	\$55,972
11	\$12.19	\$2,112.89	\$25,355	52	\$27.45	\$4,757.91	\$57,095
12	\$12.43	\$2,154.49	\$25,854	53	\$28.00	\$4,853.24	\$58,239
13	\$12.68	\$2,197.82	\$26,374	54	\$28.56	\$4,950.30	\$59,404
14	\$12.94	\$2,242.89	\$26,915	55	\$29.13	\$5,049.10	\$60,589
15	\$13.19	\$2,286.22	\$27,435	56	\$29.72	\$5,151.37	\$61,816
16	\$13.46	\$2,333.02	\$27,996	57	\$30.31	\$5,253.63	\$63,044
17	\$13.73	\$2,379.82	\$28,558	58	\$30.92	\$5,359.36	\$64,309
18	\$14.00	\$2,426.62	\$29,119	59	\$31.54	\$5,466.83	\$65,602
* 19	\$14.28	\$2,475.15	\$29,702	60	\$32.17	\$5,576.03	\$66,912
20	\$14.57	\$2,525.42	\$30,305	61	\$32.81	\$5,686.96	\$68,243
21	\$14.86	\$2,575.68	\$30,908	62	\$33.47	\$5,801.36	\$69,616
22	\$15.16	\$2,627.68	\$31,532	63	\$34.14	\$5,917.49	\$71,010
23	\$15.46	\$2,679.68	\$32,156	64	\$34.82	\$6,035.35	\$72,424
24	\$15.77	\$2,733.41	\$32,801	65	\$35.51	\$6,154.95	\$73,859
25	\$16.08	\$2,787.15	\$33,446	66	\$36.23	\$6,279.75	\$75,357
26	\$16.41	\$2,844.35	\$34,132	67	\$36.95	\$6,404.54	\$76,855
27	\$16.73	\$2,899.81	\$34,798	68	\$37.69	\$6,532.81	\$78,394
28	\$17.07	\$2,958.74	\$35,505	69	\$38.44	\$6,662.81	\$79,954
29	\$17.41	\$3,017.68	\$36,212	70	\$39.21	\$6,796.27	\$81,555
30	\$17.76	\$3,078.34	\$36,940	71	\$40.00	\$6,933.20	\$83,198
31	\$18.11	\$3,139.01	\$37,668	72	\$40.80	\$7,071.86	\$84,862
32	\$18.48	\$3,203.14	\$38,438	73	\$41.61	\$7,212.26	\$86,547
33	\$18.85	\$3,267.27	\$39,207	74	\$42.44	\$7,356.13	\$88,274
34	\$19.22	\$3,331.40	\$39,977	75	\$43.29	\$7,503.46	\$90,041
35	\$19.61	\$3,399.00	\$40,788	76	\$44.16	\$7,654.25	\$91,851
36	\$20.00	\$3,466.60	\$41,599	77	\$45.04	\$7,806.78	\$93,681
37	\$20.40	\$3,535.93	\$42,431	78	\$45.96	\$7,966.25	\$95,560
38	\$20.81	\$3,607.00	\$43,284	79	\$46.86	\$8,122.24	\$97,467
39	\$21.22	\$3,678.06	\$44,137	80	\$47.80	\$8,285.17	\$99,422
40	\$21.65	\$3,752.59	\$45,031				

Recommended Les Ornelas 01/14/04

Les Ornelas, Executive Director

Approved - Board Resolution 03-2004, January 14, 2004

EXAMPLES OF PROBLEMS FROM
CURRENT YRCAA SALARIES

Class - Air Quality Specialist (Six Staff on Board)

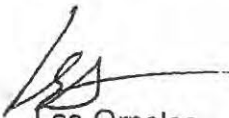
Current Salary	/hr	Difference
\$17.56		
\$18.11	0.55	= 3.13%
\$18.15	0.04	=0.22%
\$18.65	0.50	=2.75%
\$18.70	0.05	=0.27%
\$20.44		

Problems:

1. Salary increments are inconsistent, not divisible by any common integer, but 1.
2. Each salary requires a unique calculation for each benefit or deduction.
3. The differences in salary steps and inconsistent awards of increase by time-in-service steps, COLA adjustments, equity adjustments or other salary changes.
4. There exists no adopted pay scale by which recruitment or pay scales in class can be set.

Conclusions:

1. Adoption of a selective, preset master pay scale resolves all four problems listed above.
2. Current perception of Agency staff that current salary being all they will ever be paid is rebuked by an adopted "next-step", albeit final decision on granting any increase is held exclusively by YRCAA Board of Directors.
3. An adopted pay scale is not an obligation to automatically increase pay for all employees.
4. An adopted pay scale provides order, consistency and predictably, if and when pay adjustments are made.



Les Ornelas,
Executive Director/APCO

Section 11

YRCAA Classifications and Positions

**RESOLUTION NO.: 2008-04
BEFORE THE GOVERNING BOARD OF THE
YAKIMA REGIONAL CLEAN AIR AUTHORITY (YRCAA)**

Adopting YRCAA Administrative Code, Part B,)
Section 11, Classifications, Positions, and.....)
Compensation for YRCAA Employees.....)

WHEREAS, the YRCAA Governing Board desires to approve guidance to YRCAA staff to establish Classifications, Positions and Compensation for YRCAA employees; and

WHEREAS, in 2004 YRCAA became independent of County Personnel and Payroll for YRCAA employees; and

WHEREAS, in January, 2004 the Governing Board of Directors approved a Monthly Pay Scale at 2% increments; and

WHEREAS, Section 11 defines Classifications, Positions, and Compensation for YRCAA employees and provides for an equitable system of determining increases to base pay for an employee who meet or exceed minimum expectations of continuous improvement; now therefore

BE IT RESOLVED, that the Governing Board of Directors approves Section 11, Positions, Classifications and Compensation for YRCAA employees. 11.1 thru 11.3.5

On motion of Band Elliott, seconded by Bob Jones, the foregoing resolution is hereby PASSED AND ADOPTED by the Yakima Regional Clean Air Authority Board of Directors on the Twelfth day of June, 2008.

[Signature]
Board Chairman

[Signature]
Board Director

Board Director

[Signature]
Board Director

Board Director

[Signature]
Patty Walker, Clerk of the Board

SECTION 11 – Classifications and Positions

11.1 Purpose

This policy establishes classifications, positions and compensation for each classification and position. Each classification description defines required knowledge, skill and experience levels. Each position description defines roles, responsibilities and typical duties.

Established classifications and positions will enable employees to identify opportunities for upward mobility, lateral transfer and advancement among classifications. Employee compensation will be based on classification and thus, skills, knowledge experience, and performance of duties.

11.2 Classifications

The following describes classifications for YRCAA employees. Each classification contains three levels of required knowledge, skill and experience. It is expected that, with increased experience, an employee will gain knowledge and skill in meeting the duties and responsibilities of the position(s) he/she fills.

- Level I – Trainee, consisting of less than six years experience;
- Level II – Journeyman, consisting of six to 15 years experience; and
- Level III – Master (Longevity), consisting of more than 15 years of experience.

11.2.1 Division Supervisor

A Division Supervisor (DS) exhibits skills in supervision in his/her field(s) of expertise in Engineering/Planning, and/or Compliance/Air Monitoring. All Supervisors report directly to the Executive Director/Air Pollution Control Officer (Director).

- a. Level I, Trainee (DS I)
The DS I has one or more years of supervisory experience or training in supervision. He/she may have experience in a regulatory or related field for the position he/she has been selected for, and exhibit communication and supervisory skills. This supervisor receives guidance and training from the Director.
- b. Level II, Journeyman (DS II)
The DS II has six or more years experience and capability to supervise others. This supervisor will better communicate with co-workers and make decisions with little or no input from the Director.
- c. Level III, Master (DS III)
The DS III has 15 or more years supervisory experience and is established in his/her skills and capabilities. This supervisor is capable of working and making decisions independent of direct supervision of the Director.

11.2.2 Engineering Specialist

The Engineering Specialist (ES) works under the general direction of the engineering/Planning Division Supervisor. The ES performs duties in the field of air quality engineering and sciences.

- a. Level I, Trainee (ES I)
The ES I has a Bachelor's Degree in Civil Engineering and less than six years engineering experience and/or an equivalent combination of education, experience, knowledge, skills, and abilities sufficient to successfully perform the essential duties within this classification. The ES I will receive guidance and direction from the Engineering/Planning Division Supervisor.
- b. Level II, Journeyman (ES II)
The ES II has a Bachelor's Degree in Civil Engineering and six or more years of technical experience in air quality engineering, researching and processing permits and/or an equivalent combination of education and experience, knowledge, skills, and abilities sufficient to successfully perform the essential duties within this classification. The ES II is capable of working with only minimal guidance and supervision from the Engineering/Planning Division Supervisor.
- c. Level III, Master (ES III)
The ES III has a Bachelor's Degree in Civil Engineering and more than 15 years of experience, having achieved greater capabilities to: quality assure all technical data, calculations and conclusions; prepare, approve and issue permits; and work independently, with little or no supervision from the Engineering/Planning Division Supervisor.

11.2.3 Air Quality Specialist

The Air Quality Specialist (AQS) works under direction and supervision of the Compliance/Air Monitoring Division Supervisor. The AQS conducts work to assure compliance with air quality laws, regulations, permits and National Ambient Air Quality Standards.

- a. Level I, Trainee (AQS I)
The AQS I has less than six years experience and has a working knowledge of air quality principles as they apply to compliance, planning and/or monitoring. The AQS I will receive training and guidance from the Compliance/Air Monitoring Division Supervisor.
- b. Level II, Journeyman (AQS II)
The AQS II has a thorough knowledge of air quality laws, regulations, emission units and control methods, with six or more years experience in a regulatory field. The AQS II is capable of making decisions and will require only moderate guidance and supervision.
- c. Level III, Master (AQS III)
The AQS III has more than 15 years of experience and performs increasingly more difficult and technical work in the area of compliance assurance. The AQS III is capable of working and making decisions independently and will require little or no supervision from the Compliance/Air Monitoring Division Supervisor.

11.2.4 Administrative Assistant

The Administrative Assistant (AA) works under the direction of the Office Supervisor and provides clerical and administrative support services. The AA serves as a clerk, receptionist and secretary, performing a variety of clerical, secretarial and administrative tasks.

- a. Level I, Trainee (AA I)
The AA I has less than five years administrative experience. The AS I has a high school diploma, G.E.D. equivalency or satisfactory completion of a recognized job-related training course at a high school, trade school, or college. The AA I will receive guidance and training from the Office Supervisor, a Division Supervisor and/or Program Manager.
- b. Level II, Journeyman (AA II)
The AA II has five to 15 years administrative experience with job-related training courses graduating from high school, or college courses in business. The AA II will have greater capabilities with only moderate supervision by the Office Supervisor.
- c. Level III, Master (AA III)
The AA III has more than 15 years of experience in office administration and customer service, has completed business classes and achieved a degree through an accredited college and/or equivalent training and experience. The AA III has a variety of secretarial and administrative skills and works independently, reporting to the Office Supervisor or Director.

11.2.5 Administrative Specialist

The Administrative Specialist (AS) works under the direction of the Director and provides administrative support services for a specific program, acting as the Program Manager. The AS has a high degree of technical knowledge, skills and experience, adequate to effectively manage a program with little direction.

- a. Level I, Trainee (AS I)
The AS I has less than five years technical experience and has completed business courses, achieving a degree through an accredited college and/or equivalent training and experience. The AS I will receive guidance from the Director.
- b. Level II, Journeyman (AS II)
The AS II has five to 15 years technical experience and has completed business courses, achieving a degree through an accredited college and/or equivalent training and experience. The AS II will have greater capabilities with only moderate supervision by the Director.
- c. Level III, Master (AS III)
The AS III has more than 15 years technical experience and has completed business courses, achieving a degree through an accredited college and/or equivalent training and experience. The AS III has a variety of secretarial and administrative skills and works independently, reporting to the Office Supervisor or Director.

11.3 Positions

The following position summaries are consistent with other local air authorities and describe duties and responsibilities of staff positions at YRCAA. Each position falls within one of five classifications described in 11.2 above. A staff member may occupy, and fulfill the duties of, more than one position.

11.3.1 Supervisor Positions

a. Executive Director

The Director is responsible for overseeing the administration of the Agency and assuring compliance with the Federal Clean Air Act, the Washington Clean Air Act, and all regulations promulgated thereunder. The Director maintains the Agency in good operational status with municipalities, the regulated community, the Governing Board of Directors, the Department of Ecology, the US EPA, and the Washington State Auditor. The Director provides guidance and leadership to staff for the lawful and effective management of the various activities performed and programs implemented by YRCAA.

The Director prepares and monitors the agency budget, oversees Board meeting preparation and presentations by Staff, and sets (and monitors attainment of) goals for each year. The Director acts as CEO for the agency enterprise, Northwest Opacity Certification, and any other Enterprise programs YRCAA may have. The Director represents the agency in any interaction with Federal, State or Local government and with the Washington Air Quality Managers Group, the National Association of Clean Air Agencies. The Director reports directly to the Governing Board of Directors.

b. Compliance/Air Monitoring Division Supervisor

The Compliance/Air Monitoring Division Supervisor provides leadership and is responsible for overseeing all staff conducting compliance assurance, ambient air monitoring and enterprise operation work. This work includes: compliance inspections, technical and business assistance, asbestos and demolition, air pollution complaints, air monitoring, and Northwest Opacity Certification. The Supervisor: reviews Notices of Violation prior to issuance; issues Notices of Penalty; represents YRCAA at the Pollution Control Hearings Board; and conducts Mutual Settlement Meetings with violators to consider all information regarding Notices of Violation or Penalty.

The Supervisor conducts Continuous Improvement Program reviews with division staff; provides guidance for improvement action plans; monitors progress of action plans; and acknowledges achievements.

The Supervisor represents the agency on compliance and monitoring issues to the regulated community, State, Federal and Local government, and to the Washington Air Quality Compliance Forum. The Supervisor reports directly to the Director.

c. Engineering/Planning Division Supervisor

The Engineering/Planning Division Supervisor provides leadership and is responsible for overseeing all staff conducting engineering, permitting and planning work. This work includes: reviewing, drafting and issuing orders of approval (permits) for new sources of air pollution; outdoor burning permits; asbestos and demolition notifications, dust control plans, State Environmental Policy Act (SEPA) reviews and determinations, minor source registration, emission inventories, attainment and maintenance plans, Air Operating Permit Program, and rule development.

The Supervisor conducts Continuous Improvement Program reviews with division staff; provides guidance for improvement action plans; monitors progress of action plans; and acknowledges achievements.

The Supervisor represents the agency on engineering, permitting and planning issues to the regulated community, State, Federal and Local government, and to the Washington Air Permit Writers group. The Supervisor reports directly to the Director.

11.3.2 AQS Positions

Under the direction of the Compliance/Air Monitoring Division Supervisor, an AQS manages and conducts work to implement the compliance, enterprise and air monitoring programs. Staff classified as AQS fulfill the duties and responsibilities of the following positions:

a. Program Managers

AQS Program Managers are responsible for managing and effectively attaining the goals and objectives of programs that make up the overall agency operations.

i. Enterprise Program Manager

The Manager is responsible for the successful carrying out of the Northwest Opacity Certification (NOC) enterprise and any future enterprise. NOC provides training and testing events to certify regulatory and industry personnel for visible emissions evaluation initially and once every six months. NOC charges a fee for this service. The Manager is responsible for managing all work necessary to meet the objective of providing significant revenue to the agency, supplementing the more traditional revenue sources. That work includes: acquiring and scheduling event sites; mailing out and receiving registration forms; receiving and accounting for fee payments; maintaining a customer database; operating, maintaining and calibrating equipment in good working order; traveling to and conducting events twice yearly at 15 sites in Washington and Oregon (or more as required); providing certificates of completion to customers; maintaining financial books; and reporting routinely to the Division Supervisor any issues or recommendations.

ii. Inspection Program Manager

The Manager is responsible for managing all work necessary to meet the objective of conducting routine evaluations of qualifying facilities to assure compliance with applicable laws, regulations and permits. This includes:

preparing inspection schedules; ensuring that inspections of facility operations, maintenance, monitoring, record keeping and reporting requirements are completed in a timely and proper manner; providing compliance assistance; completing and filing inspection reports; observing and documenting violations; initiating enforcement actions for violations that are not corrected immediately; recommending civil penalty; and reporting routinely to the Division Supervisor any issues or recommendations.

iii. Complaint Program Manager

The Manager is responsible for managing all work necessary to meet the objective of receiving, addressing and resolving citizen complaints alleging violations of applicable Federal, State or Local laws or regulations. This includes: maintaining a database record of all complaints and all agency actions and findings regarding complaints; evaluating and assigning an appropriate response level to each complaint; assigning the complaint to an AQS for response; taking the appropriate response action; investigating the complaint; completing and filing inspection reports; observing and documenting violations; initiating enforcement actions for violations that are not corrected immediately; recommending civil penalty; and reporting routinely to the Division Supervisor any issues or recommendations.

iv. Monitoring Program Manager

The Manager is responsible for managing all work necessary to meet the objective of sampling, analyzing, quality assuring, documenting and reporting the concentrations of certain air pollutants in the ambient air. The data gathered is then used to: demonstrate compliance with the National Ambient Air Quality Standards; provide real-time data for determining whether indoor and outdoor burning must be prohibited; identify trends to aid in agency planning; and inform the public of health concerns. The work includes: selecting appropriate sampling sites; acquiring and locating sampling equipment; operating, maintaining and quality assuring the equipment and data gathered by the equipment; connecting the equipment to telemetry systems and assuring the proper operation of the systems; gathering and transporting samples to the laboratory for analysis; receiving and recording sample analysis data; and reporting routinely to the Division Supervisor any issues or recommendations.

b. Duty Positions

i. Compliance Inspector

The inspector conducts work to evaluate registered facilities and regulated activities and operations for compliance with Federal, State and Local laws and regulations. The work includes investigating, providing compliance assistance, documenting findings and actions, and making recommendations for: citizen complaints; commercial and industrial facilities; asbestos, renovation and demolition sites; and reporting routinely to the Inspection Program Manager and Division Supervisor any issues or recommendations.

ii. Enterprise Specialist

The Specialist conducts work in support of the Enterprise Program Manager for the successful carrying out of the Northwest Opacity Certification (NOC) enterprise and any future enterprise. The work includes: maintaining and calibrating equipment in good working order; operating equipment during

field events; setting up and breaking down equipment for field tests; proctoring field tests; preparing and presenting classroom training materials; traveling to and conducting events twice yearly at 15 sites in Washington and Oregon (or more as required); and reporting routinely to the Enterprise Program Manager and Division Supervisor any issues or recommendations.

- iii. **Monitoring Specialist**
The Specialist conducts work in support of the Monitoring Program Manager for the sampling of certain air pollutants in the ambient air. The work includes: locating sampling equipment; operating, maintaining and quality assuring the equipment and data gathered by the equipment; connecting the equipment to telemetry systems and assuring the proper operation of the systems; gathering and transporting samples to the laboratory for analysis; receiving and recording sample analysis data; and reporting routinely to the Monitoring Program Manager Division Supervisor any issues or recommendations.

11.3.3 ES Positions

Under the direction of the Engineering/Planning Division Supervisor, an ES manages and conducts work to support the Engineering Division. Staff classified as ES fulfill the duties and responsibilities of the following positions:

- a. **Engineer**
The Engineer performs engineering research, emission calculation and permit work to assure compliance with clean air standards, rules and regulations. This work includes: reviewing, drafting and issuing orders of approval (permits) for new sources of air pollution; issuing outdoor burning permits; reviewing asbestos and demolition notifications and dust control plans; conducting State Environmental Policy Act (SEPA) reviews and determinations; processing minor source registrations; processing and quality assuring emission inventories; preparing attainment and maintenance plans, Air Operating Permit Program, and rule development. The Engineer also provides technical expertise to other agency work and reports routinely to the Division Supervisor any issues or recommendations.
- b. **Planner**
The planner conducts work to gather and analyze information and data in development of rules, regulations, decisions and plans to ensure compliance with federal, state and local laws and regulations. This work includes: analyzing air monitor data; preparing area source emission inventories; quality assuring stationary source emission inventories; processing comments for SEPA projects; determining burn ban status; allocating agricultural and other burning; drafting rules and plans; and providing information and data to the Director and Division Supervisors to improve the effectiveness of agency programs.

11.3.4 AS Positions

Under the direction of the Director or a Supervisor, an AS manages and conducts administrative work to support the Executive, Compliance/Air Monitoring and Engineering/Planning Divisions. Staff classified as AS fulfill the duties and responsibilities of the following positions:

a. Program Managers

Program Managers are responsible for managing and effectively attaining the goals and objectives of administrative systems and programs that make up the overall agency operations.

i. Fiscal Programs Manager

The Manager is responsible for managing all work necessary to meet the objective of maintaining agency accounting books and records and assuring all fiscal activities comply with legal and policy requirements. The work includes: overseeing employee timekeeping; processing payroll; receiving and accounting for accounts receivable; disbursing and accounting for accounts payable; maintaining asset inventories; assuring accounting software is up-to-date; assisting in budget preparation; establishing and updating accounting policies and procedures. The Manager reports directly to the Director.

ii. Public Information Program Manager

The Manager is responsible for managing all work necessary to meet the objective of providing accurate information to the public regarding air pollution and its effects on public health and the environment, including woodstove education, and stressing pollution prevention, waste reduction, and recycling. The work includes: liaison with the media, local and public agencies, and the community as a whole; seeking grant opportunities that will enable air quality improvement; coordinating grant implementation; creating and distributing brochures, newsletters, and media releases; setting up and operating a public display booth at local events; distributing daily burn information and other advisories; and responding to citizen inquiries.

The Manager represents the agency on public information, education and outreach issues to the regulated community, State, Federal and Local government, and to the Northwest Air Communicators group. The Manager reports directly to the Director.

iii. Information Technology Manager

The Manager is responsible for managing all work necessary to meet the objective of developing, installing and maintaining computer systems and applications to enhance the effectiveness of agency programs. The work includes: establishing and maintaining computer work stations for all staff; establishing and maintaining a local area network and central server; installing and updating system software; installing and maintaining internal and external hardware; maintaining automated phone system; development and maintenance of agency website; and providing user help.

The Manager represents the agency on information technology issues to the regulated community and to State, Federal and Local government. The Manager reports directly to the Director.

iv. Office Manager

The Office Manager provides leadership and is responsible for overseeing all staff conducting administrative and clerical work in the front office. This includes: processing incoming and outgoing mail; attending to phone and in-person contact with the public; implementing good office practices; maintaining central files; maintaining office equipment inventory; routing public to appropriate staff; assuring procurement is in accordance with requirements for public agencies; maintaining currency of mail, fax and email lists; and maintaining receipt and recording of cash. The Manager also has duties and responsibilities as: the Clerk of the Governing Board of Directors; preparing printed materials for Board Meetings, assuring compliance with the Open Public Meetings Act, and acting as liaison for the Board of Directors; Human Resource Manager; assuring policies and procedures comply with State and Federal law; and Public Records Officer; assuring maintenance of public records according to public records retention requirements and making public records available according to the Public Disclosure Act.

The Manager conducts Continuous Improvement Program reviews with front office staff; provides guidance for improvement action plans; monitors progress of action plans; and acknowledges achievements. The Manager reports directly to the Director.

11.3.5 Administrative Assistants

The Assistant conducts work in support of a specific program or Division, in addition to conducting front office duties for all agency business. The Assistant performs administrative functions in a variety of skilled secretarial and administrative tasks for their program or Division and for other staff. The assistant is often the initial point of contact for the public, projecting a pleasant, helpful image of the agency.

- a. Compliance/Air Monitoring Division Assistant
The Assistant conducts administrative work to support the objectives of programs within the Compliance/Air Monitoring Division. The work includes: maintaining a database; receiving and routing mail, phone calls, faxes and email; responding to citizen inquiries; processing permit applications, notices and plans; processing and tracking enforcement actions; receiving and routing citizen complaints. The Assistant also acts as back-up for the other Assistants in their absence and reports to the Division Supervisor and Office Manager.
- b. Engineering and Planning Division Assistant
The Assistant conducts administrative work to support the objectives of programs within the Engineering/Planning Division. The work includes: maintaining a database; receiving and routing mail, phone calls, faxes and email; responding to citizen inquiries; processing permit applications, notices and plans; processing and receiving and routing citizen complaints. The Assistant also acts as back-up for the other Assistants in their absence and reports to the Division Supervisor and Office Manager.
- c. Enterprise Program Assistant
The Assistant conducts administrative work to support the objectives of the Enterprise Program. The work includes: acquiring and scheduling event sites; mailing out and receiving registration forms; receiving and accounting for fee

payments; maintaining a customer database; receiving and routing mail, phone calls, faxes and email; responding to customer inquiries; processing permit applications, notices and plans; receiving and routing citizen complaints. The Assistant also acts as back-up for the other Assistants in their absence and reports to the Division Supervisor and Office Manager.

d. Office Assistant

The Assistant conducts administrative work to support the objectives of programs within the Executive Division. The work includes: maintaining a database; receiving and routing mail, phone calls, faxes and email; responding to citizen inquiries; processing permit applications, notices and plans; receiving and routing citizen complaints; maintaining filing systems; processing receipts and deposits; and relieves the Office Manager of simple administrative tasks. The Assistant also acts as back-up for the other Assistants in their absence and reports to the Office Manager.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Appendix C YRCAA Longevity Pay Scale															
2	DSIII															
3	Code	\$/month	\$/year	\$/hr.	Code	\$/month	\$/year	\$/hr.	Code	\$/month	\$/year	\$/hr.	Code	\$/month	\$/year	\$/hr.
4	L1	\$ 5,502	\$66,024	\$ 31.74	L6	\$ 5,686	\$ 68,231	\$ 32.80	L11	\$ 5,870	\$ 70,438	\$ 33.86	L16	\$ 6,054	\$ 72,645	\$ 34.93
5	L2	\$ 5,539	\$66,466	\$ 31.95	L7	\$ 5,723	\$ 68,672	\$ 33.02	L12	\$ 5,907	\$ 70,879	\$ 34.08	L17	\$ 6,090	\$ 73,086	\$ 35.14
6	L3	\$ 5,576	\$66,907	\$ 32.17	L8	\$ 5,759	\$ 69,114	\$ 33.23	L13	\$ 5,943	\$ 71,321	\$ 34.29	L18	\$ 6,127	\$ 73,527	\$ 35.35
7	L4	\$ 5,612	\$67,348	\$ 32.38	L9	\$ 5,796	\$ 69,555	\$ 33.44	L14	\$ 5,980	\$ 71,762	\$ 34.50	L19	\$ 6,164	\$ 73,969	\$ 35.56
8	L5	\$ 5,649	\$67,790	\$ 32.59	L10	\$ 5,833	\$ 69,997	\$ 33.65	L15	\$ 6,017	\$ 72,203	\$ 34.71	L20	\$ 6,201	\$ 74,410	\$ 35.77
9																
10	L21	\$ 6,238	\$74,851	\$ 35.99	L26	\$ 6,422	\$ 77,058	\$ 37.05	L31	\$ 6,605	\$ 79,265	\$ 38.11	L36	\$ 6,789	\$ 81,472	\$ 39.17
11	L22	\$ 6,274	\$75,293	\$ 36.20	L27	\$ 6,458	\$ 77,499	\$ 37.26	L32	\$ 6,642	\$ 79,706	\$ 38.32	L37	\$ 6,826	\$ 81,913	\$ 39.38
12	L23	\$ 6,311	\$75,734	\$ 36.41	L28	\$ 6,495	\$ 77,941	\$ 37.47	L33	\$ 6,679	\$ 80,148	\$ 38.53	L38	\$ 6,863	\$ 82,354	\$ 39.59
13	L24	\$ 6,348	\$76,175	\$ 36.62	L29	\$ 6,532	\$ 78,382	\$ 37.68	L34	\$ 6,716	\$ 80,589	\$ 38.74	L39	\$ 6,900	\$ 82,796	\$ 39.81
14	L25	\$ 6,385	\$76,617	\$ 36.83	L30	\$ 6,569	\$ 78,824	\$ 37.90	L35	\$ 6,753	\$ 81,030	\$ 38.96	L40	\$ 6,936	\$ 83,237	\$ 40.02
15	ESIII															
16	L1	\$ 4,520	\$54,242	\$ 26.08	L6	\$ 4,704	\$ 56,449	\$ 27.14	L11	\$ 4,888	\$ 58,656	\$ 28.20	L16	\$ 5,072	\$ 60,863	\$ 29.26
17	L2	\$ 4,557	\$54,684	\$ 26.29	L7	\$ 4,741	\$ 56,890	\$ 27.35	L12	\$ 4,925	\$ 59,097	\$ 28.41	L17	\$ 5,109	\$ 61,304	\$ 29.47
18	L3	\$ 4,594	\$55,125	\$ 26.50	L8	\$ 4,778	\$ 57,332	\$ 27.56	L13	\$ 4,962	\$ 59,539	\$ 28.62	L18	\$ 5,145	\$ 61,745	\$ 29.69
19	L4	\$ 4,631	\$55,566	\$ 26.71	L9	\$ 4,814	\$ 57,773	\$ 27.78	L14	\$ 4,998	\$ 59,980	\$ 28.84	L19	\$ 5,182	\$ 62,187	\$ 29.90
20	L5	\$ 4,667	\$56,008	\$ 26.93	L10	\$ 4,851	\$ 58,215	\$ 27.99	L15	\$ 5,035	\$ 60,421	\$ 29.05	L20	\$ 5,219	\$ 62,628	\$ 30.11
21																
22	L21	\$ 5,256	\$63,069	\$ 30.32	L26	\$ 5,440	\$ 65,276	\$ 31.38	L31	\$ 5,624	\$ 67,483	\$ 32.44	L36	\$ 5,807	\$ 69,690	\$ 33.50
23	L22	\$ 5,293	\$63,511	\$ 30.53	L27	\$ 5,476	\$ 65,717	\$ 31.59	L32	\$ 5,660	\$ 67,924	\$ 32.66	L37	\$ 5,844	\$ 70,131	\$ 33.72
24	L23	\$ 5,329	\$63,952	\$ 30.75	L28	\$ 5,513	\$ 66,159	\$ 31.81	L33	\$ 5,697	\$ 68,366	\$ 32.87	L38	\$ 5,881	\$ 70,572	\$ 33.93
25	L24	\$ 5,366	\$64,393	\$ 30.96	L29	\$ 5,550	\$ 66,600	\$ 32.02	L34	\$ 5,734	\$ 68,807	\$ 33.08	L39	\$ 5,918	\$ 71,014	\$ 34.14
26	L25	\$ 5,403	\$64,835	\$ 31.17	L30	\$ 5,587	\$ 67,042	\$ 32.23	L35	\$ 5,771	\$ 69,248	\$ 33.29	L40	\$ 5,955	\$ 71,455	\$ 34.35
27	AQSI															
28	L1	\$ 3,863	\$46,359	\$ 22.29	L6	\$ 4,047	\$ 48,566	\$ 23.35	L11	\$ 4,231	\$ 50,773	\$ 24.41	L16	\$ 4,415	\$ 52,980	\$ 25.47
29	L2	\$ 3,900	\$46,801	\$ 22.50	L7	\$ 4,084	\$ 49,007	\$ 23.56	L12	\$ 4,268	\$ 51,214	\$ 24.62	L17	\$ 4,452	\$ 53,421	\$ 25.68
30	L3	\$ 3,937	\$47,242	\$ 22.71	L8	\$ 4,121	\$ 49,449	\$ 23.77	L13	\$ 4,305	\$ 51,656	\$ 24.83	L18	\$ 4,489	\$ 53,862	\$ 25.90
31	L4	\$ 3,974	\$47,683	\$ 22.92	L9	\$ 4,158	\$ 49,890	\$ 23.99	L14	\$ 4,341	\$ 52,097	\$ 25.05	L19	\$ 4,525	\$ 54,304	\$ 26.11
32	L5	\$ 4,010	\$48,125	\$ 23.14	L10	\$ 4,194	\$ 50,332	\$ 24.20	L15	\$ 4,378	\$ 52,538	\$ 25.26	L20	\$ 4,562	\$ 54,745	\$ 26.32
33																
34	L21	\$ 4,599	\$55,186	\$ 26.53	L26	\$ 4,783	\$ 57,393	\$ 27.59	L31	\$ 4,967	\$ 59,600	\$ 28.65	L36	\$ 5,151	\$ 61,807	\$ 29.71
35	L22	\$ 4,636	\$55,628	\$ 26.74	L27	\$ 4,820	\$ 57,834	\$ 27.81	L32	\$ 5,003	\$ 60,041	\$ 28.87	L37	\$ 5,187	\$ 62,248	\$ 29.93
36	L23	\$ 4,672	\$56,069	\$ 26.96	L28	\$ 4,856	\$ 58,276	\$ 28.02	L33	\$ 5,040	\$ 60,483	\$ 29.08	L38	\$ 5,224	\$ 62,689	\$ 30.14

	A	B	C	D	E	F	G	Page 51 of 63	J	K	L	M	N	O	P	
37	L24	\$ 4,709	\$56,510	\$ 27.17	L29	\$ 4,893	\$ 58,717	\$ 28.23	L34	\$ 5,077	\$ 60,924	\$ 29.29	L39	\$ 5,261	\$ 63,131	\$ 30.35
38	L25	\$ 4,746	\$56,952	\$ 27.38	L30	\$ 4,930	\$ 59,159	\$ 28.44	L35	\$ 5,114	\$ 61,365	\$ 29.50	L40	\$ 5,298	\$ 63,572	\$ 30.56
39																
40																
41	Appendix C YRCAA Longevity Pay Scale															
42	ASIII															
43	L1	\$ 3,572	\$42,862	\$ 20.61	L6	\$ 3,756	\$ 45,069	\$ 21.67	L11	\$ 3,940	\$ 47,276	\$ 22.73	L16	\$ 4,124	\$ 49,483	\$ 23.79
44	L2	\$ 3,609	\$43,304	\$ 20.82	L7	\$ 3,793	\$ 45,510	\$ 21.88	L12	\$ 3,976	\$ 47,717	\$ 22.94	L17	\$ 4,160	\$ 49,924	\$ 24.00
45	L3	\$ 3,645	\$43,745	\$ 21.03	L8	\$ 3,829	\$ 45,952	\$ 22.09	L13	\$ 4,013	\$ 48,159	\$ 23.15	L18	\$ 4,197	\$ 50,365	\$ 24.21
46	L4	\$ 3,682	\$44,186	\$ 21.24	L9	\$ 3,866	\$ 46,393	\$ 22.30	L14	\$ 4,050	\$ 48,600	\$ 23.37	L19	\$ 4,234	\$ 50,807	\$ 24.43
47	L5	\$ 3,719	\$44,628	\$ 21.46	L10	\$ 3,903	\$ 46,835	\$ 22.52	L15	\$ 4,087	\$ 49,041	\$ 23.58	L20	\$ 4,271	\$ 51,248	\$ 24.64
48																
49	L21	\$ 4,307	\$51,689	\$ 24.85	L26	\$ 4,491	\$ 53,896	\$ 25.91	L31	\$ 4,675	\$ 56,103	\$ 26.97	L36	\$ 4,859	\$ 58,310	\$ 28.03
50	L22	\$ 4,344	\$52,131	\$ 25.06	L27	\$ 4,528	\$ 54,337	\$ 26.12	L32	\$ 4,712	\$ 56,544	\$ 27.18	L37	\$ 4,896	\$ 58,751	\$ 28.25
51	L23	\$ 4,381	\$52,572	\$ 25.28	L28	\$ 4,565	\$ 54,779	\$ 26.34	L33	\$ 4,749	\$ 56,986	\$ 27.40	L38	\$ 4,933	\$ 59,192	\$ 28.46
52	L24	\$ 4,418	\$53,013	\$ 25.49	L29	\$ 4,602	\$ 55,220	\$ 26.55	L34	\$ 4,786	\$ 57,427	\$ 27.61	L39	\$ 4,969	\$ 59,634	\$ 28.67
53	L25	\$ 4,455	\$53,455	\$ 25.70	L30	\$ 4,638	\$ 55,662	\$ 26.76	L35	\$ 4,822	\$ 57,868	\$ 27.82	L40	\$ 5,006	\$ 60,075	\$ 28.88
54	AAIII															
55	L1	\$ 2,716	\$32,591	\$ 15.67	L6	\$ 2,900	\$ 34,798	\$ 16.73	L11	\$ 3,084	\$ 37,005	\$ 17.79	L16	\$ 3,268	\$ 39,212	\$ 18.85
56	L2	\$ 2,753	\$33,033	\$ 15.88	L7	\$ 2,937	\$ 35,239	\$ 16.94	L12	\$ 3,121	\$ 37,446	\$ 18.00	L17	\$ 3,304	\$ 39,653	\$ 19.06
57	L3	\$ 2,790	\$33,474	\$ 16.09	L8	\$ 2,973	\$ 35,681	\$ 17.15	L13	\$ 3,157	\$ 37,888	\$ 18.22	L18	\$ 3,341	\$ 40,094	\$ 19.28
58	L4	\$ 2,826	\$33,915	\$ 16.31	L9	\$ 3,010	\$ 36,122	\$ 17.37	L14	\$ 3,194	\$ 38,329	\$ 18.43	L19	\$ 3,378	\$ 40,536	\$ 19.49
59	L5	\$ 2,863	\$34,357	\$ 16.52	L10	\$ 3,047	\$ 36,564	\$ 17.58	L15	\$ 3,231	\$ 38,770	\$ 18.64	L20	\$ 3,415	\$ 40,977	\$ 19.70
60																
61	L21	\$ 3,452	\$41,418	\$ 19.91	L26	\$ 3,635	\$ 43,625	\$ 20.97	L31	\$ 3,819	\$ 45,832	\$ 22.03	L36	\$ 4,003	\$ 48,039	\$ 23.10
62	L22	\$ 3,488	\$41,860	\$ 20.12	L27	\$ 3,672	\$ 44,066	\$ 21.19	L32	\$ 3,856	\$ 46,273	\$ 22.25	L37	\$ 4,040	\$ 48,480	\$ 23.31
63	L23	\$ 3,525	\$42,301	\$ 20.34	L28	\$ 3,709	\$ 44,508	\$ 21.40	L33	\$ 3,893	\$ 46,715	\$ 22.46	L38	\$ 4,077	\$ 48,921	\$ 23.52
64	L24	\$ 3,562	\$42,742	\$ 20.55	L29	\$ 3,746	\$ 44,949	\$ 21.61	L34	\$ 3,930	\$ 47,156	\$ 22.67	L39	\$ 4,114	\$ 49,363	\$ 23.73
65	L25	\$ 3,599	\$43,184	\$ 20.76	L30	\$ 3,783	\$ 45,391	\$ 21.82	L35	\$ 3,966	\$ 47,597	\$ 22.88	L40	\$ 4,150	\$ 49,804	\$ 23.94
66																

9.1 Compensation and Payroll Policies

9.1.1

The position pay scale will be by step increases. The step increases will be considered for approval by the Board of Directors, every 3 years. The step increases will be by steps and for each level. Each step beginning with step 2 will have an increase 2.5%. The fifth step will have an increase of 3.5%, which includes a 1% increase above 2.5%, for longevity.

These step increases will encompass a beginning salary for a new hire to the agency in each position (step 1). The increases will be based on 3 years of experience and will top out at 15 years at step 5.

If an employee is at the top step (step 5), the Director will bring to the Board of Directors a proposed increase for that position. The Director will use the most current CPI (Seattle/Tacoma) as a guide to the percentage increase of salary for that position.

The director will add that increase to the step 5 salary in the Pay Scale for that position, if approved by the board.

If a new position is created by the Board of Directors; In determining a starting salary, the Director will consider the average pay for a starting employee in the same position. This can be done by using comparable wages from the other Clean Air Agencies.

The Director can consider experience, training, knowledge, and education to start a new hire in a step other than step 1.

The Agency's Board of Directors will retain the ultimate discretion to grant a pay increase.

YRCAA PAY SCALE

Position	Step 1	Step 2	Step 3	Step 4	Step 5
Admin Specialist	2.5% *	2.5%	2.5%	2.5%	3.5% **
AS 1	\$2,956	\$3,030	\$3,106	\$3,184	\$3,295
AS 2	\$3,377	\$3,461	\$3,548	\$3,637	\$3,764
AS 3	\$3,858	\$3,954	\$4,053	\$4,154	\$4,299

Position	Step 1	Step 2	Step 3	Step 4	Step 5
Air Quality Specialist	2.5% *	2.5%	2.5%	2.5%	3.5%
AQS 1	\$3,333	\$3,416	\$3,589	\$3,679	\$3,808
AQS 2	\$3,903	\$4,001	\$4,101	\$4,203	\$4,350
AQS 3	\$4,458	\$4,569	\$4,683	\$4,800	\$4,968

Position	Step 1	Step 2	Step 3	Step 4	Step 5
Air Quality Specialist Supervisor	10% for sup pay (2.5% sup position2)	2.5%	2.5%	2.5%	3.5%
AQS 1 Sup	\$5,465	\$5,602	\$5,742	\$5,885	\$6,091
AQS 2 Sup	\$6,243	\$6,399	\$6,559	\$6,723	\$6,958

Position	Step 1	Step 2	Step 3	Step 4	Step 5
Engineering Supervisor	2.5% *	2.5 %	2.5 %	2.5%	3.5%
DS 3	\$6,				

% increase is for level 2 step 1 in listed positions *

% increase is accounting for longevity **

(Incomplete draft)

ACTION

ITEMS



Yakima Regional Clean Air Agency
186 Iron Horse Court, Suite 101
Yakima, WA 98901
(509) 834-2050, Fax (509) 834-2060
yakimacleanair.org

Executive Memorandum

Date of Release: April 7, 2022
Date of Consideration: April 14, 2022
To: Honorable YRCAA Board of Directors and Alternates
From: Office of the Executive Director / Air pollution Control Officer
Subject: Fiscal Program Report

Issue:
Fiscal Reports

Discussion:
March 2022 Accounts Payable (AP) and Payroll Authorizations are enclosed for your approval. The Budget Verification Analysis (BVA) and Supplemental Income documents are included as informational items.

Recommendation:
Accept and approve by minute action the March 2022 AP Fiscal Vouchers, totaling \$120,162.85, and the March 2022 Payroll Authorization, totaling \$48,112.44.

Encl. 4



March 30, 2022

Fund 614-6140 YRCAA
Fund 614-1410 Enterprise

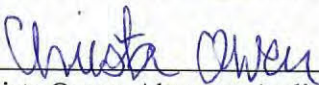
<u>Name</u>	<u>Warrant/MICR #</u>	<u>GL #</u>	<u>Amount</u>	<u>Date</u>
Abadan Reprographics	35098	4801	\$ 80.39	3/31/2022
Alliant Communications	35099	4101	\$ 319.14	3/31/2022
Armstrong's Stove & Spa Yakima*	35100	4105	\$ 23,979.43	3/31/2022
Atteberry, Crystal*	35101	4105	\$ 4,000.00	3/31/2022
Bangs, Rick*	35102	4105	\$ 1,500.00	3/31/2022
Brookshire, Carl**	35103	4306	\$ 546.25	3/31/2022
Capital Press	35104	4901	\$ 65.00	3/31/2022
Coastal*	35105	4105	\$ 3,528.83	3/31/2022
Edler, Mark**	35106	4306	\$ 546.25	3/31/2022
Farwest Climate Control*	35107	4105	\$ 6,883.92	3/31/2022
Fosseen's Home & Health*	35108	4105	\$ 20,468.24	3/31/2022
Goodpaster, Steven*	35109	4105	\$ 2,000.00	3/31/2022
Howard, Stephanie*	35110	4105	\$ 2,000.00	3/31/2022
Yakima County Sheriff's Department	35111	4101	\$ 89.04	3/31/2022
Iron Horse Real Estate & Property Mgt	35112	4501	\$ 413.98	3/31/2022
J & K Wood & Pellet*	35113	4105	\$ 2,400.00	3/31/2022
Jordan, Thomas*	35114	4105	\$ 100.00	3/31/2022
KeyBank**	35115	Various	\$ 1,484.99	3/31/2022
Menke Jackson Law Firm	35116	4101	\$ 5,005.54	3/31/2022
Pacific Power	35117	4701	\$ 167.88	3/31/2022
Terrace Heights Sewer District	35118	4701	\$ 100.00	3/31/2022
Travis Trudell*	35119	4105	\$ 2,457.87	3/31/2022
Trudell, William*	35120	4105	\$ 250.00	3/31/2022
YRCAA	35121	4901	\$ 984.87	3/31/2022

\$ 79,371.62

***Reimbursement from Grant **NOC/Enterprise**

This is to certify that the invoices and warrants above for the Yakima Regional Clean Air Agency have been examined, audited and approved by the Alternate Auditing Officer for payment.

Total Amount: **\$ 79,371.62**


Christa Owen, Alternate Auditing Officer 3/31/2022

4/14/2022
Jon DeVaney, Board Chairman



3/31/2022
Hasan M. Tahat, Interim Auditing Officer



March 8, 2022

Fund 614-6140 YRCAA
Fund 614-1410 Enterprise


<u>Name</u>	<u>Warrant/MICR #</u>	<u>GL #</u>	<u>Amount</u>	<u>Date</u>
Absolute Comfort Technology, LLC*	35081	4105	\$ 7,000.00	03/10/2022
Catholic Charities Volunteer Services*	35082	4105	\$ 250.00	03/10/2022
Charter Communications	35083	4201	\$ 422.91	03/10/2022
Coastal*	35084	4105	\$ 3,118.80	03/10/2022
Coleman Oil Company	35085	3201	\$ 67.46	03/10/2022
Cuillier Law Office	35086	4101	\$ 356.50	03/10/2022
DOE – Oversight Fees	35087	4902	\$ 3,531.00	03/10/2022
Invisible Ink	35088	4101	\$ 33.75	03/10/2022
Iron Horse Real Estate & Property Mgt	35089	4501	\$ 4,776.83	03/10/2022
KCYU*	35090	4105	\$ 5,000.00	03/10/2022
Jason Phinney*	35091	4105	\$ 2,000.00	03/10/2022
Pitney Bowes Global Financial Services	35092	4501	\$ 242.58	03/10/2022
Jillana Scott*	35093	4105	\$ 2,000.00	03/10/2022
Telemundo*	35094	4105	\$ 5,000.00	03/10/2022
Tina Temple*	35095	4105	\$ 2,000.00	03/10/2022
Travis Trudell*	35096	4105	\$ 2,599.20	03/10/2022
Tri-Ply Construction	35097	4802	\$ 2,392.20	03/10/2022

\$ 40,791.23

***Reimbursement from Grant **NOC/Enterprise**

This is to certify that the invoices and warrants above for the Yakima Regional Clean Air Agency have been examined, audited and approved by the Alternate Auditing Officer for payment.

Total Amount: **\$ 40,791.23**



Christa Owen, Alternate Auditing Officer 3/8/2022

4/14/2022
Jon DeVaney, Board Chairman



3/10/2022
Hasan M. Tahat, Interim Auditing Officer

FY 2022 Monthly BVA

March 2022						
Report Date: April 14, 2022		Budget	Actual Current	Actual Year to Date	Year to Date % of Budget	
REVENUE						
REVENUE 614 YRCAA Base Operations						
Stationary Source Permit Fees						
614-32190001	Minor Sources	\$ 158,097	\$ 37,035	\$ 101,217	64.0%	
614-32190008	Synthetic Minor Sources	\$ 18,620	\$ 5,644	\$ 8,466	45.5%	
614-32190006	Complex Sources	\$ 30,840	\$ 9,569	\$ 15,037	48.8%	
614-32290001	Title V Sources	\$ 107,000	\$ -	\$ 131,510	122.9%	
614-32190002	New Source Review	\$ 35,500	\$ 4,860	\$ 32,588	91.8%	
	<i>Subtotal, Stationary Source Permit Fees</i>	<i>\$ 350,057</i>	<i>\$ 57,108</i>	<i>\$ 288,818</i>	<i>82.5%</i>	
Burn Permit Fees						
614-32290005	Residential Burn Permits	\$ 60,500	\$ 2,550	\$ 14,070	23.3%	
614-32290007	Agricultural Burn Permits	\$ 32,250	\$ 2,363	\$ 12,857	39.9%	
614-32290011	Conditional Use Burn Permits	\$ 2,000	\$ 968	\$ 1,643	82.2%	
	<i>Subtotal, Burn Permit Fees</i>	<i>\$ 94,750</i>	<i>\$ 5,881</i>	<i>\$ 28,570</i>	<i>30.2%</i>	
Compliance Fees						
614-32190005	Asbestos Removal Fees	\$ 31,000	\$ 3,210	\$ 16,680	53.8%	
614-32190009	Construction Dust Control Fees	\$ 5,000	\$ 1,044	\$ 4,694	93.9%	
	<i>Subtotal, Compliance Fees</i>	<i>\$ 36,000</i>	<i>\$ 4,254</i>	<i>\$ 21,374</i>	<i>59.4%</i>	
	<i>Subtotal, All Permit Fee Revenue</i>	<i>\$ 480,807</i>	<i>\$ 67,243</i>	<i>\$ 338,762</i>	<i>70.5%</i>	
Base Grants						
614-33366001	EPA, Core Grant	\$ 106,322	\$ -	\$ 80,658	75.9%	
614-33403101	DOE, Core Grant	\$ 76,800	\$ -	\$ 57,866	75.3%	
	<i>Subtotal, Base Grants</i>	<i>\$ 183,122</i>	<i>\$ -</i>	<i>\$ 138,525</i>	<i>75.6%</i>	
Fines & Penalties						
614-35990001	Civil Penalty	\$ 2,500	\$ 5,814	\$ 40,363		
614-35990001	Other Fines	\$ -	\$ -	\$ -		
	<i>Subtotal, Fines & Penalties</i>	<i>\$ 2,500</i>	<i>\$ 5,814</i>	<i>\$ 40,363</i>		
Supplemental Income						
614-33831001	Supplemental Income	\$ 102,090	\$ 13,617	\$ 99,369	97.3%	
	<i>Subtotal, Supplemental Income</i>	<i>\$ 102,090</i>	<i>\$ 13,617</i>	<i>\$ 99,369</i>	<i>97.3%</i>	
Other Income						
614-36111001	Interest	\$ 3,500	\$ 341	\$ 2,716	77.6%	
614-36990014	Miscellaneous Income	\$ 75	\$ -	\$ 9,455	12607.1%	
	<i>Subtotal, Other Income</i>	<i>\$ 3,575</i>	<i>\$ 341</i>	<i>\$ 12,171</i>	<i>340.5%</i>	
	<i>Total YRCAA Base Operations Revenue</i>	<i>\$ 772,094</i>	<i>\$ 87,015</i>	<i>\$ 629,189</i>	<i>81.5%</i>	
REVENUE 614 YRCAA Grant Operations						
614-33403105	Wood Stove Ed	\$ 4,588	\$ 1,751	\$ 4,350	94.8%	
614-33403108	PM 2.5	\$ 21,050	\$ -	\$ 15,788	75.0%	
614-33403107	Woodstove Change-out	\$ 292,334	\$ 126,588	\$ 240,110	82.1%	
	<i>Total YRCAA Grant Operations Revenue</i>	<i>\$ 317,972</i>	<i>\$ 128,339</i>	<i>\$ 260,247</i>	<i>81.8%</i>	
REVENUE Enterprise Operations						
614-34317001	VE Certification Fees	\$ 80,000	\$ 592	\$ 37,183	46.5%	
614-34317002	Other Enterprise Revenue	\$ -	\$ -	\$ -	#DIV/0!	
	<i>Subtotal, Enterprise Revenue</i>	<i>\$ 80,000</i>	<i>\$ 592</i>	<i>\$ 37,183</i>	<i>46.5%</i>	
	<i>Total Base, Grant and Enterprise Revenue</i>	<i>\$ 1,170,066</i>	<i>\$ 215,946</i>	<i>\$ 926,620</i>	<i>79.2%</i>	

FY 2022 Monthly BVA

March 2022 Report Date: April 14, 2022	Budget	Actual Current	Actual Year to Date	Year to Date % of Budget
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EXPENSES					
EXPENSES	614	YRCAA Base Operations			
Salaries					
614-1001	Salaries	\$ 424,862	\$ 24,092	\$ 290,282	68.3%
614-2002	Benefits	\$ 143,785	\$ 8,465	\$ 101,991	70.9%
614-1003	Overtime	\$ -	\$ -	\$ -	0.0%
	<i>Subtotal, Salaries</i>	<i>\$ 568,647</i>	<i>\$ 32,556</i>	<i>\$ 392,274</i>	<i>69.0%</i>

Supplies					
614-3101	Office Supplies	\$ 6,500	\$ 417	\$ 4,021	61.9%
614-3101	Safety Equipment	\$ 300	\$ -	\$ -	0.0%
614-3201	Vehicles, Gas	\$ 1,500	\$ 67	\$ 998	66.5%
614-3501	Small Tools/Equipment	\$ 200	\$ -	\$ 1,059	529.5%
614-3502	Computer Network	\$ 3,000	\$ 83	\$ 1,313	43.8%
	<i>Subtotal, Supplies</i>	<i>\$ 11,500</i>	<i>\$ 568</i>	<i>\$ 7,392</i>	<i>64.3%</i>

Services					
614-4101	Professional Services	\$ 55,000	\$ 6,445	\$ 62,538	113.7%
614-4101	Laboratory Analyses	\$ 500	\$ -	\$ -	0.0%
614-4192	Yakima County Services	\$ 900	\$ -	\$ 737	81.8%
614-4201	Communications, Phones/Internet	\$ 12,491	\$ 461	\$ 5,578	44.7%
614-4202	Postage	\$ 2,850	\$ -	\$ 1,078	37.8%
614-4301	Travel & Transportation	\$ 3,200	\$ -	\$ -	0.0%
614-4401	Public Education	\$ 2,000	\$ -	\$ 1,102	55.1%
614-4401	Publications, Legal Notices	\$ 1,000	\$ -	\$ 35	3.5%
614-4501	Rents & Leases, Equipment	\$ 3,294	\$ 243	\$ 728	22.1%
614-4501	Rents & Leases, Space	\$ 53,851	\$ 5,191	\$ 43,196	80.2%
614-4601	Insurance	\$ 14,124	\$ -	\$ 15,720	111.3%
614-4701	Utilities	\$ 4,500	\$ 268	\$ 3,324	0.0%
614-4801	Maintenance, Motor Vehicles	\$ 1,200	\$ 14	\$ 1,362	113.5%
614-4801	Maintenance, Equipment	\$ 2,000	\$ 80	\$ 5,780	289.0%
614-4801	Maintenance, Computers	\$ 750	\$ -	\$ 316	42.2%
614-4801	Maintenance, Building	\$ 500	\$ 2,392	\$ 2,905	580.9%
614-4901	Memberships	\$ 915	\$ 79	\$ 532	58.2%
614-4901	Training	\$ 2,500	\$ 269	\$ 754	30.2%
614-4901	Service Chgs & Interest	\$ 6,600	\$ 985	\$ 5,015	76.0%
614-4901	Miscellaneous Services	\$ 4,000	\$ -	\$ 15	0.4%
614-4901	DOE Oversight Fees	\$ 4,500	\$ 3,531	\$ 3,531	78.5%
	<i>Subtotal, Services</i>	<i>\$ 176,675</i>	<i>\$ 19,957</i>	<i>\$ 154,245</i>	<i>87.3%</i>

Capital Out-Lay & Fixed Assets					
614-6401	Capital Out-Lay/Fixed Assets	\$ -	\$ -	\$ -	0.0%
	<i>Total YRCAA Base Operations Expenses</i>	<i>\$ 756,822</i>	<i>\$ 53,081</i>	<i>\$ 553,910</i>	<i>73.2%</i>

EXPENSES	614	YRCAA Grant Operations			
	614-33403105	Wood Stove Ed			
Salaries					
614-1001	Salaries	\$ 3,399	\$ 284	\$ 2,365	69.6%
614-2002	Benefits	\$ 1,189	\$ 100	\$ 831	69.9%
614-1003	Overtime	\$ -	\$ -	\$ -	0.0%
	<i>Subtotal, Salaries</i>	<i>\$ 4,588</i>	<i>\$ 383</i>	<i>\$ 3,196</i>	<i>69.7%</i>

Supplies					
614-3101	Office Supplies	\$ -	\$ -	\$ -	0.0%
	<i>Subtotal, Supplies</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>0.0%</i>

FY 2022 Monthly BVA

March 2022 Report Date: April 14, 2022		Budget	Actual Current	Actual Year to Date	Year to Date % of Budget
Services					
614-4139	Professional Services	\$ -	\$ -	\$ 470	#DIV/0!
614-4202	Postage	\$ -	\$ -	\$ -	0.0%
	<i>Subtotal, Services</i>	\$ -	\$ -	\$ 470	#DIV/0!
	<i>Subtotal, Woodstove Grant Expenses</i>	\$ 4,588	\$ 383	\$ 3,666	79.9%
614-33403108 PM2.5					
Salaries					
614-1001	Salaries	\$ 15,270	\$ -	\$ 11,167	73.1%
614-2002	Benefits	\$ 5,780	\$ -	\$ 3,923	67.9%
614-1003	Overtime	\$ -	\$ -	\$ -	0.0%
	<i>Subtotal, Salaries</i>	\$ 21,050	\$ -	\$ 15,090	71.7%
Supplies					
614-3101	Office Supplies	\$ -	\$ -	\$ -	0.0%
	<i>Subtotal, Supplies</i>	\$ -	\$ -	\$ -	0.0%
Services					
614-4101	Professional Services	\$ -	\$ -	\$ -	0.0%
	<i>Subtotal, Services</i>	\$ -	\$ -	\$ -	0.0%
Capital Out-Lay & Fixed Assets					
614-6401	Capital Out-Lay/Fixed Assets	\$ -	\$ -	\$ -	0.0%
	<i>Subtotal, PM 2.5 Grant Expenses</i>	\$ 21,050	\$ -	\$ 15,090	71.7%
614-33403107 Woodstove Change-out					
Salaries					
614-1001	Salaries	\$ 52,750	\$ 5,184	\$ 38,013	72.1%
614-2002	Benefits	\$ 17,583	\$ 1,821	\$ 13,356	76.0%
614-1003	Overtime	\$ -	\$ -	\$ -	0.0%
	<i>Subtotal, Salaries</i>	\$ 70,333	\$ 7,006	\$ 51,369	73.0%
Supplies					
614-3101	Office Supplies	\$ 100	\$ -	\$ -	0.0%
	<i>Subtotal, Supplies</i>	\$ 100	\$ -	\$ -	0.0%
Services					
614-4101	Professional Services	\$ 200,630	\$ 98,536	\$ 546,623	272.5%
	<i>Subtotal, Services</i>	\$ 200,630	\$ 98,536	\$ 546,623	272.5%
Capital Out-Lay & Fixed Assets					
614-6401	Capital Out-Lay/Fixed Assets	\$ -	\$ -	\$ -	0.0%
	<i>Subtotal, Woodstove Change-out Grant Expenses</i>	\$ 271,063	\$ 105,542	\$ 597,992	220.6%
	<i>Total, Grant Operations Expenses</i>	\$ 296,701	\$ 105,925	\$ 616,748	207.9%
EXPENSES 141 Enterprise Operations					
Salaries					
141-1001	Salaries	\$ 12,481	\$ 4,377	\$ 9,146	73.3%
141-2002	Benefits	\$ 4,275	\$ 1,538	\$ 3,213	75.2%
141-1003	Overtime	\$ -	\$ -	\$ -	0.0%
	<i>Subtotal, Salaries</i>	\$ 16,756	\$ 5,915	\$ 12,359	73.8%

FY 2022 Monthly BVA

March 2022						
Report Date: April 14, 2022		Budget	Actual Current	Actual Year to Date	Year to Date % of Budget	
Supplies						
141-3101	Office Supplies	\$ 500	\$ -	\$ 28	5.5%	
141-3201	Vehicles, Gas	\$ 1,000	\$ 9	\$ 472	47.2%	
141-3501	Small Tools/Equipment	\$ 200	\$ -	\$ -	0.0%	
	<i>Subtotal, Supplies</i>	<i>\$ 1,700</i>	<i>\$ 9</i>	<i>\$ 500</i>	<i>29.4%</i>	
Services						
141-4101	Professional Services	\$ 250	\$ -	\$ 475	0.0%	
141-4202	Postage	\$ 200	\$ -	\$ 47	0.0%	
141-4301	Travel & Transportation	\$ 5,150	\$ 1,093	\$ 4,986	96.8%	
141-4501	Rents & Leases, Space	\$ 3,000	\$ -	\$ 1,636	54.5%	
141-4801	Maintenance, Motor Vehicles	\$ 500	\$ -	\$ 68	13.6%	
141-4801	Maintenance, Equipment	\$ 500	\$ -	\$ 293	58.6%	
141-4901	Miscellaneous Services	\$ -	\$ -	\$ -	0.0%	
	<i>Subtotal, Services</i>	<i>\$ 9,600</i>	<i>\$ 1,093</i>	<i>\$ 7,504</i>	<i>78.2%</i>	
Capital Out-Lay & Fixed Assets						
141-4500	Capital Out-Lay/Fixed Assets	\$ -	\$ -	\$ -	0.0%	
	<i>Total Enterprise Operations Expenses</i>	<i>\$ 28,056</i>	<i>\$ 7,016</i>	<i>\$ 20,363</i>	<i>72.6%</i>	
Summary of Revenue vs Expenses:						
	<i>Prior-Year Carry Over Funds</i>	<i>\$ 125,000</i>	<i>\$ -</i>	<i>\$ 125,000</i>		
	<i>Total Revenue, Base, Grants & Enterprise</i>	<i>\$ 1,295,066</i>	<i>\$ 215,946</i>	<i>\$ 1,051,620</i>	<i>81.2%</i>	
	<i>Total Expenses, Base, Grants & Enterprise</i>	<i>\$ 1,081,579</i>	<i>\$ 166,023</i>	<i>\$ 1,191,021</i>	<i>110.1%</i>	
	<i>Fund Balance</i>	<i>\$ 213,487</i>	<i>\$ 49,923</i>	<i>\$ (139,402)</i>		
	<i>Operating Reserves</i>	<i>\$ 88,487</i>				
	<i>Estimated Available Fund Balance</i>	<i>\$ 125,000</i>				

YAKIMA REGIONAL CLEAN AIR AGENCY
SUPPLEMENTAL INCOME STATUS for CY 2022 on March 31, 2022
CY 2022 \$.40 PER CAPITA (Rounded Amounts)

City/Town	Past Due	Assessment Amount	Total Amt Due	Date Received	Amount Received	Balance Due	Responses
Grandview	\$ -	\$ 4,492	\$ 4,492	2/15/2022	\$ 4,492	\$ -	Pd in full
Granger	\$ -	\$ 1,662	\$ 1,662	2/15/2022; 3/31/2022	\$ 831	\$ 831	Pd 1/2
Harrah	\$ -	\$ 272	\$ 272	2/15/2022	\$ 272	\$ -	Pd in full
Mabton	\$ -	\$ 932	\$ 932	2/25/2022	\$ 932	\$ -	Pd in full
Moxee	\$ -	\$ 1,728	\$ 1,728	2/23/2022	\$ 1,728	\$ -	Pd in full
Naches	\$ -	\$ 398	\$ 398	2/24/2022	\$ 398	\$ -	Pd in full
Selah	\$ -	\$ 3,214	\$ 3,214	2/15/2022	\$ 3,214	\$ -	Pd in full
Sunnyside	\$ -	\$ 6,900	\$ 6,900	2/24/2022	\$ 1,725	\$ 5,175	Pd 1/4
Tieton	\$ -	\$ 522	\$ 522	2/15/2022	\$ 522	\$ -	Pd in full
Toppenish	\$ -	\$ 3,652	\$ 3,652	3/23/2022	\$ 3,652	\$ -	Pd in full
Union Gap	\$ -	\$ 2,542	\$ 2,542	2/24/2022	\$ 2,542	\$ -	Pd in full
Wapato	\$ -	\$ 2,022	\$ 2,022	2/11/2022	\$ 506	\$ 1,517	Pd 1/4
City of Yakima	\$ -	\$ 38,196	\$ 38,196	1/20/2022; 3/7/2022	\$ 19,098	\$ 19,098	Pd 1/2
Zillah	\$ -	\$ 1,280	\$ 1,280	2/15/2022	\$ 1,280	\$ -	Pd in full
Yakima Co.	\$ -	\$ 35,468	\$ 35,468	2/24/2022	\$ 35,468	\$ -	Pd in full
Totals:	\$ -	\$ 103,280	\$ 103,280		\$ 76,660	\$ 26,621	