

GOVERNING BOARD

Buddy Mendes, Chair
Supervisor, Fresno County

J. Steven Worthley, Vice Chair
Supervisor, Tulare County

David Ayers
Mayor, City of Hanford

Drew M. Bessinger
Councilmember, City of Clovis

John Capitman, Ph.D.
Appointed by Governor

David Couch
Supervisor, Kern County

Bob Elliott
Supervisor, San Joaquin County

Christina Fugazi
Councilmember, City of Stockton

Kristin Olsen
Supervisor, Stanislaus County

Lloyd Pareira
Supervisor, Merced County

Craig Pedersen
Supervisor, Kings County

Monte Reyes
Councilmember, City of Porterville

Alexander C. Sherriffs, M.D.
Appointed by Governor

Chris Vierra
Mayor, City of Ceres

Tom Wheeler
Supervisor, Madera County

Seyed Sadredin
Executive Director
Air Pollution Control Officer

Northern Region Office
4800 Enterprise Way
Modesto, CA 95356-8718
(209) 557-6400 • FAX (209) 557-6475

Central Region Office
1990 East Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 • FAX (559) 230-6061

Southern Region Office
34946 Flyover Court
Bakersfield, CA 93308-9725
(661) 392-5500 • FAX (661) 392-5585

DATE: February 15, 2018

TO: SJVUAPCD Governing Board



FROM: Seyed Sadredin, Executive Director/APCO
Project Coordinator: Sheraz Gill

RE: **ITEM NUMBER 12: DEVELOPMENT OF NEW PERMITTING PROGRAM FOR COMMERCIAL UNDERFIRED CHARBROILERS**

RECOMMENDATION:

Receive update and provide guidance on development of new permitting program for commercial underfired charbroilers.

BACKGROUND:

For the past two years, the District in consultation with the state Air Resources Board has been working on developing a State Implementation Plan for the federal health-based standards for PM2.5. This work has been conducted through a robust public engagement process, including several public workshops, Public Advisory Workgroup meetings, meetings with various stakeholders, and public hearings before the Governing Board, Citizens Advisory Committee, and the Environmental Justice Advisory Group.

Extensive scientific modeling and air quality analysis indicates that the Valley cannot attain the federal PM2.5 standards without significant reductions in emissions from underfired charbroilers.

The District is currently developing a new measure to reduce emissions from underfired charbroiling in the Valley that will include financial incentives to help fund accelerated deployment of charbroiler emission control technologies in the Valley and a regulatory backstop to encourage participation. As a first step, to enable the District to implement this measure in a cost-effective and expeditious manner, similar to other businesses subject to the District's regulatory measures, the District must initiate permitting of affected operations.

DISCUSSION:

Modeling conducted for the District's latest PM2.5 attainment strategy shows that reducing emissions from underfired charbroiling is most effective in helping bring the Valley into attainment. In fact, based on the modeling conducted by ARB and the District, the benefits that the Valley would realize through reasonable control of charbroilers at a total Valley-wide cost of less than \$35 million are equal to the benefits of imposing draconian NOx control measures on Valley businesses costing \$14 billion.

Under your Board's direction, the District has long strived to maintain an efficient and expedited permitting program at low cost. Permits provide an effective and streamlined method to accomplish the following:

- Identify and inventory significant sources of air pollution
- Provide existing businesses with ongoing advice and direction on continued compliance with applicable requirements
- Provide new businesses with advanced knowledge necessary to plan and design equipment and facilities in compliance with applicable requirements
- Provide District with effective means to enforce applicable requirements
- Urge eligible businesses to take advantage of District incentive grants

The District already permits commercial chain-driven charbroilers. To initiate the permitting of commercial underfired charbroilers, the District must first amend its rules and regulations, and then allow sufficient time for affected facilities to apply for and obtain permits. Subsequent to the required public workshops, your Board will be presented with the necessary elements of the permitting program which would identify the type and size of facilities that would be subject to permit requirements, as well as measures to streamline and minimize the cost for the affected businesses and the District.

DISTRICT WORK TO DATE WITH UNDERFIRED CHARBROILERS:

Since 2002, the District has required the installation and operation of particulate matter control devices on chain-driven commercial charbroilers through District Rule 4692 (Commercial Charbroilers). The unavailability of a feasible and cost-effective control technology has been the barrier to the District's attempt to impose similar requirements for underfired charbroiling operations. Other air districts in California have encountered similar difficulties in identifying and requiring compliant control technologies for underfired charbroilers.

In 2009, the District conducted research and outreach to Valley restaurants to determine whether Rule 4692 applicability could be expanded to include underfired charbroilers and determined that there was a lack of credible and verifiable information necessary to evaluate the costs and reliability in the field of these technologies. Technological feasibility issues and logistical issues requiring further evaluation

included the need and cost associated with extensive hood, exhaust system, and roof modifications as well as the costs associated with installation, maintenance, and labor. To help evaluate these issues, in 2009, your Board directed staff to initiate the Charbroiler Incentive Program (ChIP) and authorized \$500,000 in funding for the program. This program was open for 18 months, however, the program did not receive any applications. With the importance of achieving direct PM2.5 emissions reductions from underfired charbroilers to address ever-tightening federal standards, in 2015 your Board approved changes to the incentive program aimed at removing what were viewed as impediments by restaurant owners. Under the new program, the District formed the Restaurant Charbroiler Technology Partnership (RCTP) and took a more active role in identifying and screening potential technology vendors and reaching out to restaurant owners. The new program committed to provide the full cost of deploying these systems including installation and maintenance and increased funding to \$750,000.

Despite the District's efforts in promoting available funding under the RCTP program, the District has faced difficulty in finding restaurants willing to partner with the District to demonstrate new technologies. To date, only one restaurant, the Habit Burger Grill, has successfully completed two years of demonstration of a Molitron wet scrubber in their Stockton restaurant. Initially, the project experienced hood fan sizing issues, resulting in the restaurant being smoked out and forced to close temporarily. This issue has been addressed and the restaurant has now been successfully operating for about one year with this control device. The Habit Burger Grill has now installed these control devices on seven other new restaurants, with five of these installations in the Valley. The District also recently entered into contract with a new restaurant, Baja Fresh, in Bakersfield with installation anticipated in the near future.

Since 2009, the District has also partnered with the South Coast Air Quality Management District, Bay Area Air Quality Management District, and EPA to further the research and evaluation of emission control technologies for underfired charbroilers. Through this effort, underfired charbroiler technology assessments have been conducted at UC-Riverside College of Engineering's Center for Environmental Research & Technology (CE-CERT). The District provided in-kind technical support and the research was funded with over \$500,000 in contributions provided by South Coast, Bay Area, and EPA. This effort led to the establishment of published testing methodology, South Coast Method 5.1, which has been used as a benchmark methodology to standardize the testing of control efficiencies of kitchen exhaust pollution control units.

In addition to supporting and evaluating Valley-based underfired charbroiler technology demonstrations, District staff conducted an extensive review and assessment of underfired charbroiler control technology regulations and installations in other regions. This review included reaching out to other regulatory agencies, technology manufacturers, the California Restaurant Association, and restaurants both inside and outside of the Valley to better understand the control technologies available for

underfired charbroilers and real-world costs and experiences related to these technologies.

District staff conducted a thorough search and review of regulations adopted by other agencies for underfired charbroiling emissions and contacted these agencies to better understand the requirements and how they have been implemented. Regulations identified include:

- Bay Area Air Quality Management District Regulation 6, Rule 2 (Commercial Cooking Equipment): This rule applies to new and existing restaurants. No restaurants have been subjected to requirements given wide ranging exemptions, lack of enforceability, and lack of approved control devices.
- South Coast Air Quality Management District Rule 1138 (Control of Emissions from Restaurant Operations): This rule applies only to chain-driven charbroilers. Due to lack of demonstrable cost-effective and affordable control technologies, the 2017 South Coast air quality management plan included a rule for underfired charbroilers only as a contingency measure if they fail to reach attainment.
- New York City - Title 24 of the Administrative Code, Section 24-149.4 (Emission Reduction Technologies for Char Broilers): Recently passed in May 2016, this rule requires the installation of control devices certified to provide at least 75% emissions reductions for new restaurants with underfired charbroilers that cook 875 pounds or more of meat per week. Consideration of control requirements for existing units has been pushed back until at least 2019 due to the feasibility questions and higher cost of retrofitting existing operations. New York staff are in the introductory stages of establishing an inventory and planning for inspections and enforcement, with no control installations yet required under the rule.
- City of Aspen, Colorado - Municipal Code: Sec. 13.08.100. Restaurant grills: The City of Aspen, CO (population 6,658) requires the installation of a control device to reduce PM10 emissions by at least 90% for underfired charbroilers installed on or after January 1, 1993, with restaurants in operation prior to 1993 receiving additional flexibility or exempted from control requirements. Based on discussions with the City of Aspen, the majority of restaurants that have installed control technologies under this rule are out of compliance.
- Other local ordinances and requirements related to underfired charbroiling: The District has identified several other local ordinances and requirements that require the use of advanced filtration or other systems to reduce grease and smoke from restaurant operations. While these requirements do not specifically require PM2.5 control technologies, some restaurants with underfired charbroilers have recently installed particulate control technologies in response to these requirements. In all cases, enforcement of these requirements has been difficult and minimal due to resource constraints and lack of enforceability mechanisms.

While the District's evaluation has been successful in identifying potential underfired charbroiling control technologies and an increasing number of newer restaurants that have begun to adopt these technologies, many questions remain with respect to understanding the feasibility and cost of these technologies, as described in more detail below:

- **There has been an increasing number of particulate control technology installations primarily at new or newer restaurants in response to local ordinances and nuisance concerns:** Based on discussions with control technology manufacturers and vendors, an increasing number of particulate control technologies have been installed at restaurants in dense urban areas to address nuisance requirements and concerns. The majority of these installations have been at new or newer restaurants. It is unclear how many of these installations have been at restaurants with underfired charbroilers as it has been difficult to obtain this information from technology vendors and restaurants directly. Restaurants that the District has been able to identify as having installed underfired charbroiling control technologies include Chipotle (multiple installations outside of Valley), Yard House (multiple installations outside of Valley), Bourbon's Steak & Pub at Levi's Stadium (San Francisco, CA), Deli Delicious (Visalia, CA), Season's 52 (multiple installations outside of Valley), Capital Grill (multiple installations outside of Valley), and the Habit Burger Grill (multiple installations inside and outside of Valley).
- **Retrofitting controls on existing restaurants can be prohibitively expensive and technologically infeasible:** Based on discussions with restaurant operators, technology vendors, and other regulatory agencies, it can be extremely difficult and cost-prohibitive to add controls on existing restaurants. The installation may require structural, electrical, or water-line modifications that may not be feasible. This makes installation costs much higher for existing restaurants compared to new restaurants that can integrate emissions controls into the design. The existing structure may not have the necessary space or structural support for the control unit. Installing the control equipment may require the restaurant to temporarily shut down, resulting in loss of revenue. Furthermore, the existing restaurant may not have the authority to make changes to the building if the space is leased and the landlord is unwilling to accommodate.
- **Installation cost of controls can be prohibitively expensive:** The cost of control units themselves are expensive, ranging from \$30,000 up to \$80,000 for the most complicated unit configurations. In addition, installation costs range from \$10,000 to \$20,000 for new construction and \$20,000 to \$60,000 or higher, depending on the structural and electrical modifications required, for retrofits. It is possible that some high-volume restaurants may be able to support this cost, but restaurants with less income would be financially unable to install these units without incentive support.

- **Maintenance of controls can be prohibitively expensive:** Regular maintenance of control devices is critical to ensure control effectiveness. Depending on the control technology and the type and volume of food cooked, filter change-out is required on a monthly or quarterly basis, with more in-depth filter replacement or unit cleaning required annually. Annual maintenance costs including both labor and materials starts around \$6,000 and can exceed \$100,000 for the highest volume restaurants with solid-fuel fired underfired charbroilers.
- **Maintenance requires specially trained staff that may not be accessible to all restaurants:** Control device cleaning is a complex process, requiring specially trained staff. Training restaurant staff to perform this task may not be feasible, and service companies capable of performing the maintenance may not be readily available nearby. Any delays in required maintenance could cause significant economic impacts to restaurants.
- **Several regulations to reduce emissions from underfired charbroilers exist but have yet to demonstrate effectiveness:** The District's analysis has shown that there are no air districts or other regulatory agencies that have yet to effectively implement or enforce a regulation for underfired charbroiling restaurants. While there are currently several regulations for this source category, they are predominantly focused on new installations, most allow for multiple exemptions, have ineffective applicability thresholds, rely on unavailable certified equipment, or have poor to nonexistent enforcement, which results in very few restaurants actually being subjected to the control requirements in these regulations.

Although deployment of underfired charbroiler control technologies in Valley restaurants can be cost-prohibitive and faces many challenges, modeling conducted for the District's PM2.5 attainment strategy shows that reducing emissions from this category in peak PM2.5 urban areas are most effective in helping bring the Valley into attainment in the most cost-effective manner. Therefore, in the September 2017 Governing Board Study Session, your Board approved a hot-spot strategy for underfired charbroilers that includes the following elements:

- **Provide incentives for installation of controls and related modifications for underfired charbroilers within urban boundaries of hot-spot areas:** This measure will provide funding to install particulate control technologies at 40% of underfired charbroilers within urban boundaries in hot-spot areas. The average cost of installing underfired charbroiling control technology is estimated to be \$150,000 (capital plus first year of maintenance). At an incentive level covering 100% of this cost, the total cost for this incentive program is estimated at \$30 million. The District's evaluation of underfired charbroiling technology and emissions inventory is still ongoing and these estimates will continue to be refined. To ensure early and robust use of these incentive provided by the District, this measure may need to be supplemented with a regulatory backstop that would encourage participation.

In designing an incentive program that maximizes the economic feasibility for restaurants, it is important that the size of the business and revenues are considered to help determine the restaurant's ability to absorb installation and maintenance costs. Larger restaurants with higher revenue may be able to absorb some or all of the costs of installation and ongoing maintenance, while smaller restaurants will need most if not all of the costs covered. Additionally, to maximize the effectiveness of incentive funding, the size of the charbroiling equipment, volume/quantity of charbroiling, and the associated emissions should be taken into account in designing the strategy.

- ***Adopt a rule requiring installation of PM controls on large new charbroilers within urban boundaries of hot-spot areas:*** This measure will establish a new regulatory measure that requires the installation of particulate control technologies at new larger restaurants where underfired technologies appear to be most technologically feasible. This measure may only be feasible with incentives to help restaurants offset the cost associated with installation of these technologies. At an incentive level covering 50% of the cost, the total cost for this incentive program is estimated at \$5 million.