

Thomas J. Christofk, Air Pollution Control Officer

MEMORANDUM

TO: Board of Directors, Placer County Air Pollution Control District

FROM: Tom Christofk, Air Pollution Control Officer

AGENDA DATE: April 14, 2005

SUBJECT: Union Pacific Railroad Company (UPRR) Mitigation Measures

Evaluation

Action Requested:

None. This is an information item that will feature a presentation by UPRR representatives that provides information on an ongoing emission reduction mitigation measure evaluation for the Roseville Rail Yard.

Background:

On October 14, 2004, your Board received a report and presentation by the Air Resources Board (ARB) entitled Roseville Rail Yard Study (Study), which addressed diesel emissions at the facility and their related health risks. As you may recall, the District had requested the study to: (1) determine the level of risk to the public from the emissions at the rail yard; (2) what that risk meant in comparable terms to other sources of diesel emissions; and (3) what could be done to reduce the emissions, and thereby reduce the risks. ARB had designated diesel particulate matter as a toxic air contaminant in August 1998. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter, or PM, which includes carbon particles or "soot". The Study results indicated high concentrations of diesel PM in an area surrounding the rail yard. The level of health risk associated with these PM emissions depends on length of exposure and proximity to the yard.

On December 9, 2004 your Board approved Resolution #04-21 authorizing the Chairman and the APCO to sign an Agreement with UPRR regarding mitigation measures and air monitoring for the Roseville Rail Yard. The Agreement that was signed has three main components, to wit: Mitigation Plan, Grant Program, and Monitoring Plan. For the purposes of this staff report, only the details with respect

UPRR Mitigation Measures Evaluation PCAPCD Board of Directors

Agenda Date: April 14, 2005

Page 2 of 4

to the Mitigation Plan component will be described, but a copy of the Agreement is attached for reference. (Attachment #1).

The Mitigation Plan addresses diesel PM emission reductions as a percentage below the baseline year (1999-2000) which UPRR is committed to obtaining. The terms of that Agreement with respect to mitigation measures indicated that "specific mitigation measures will be evaluated by UP, working with the District, over the next six months; the results of the mitigation measures evaluation will be presented to the District Board and community in April 2005" (Section 2A.ii & iii of the Agreement). In addition to today's information item and presentation, a discussion of this information has been placed on the City of Roseville's Union Pacific Committee April 19th agenda to share. This committee meets quarterly, and addresses issues of concern regarding the rail yard operations and the surrounding community.

The mitigation measures will be targeted for implementation over the next three calendar years (2005, 2006, 2007), and there will be an annual report of progress provided at the end of each calendar year. The commitment is for a 10% reduction of particulate matter emissions from the baseline year of 2000, which is about 2.5 tons per year.

The mitigation measure evaluation has yielded four areas of potential emissions reduction thus far. Some mitigation strategies for these emission reduction areas have already been implemented, while others are being subjected to closer scrutiny. The four areas are:

- o Reduction of unnecessary idling;
- o Introduction of low-sulfur diesel fuel for intrastate locomotives;
- o Switcher locomotive fleet replacements/upgrades; and
- o Emission control from the service, test, and repair locations.

Discussion:

UPRR representatives created a mitigation matrix of potential strategies that corresponded to the emission sources and quantities of diesel particulate matter emissions identified in the ARB study. UPRR named this matrix an Emission Reduction Opportunity Evaluation-J.R.. Davis Yard-Roseville, California. An element of the matrix included a UPRR internal evaluation process which asked the question "Is This Option Feasible for UPRR" with respect to the following criteria: technically, legally, operationally, economically, safety, and other.

District and UPRR staff met several times over the past several months to discuss the reduction options (to include reviewing UPRR "feasibility" criteria), exchange ideas, and to analyze strategies for funding and implementation. As was mentioned above, the options have distilled into four general strategies or areas of focus. These UPRR Mitigation Measures Evaluation

PCAPCD Board of Directors Agenda Date: April 14, 2005

Page 3 of 4

areas target the largest sources of emissions associated with the highest risks, which are generally those areas adjacent to the service/repair and hump/trim functions.

- o <u>Reduction of Unnecessary Idling</u> This is an area that will yield both emission reductions and fuel savings, and has been and will be implemented using both hardware installations and operational policy changes.
 - On the hardware front, there are several devices on the market that monitor the locomotive engine and shut it down when idling for more than 10 or 15 minutes. These devices also automatically start the engine when sensors indicate that it is necessary to maintain block temperature, brake pressure, and battery charging conditions. In our region to date, 21 Switcher locomotives have been outfitted with this "Smart Start" technology using a combination of Carl Moyer funds (\$300K) and company contributions.
 - Regarding shutdown operational policy, UPRR is emphasizing this in training and is finalizing a brochure to their employees called "The Lowdown on the Shutdown".
- o <u>Low Sulfur Diesel Fuel Use</u> In November 2004 ARB passed a regulation that requires locomotives that operate 90% of their time in California to utilize low sulfur diesel fuel (with 15 ppm sulfur content). This regulation targets both switchers and passenger trains operating within California, and takes effect on January 1, 2007. The use of low sulfur diesel fuel (as opposed to fuel with a higher sulfur content) will result in a 10%-14% reduction in particulate matter and about a 6% reduction in NOx from each engine.
- o <u>Switcher Fleet Replacement/Upgrades</u> The switcher fleet operates throughout the facility, but most of the emissions occur from the hump and trim functions. These switcher locomotives are typically older, lower horsepower models, and upgrading this "captive" fleet to Tier II and Tier III emission standards will provide good emission benefits, and is a probable program eligible for receipt of Carl Moyer funding.
- Emissions Collection Hood The maintenance functions (diagnosis, service, repair, and test) occur in area of the facility where the locomotives are generally stationary for periods of time with their engines running (at times under load) which may lend itself to have the exhaust captured via a collection "hood" or bonnet and routed into air pollution control equipment. This concept has been submitted by staff for funding for a proof of concept demonstration project under the EPA's West Coast Diesel Collaborative. The Collaborative is an initiative of EPA Region IX & X, and is "a public-private partnership to reduce diesel emissions". Staff formed a team comprised of PCAPCD, SMAQMD, UPRR, and Advanced Cleanup Technologies Inc (ACTI)

UPRR Mitigation Measures Evaluation PCAPCD Board of Directors

Agenda Date: April 14, 2005

Page 4 of 4

and submitted the "hood" concept in response to a solicitation from EPA for projects in March 2005.

Fiscal Impact:

As mitigation measures are implemented or selected for implementation, a key component is the availability of funding and the source(s) of funding. Staff continues to study this issue, and in concert with SMAQMD, UPRR, and EPA and other interested parties, is actively seeking funding from a myriad of sources. The District's preliminary FY 2005/2006 Budget will reflect some proposed expenditures from our resources, which will likely be needed as leverage funds to secure other financial commitments.

Recommendation:

None. This is an informational item.

Attachment #1: Agreement Between UPRR & PCAPCD, dated December 9, 2004

ATTACHMENT #1

SUBJECT:

Agreement Between UPRR & PCAPCD dated December 9, 2004