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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: December 8, 2005

SUBJECT: Progress Report Pertaining to Mitigation Measures and Monitoring Activities for the Roseville Rail Yard

Action Requested:

None. District staff will provide to the Board an update of the plans, projects and activities relative to the Union Pacific Railroad Company (UPRR) Roseville facility that resulted from the October 2004 Roseville Rail Yard Study and the ensuing Agreement between UPRR and the PCAPCD dated December 9, 2004. Staff will take the opportunity to update the Board on the three main areas of focus listed in the Agreement, to wit: the Mitigation Plan; the Grant Program; and the Monitoring Project.

Background:

Summary of District Railroad Related Information and Actions

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, which are referred to as follows: Mitigation Plan; Grant Program; and Monitoring Project. The Resolution and Agreement are included for your review in Attachment 1.

On April 14, 2005 your Board received a briefing on the mitigation measures that were being evaluated for implementation at the rail yard. The mitigation measures were targeted for implementation over three calendar years (2005, 2006, 2007), and specific to the Agreement in §2A(iv) is the requirement that "*progress reports towards achieving the emissions reductions specified in section A (i) shall be presented to the District Board and community by the end of the calendar years 2005, 2006, and 2007.*" The commitment is for at least a 10% reduction of particulate matter emissions by the end of 2007 from the baseline year (1999-2000).

At this same meeting your Board approved the application of a \$50,000 grant from UPRR towards upgrading four Roseville City refuse trucks with Cleaire Longview advanced emissions control systems through the Districts' 2005 Clean Air Grant Program. The Agreement specifies (§ B) that UP "*shall make grants totaling no less than \$150,000 (\$50,000 per calendar year) to achieve a one-ton DPM emission reduction in the Roseville area*".

Your Board has received regular updates regarding the Roseville Railyard Air Monitoring Project (RRAMP) at each of the last three meetings (June 9, August 11, and October 13).

ARB/Railroad Statewide Agreement

On June 24, 2005 the Air Resources Board signed a new Memorandum of Understanding (MOU) with the Union Pacific Railroad Company and BNSF Railway Company to mitigate emissions in and around California's major rail yards (*ARB/Railroad Statewide Agreement-Particulate Emissions Reduction Program at California Rail Yards, June 2005*). The MOU took effect on June 30, 2005 and does not "supercede" our local Agreement, but has provisions regarding future local rail related regulatory initiatives. General program elements of the MOU are:

- A statewide idling-reduction program
- Maximize use of state or federal low sulfur diesel fuel in locomotives fueled in California
- A statewide visible emissions reduction and repair program targeting smoking locomotives
- Health risk assessments for all major rail yards
- Detailed evaluation of advanced control measures for locomotives

- Assessment of remote sensing technology to identify high emitting engines

There are enforcement provisions and penalties for noncompliance with the MOU. There is also a release clause granting the railroads the authority to terminate a program element of the MOU should any federal, state, or local agency adopt or attempt to enforce any requirement addressing the goal of that MOU program element.

The rationale for the Statewide MOU, as expressed by the ARB Executive Officer, Catherine Witherspoon, in correspondence to the Governing Board of the South Coast Air Quality Management District dated July 29, 2005 was:

In 2001, ARB began the first-ever risk assessment of a major rail yard at the Union Pacific facility in Roseville, Placer County, at the request of the local air pollution control district. That assessment was completed in 2004 (see below) and had a major impact on ARB's statewide priorities for diesel risk mitigation.

In 2002, ARB opened negotiations with the railroads to design a South Coast-like fleet turnover agreement for Central California, especially San Joaquin Valley where railroad emissions are the seventh largest source of oxides of nitrogen emissions. As it turned out, fleet conversion outside the Los Angeles basin is far more difficult due to the lack of rail yard choke points where locomotive engines can be changed out and the much higher volume of thru vs. local traffic. Also, the pending Tier 3 locomotive standards were complicating the picture since none of the parties wanted to prejudge the outcome of the federal rulemaking. Consequently, we agreed to defer these issues to the 2007 State Implementation Planning cycle for the Central California air districts, when the emissions carrying capacity of the region will also be known. Meanwhile, the Roseville rail yard risk assessment was progressing and, based upon preliminary results, ARB staff began reorienting the railroad negotiations toward immediate toxic risk reduction.

Last fall ARB completed and published its risk assessment for the Roseville rail yard. That study showed a localized risk in excess of 500 million potential cancer cases per million of persons exposed in a multi-block residential area adjacent to the yard. The study also showed significant elevated risks over portions of Placer and Sacramento counties where approximately 155,000 people live. ARB staff believe these results are indicative of the public health risks near other rail yards in California with comparable operations near residential land uses. As a result, we assigned a high priority to immediate risk mitigation.

An Executive Summary prepared by ARB staff to provide MOU program element details to support a Public Meeting to Consider the ARB/Railroad Statewide Agreement is provided in Attachment 2.

Discussion:

Mitigation Plan

The Mitigation Plan addresses rail yard diesel PM emission reductions as a percentage below the baseline year (1999-2000) which UPRR is committed to obtaining. The baseline year emission inventory is contained in the ARB documentation for the risk assessment. Since that time there has been an increase in rail related traffic through the facility, and the challenge will be to reduce the emissions by 10% from the baseline levels (about 2.5 tons of DPM) while the volume of traffic is increasing. The 10% goal needs to be attained by the end of 2007, and methods to calculate the reductions to "bank" are being developed at this time. One tool to use in this assessment will be to scrutinize the data being obtained from the Air Monitoring Project, and determine what the trends are over the three-year period of the Agreement. That project will be discussed in more detail below, but 2005 was the first year's operation of the monitoring equipment. The data obtained will provide an empirical base from which to evaluate follow-on year's emission trends, and potentially quantify reductions.

The Mitigation Plan has four areas of focus, two of which coincide with measures contained in the Statewide Agreement. These four areas are:

1. Reduction of unnecessary idling;
2. Introduction of low-sulfur diesel fuel for locomotives;
3. Switcher locomotive fleet replacements/upgrades; and
4. Emission control from the service, test, and maintenance and repair locations using stationary source type of equipment (often referred to as the "hood")

The first two areas (idling and fuel) address emission reductions throughout the entire facility, wherever there are locomotives. The last two (switcher fleet upgrades and the hood) target the sources of emissions associated with the highest risks, according to the risk isopleths in the Study, which are generally those areas adjacent to the service/repair and hump/trim functions. This four-pronged mitigation strategy should reduce emissions throughout the entire facility over time, with an emphasis on knocking down the emission concentrations that drove the risk "peaks". More details on each of these four areas are provided below.

1) Reduction of Unnecessary Idling – The Roseville Rail Yard Study found that idling locomotives accounted for 45% of the total diesel particulate matter emission at the facility. Reduction of unnecessary idling is an area that will yield both emission reductions and fuel savings, and has been and will be

implemented using both hardware installations of idling reduction devices and operational policy changes, and is a program element of the Statewide MOU.

- 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 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, as was previously reported to your Board, 21 Switcher locomotives (out of the regional fleet of about 56) have been outfitted with this "Smart Start" technology using a combination of Carl Moyer program grant funds (\$300K) and company contributions. All new Tier 2 locomotives come equipped from the factory with these devices.
 - The Statewide Agreement requires that all *intrastate* locomotives, which are typically the switcher fleet, be retrofitted or outfitted with idling restriction devices by June 30, 2008 (with interim deadlines of 35% by mid 2006 and 70% by mid 2007). The rail companies must submit annual inventories of the intrastate fleet to ARB to verify installation of the devices by the deadlines. All locomotives (both intrastate and interstate) installed with idling reduction devices must limit non-essential idling to no more than 15 consecutive minutes. Essential idling is defined as idling necessary to maintain brake pressure or other safety related purpose, prevent freezing of engine coolant, engage in necessary maintenance activities, or to ensure compliance with other federal guidelines.
- Regarding shutdown operational policy, UPRR had commenced emphasizing this in training and created a brochure for their employees called "*The Lowdown on the Shutdown*".
 - The Statewide Agreement indicates that for all locomotives not equipped with idling reduction hardware devices, non-essential idling is limited to no more than 60 consecutive minutes. It also contains the requirement for the development of an Idling Reduction Training Program, complete with designated Program Coordinators at each of the specified rail facilities, and the maintenance of training records and reporting requirements to ARB.

2) Low Sulfur Diesel Fuel Use - In November 2004 ARB passed a regulation that requires locomotives that operate 90% of their time in California (intrastate) to utilize low sulfur diesel fuel (with 15 ppm sulfur content and a 10% aromatic limit) effective January 1, 2007. This targeted both rail yard switchers and passenger trains operating within California, along with the numerous local or regional short haul operations. These types of intrastate locomotives currently consume about 15% of the total locomotive fuel dispensed in California. 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. Under current federal law, railroads are permitted to use

federal nonroad diesel fuel in their engines with a sulfur limit of 5,000 ppm. In many parts of the country, the average sulfur content of this diesel fuel is well over 3,000 ppm. Federal law phases in the use of low sulfur diesel fuel nationwide, as follows: for on-road applications (2006); off/non road (2010); and locomotive & marine (2012). By this schedule, the interstate line haul fleet would not be mandated to use the low sulfur fuel for another seven years. The Statewide MOU addresses this situation, and under the agreement the two nationwide rail road companies have agreed to maximize the use of low sulfur diesel fuel by ensuring that by January 1, 2007 a minimum of 80% of the diesel fuel supplied to *all* locomotives fueled in California meets the low sulfur standard.

Attached is a November 30, 2005 memorandum from UPRR that provides a status of their progress specific to the Roseville facility in implementing both the idling and fuel provisions of the Statewide MOU. (Attachment 3).

3) Switcher Fleet Replacement/Upgrades - 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. Four locomotives are assigned to the hump operations and two handle trim duties, with two additional units as a backup. Both our district and Sacramento Air Quality Management District (SMAQMD) agree that it is in the public interest to utilize incentive funds to aid in upgrading this fleet, and have put together a project in concert with UPRR to commence this mitigation measure, which is described below. The air districts of the Sacramento region operate a regional Carl Moyer Program by pooling resources, with SMAQMD administering it.

UPRR Gen-Set Switcher Locomotive Project: UPRR had originally submitted an application to the SMAQMD to replace an old switcher locomotive being used in their hump and trim operation for a new Tier 2 switcher locomotive resulting in significant emission benefits. After several conversations by UPRR with Placer and Sacramento Air Districts, UPRR decided to pursue the cleanest diesel technology currently in the market, which is a Gen-Set switcher rated at Tier 3 emission standards. The Tier 3 standard is significantly cleaner than the current Tier 2 standard and is not required for several more years under the current Federal EPA guidelines. UPRR is currently testing a Gen-Set switcher locomotive in a demonstrative phase. The Gen-Set switcher locomotive appears to show significant promise and is based on sound engineering principles. All parties agree that there appears to be little to no risk in pursuing this technology and will have a dynamic impact on reducing emissions in and around the hump and trim operational area.

The overall cost effectiveness for the project, based on the current Carl Moyer Guidelines, is \$3,210 per ton of emissions reduced based on a 10 year life span. ARB is providing a regional grant for \$500,000 and the local air districts are providing an additional \$350,000 in local Carl Moyer funds, bringing the total grant amount to \$850,000 for UPRR. The anticipated annual emissions reduced from this project are 25.16 tons/NOx, 0.45 tons/PM10, and 1.32 tons/HC or in terms of percent reduced, 82% NOx, 63% PM10, and 88% HC. SMAQMD anticipates taking the contract for board approval with UPRR at their meeting in January 2006. Anticipated delivery of the Gen-Set switcher locomotive is about nine to ten months after the contract is signed, which puts the delivery date sometime in the fall of 2006.

Assuming the positive outcome of this first switcher project, and commensurate with future available Moyer program funding, it seems reasonable to plan for additional replacement units using this same technology and funding partnership until the targeted fleet is converted.

4) 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 appears to lend itself to have the exhaust captured via a collection "hood" or bonnet and routed into air pollution control equipment. This concept was 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 (project lead), Sacramento Metropolitan Air Quality Management District, Union Pacific Railroad, Advanced Cleanup Technologies (ACTI), and submitted the "hood" concept in response to a solicitation from EPA for projects in March 2005 and was awarded a grant in August. Recently both ARB and the South Coast Air Quality Management District have been added to the team. Each party is contributing either dollars, or "in-kind" services, or both. Total project cost including the cost of "in-kind" contributions is estimated at \$1.4 million.

Hood Demonstration Project Overview: This project is a demonstration of using stationary air pollution control equipment to capture and treat emissions from locomotives that are idling or undergoing engine load tests. The purpose of the project is to demonstrate the feasibility of this type of equipment and to develop the cost and operating information to allow suppliers and the railroad to make business decisions on moving forward in deploying this type of control equipment at the rail yard.

The project is structured in two phases. The first phase accomplishes the locomotive interface design, test location definition and design,

development of the test protocol, and acquisition of the locomotive interface hardware. The second phase will ship the Advanced Locomotive Emission Control System (ALECS) to the Roseville rail yard, erect the ALECS on the test site, startup the ALECS equipment, test two different locomotive types to the test protocol, disassemble the ALECS and ship back to ACTI, and prepare the final report. The major schedule milestones are: start phase I in September 2005; start phase II with shipment of ALECS to Roseville in May 2006; complete testing in July, 2006, and issue the final report in November 2006.

A more detailed project description and a presentation of five project objectives are found in the attached Advanced Locomotive Emission Control System Demonstration Project Description and Objectives document (Attachment 4). The project objectives are:

- Demonstrate the effectiveness of stationary control equipment on locomotive exhaust.
- Demonstrate the attachment scheme between the locomotive and the stationary control equipment.
- Demonstrate the capability of some locomotive movement while connected to the control equipment.
- Develop improved information on capital cost, operating procedures, and operating costs.
- Document test results and project findings in a final report.

The potential for emissions and health risk reduction from the Roseville rail yard due to installation and use of two ALECS systems strategically placed near the diesel shop and in the service track area has been estimated. PM₁₀ reduction amounts to 4.4 tons/year, yielding a 38% reduction in health risk from the entire rail yard. NO_x reductions are estimated at 205 tons/year.

Grant Program

The Grant program is focused on achieving a one-ton diesel particulate matter reduction in the "background" air around the facility from other sources of emissions, such as heavy duty on and off road equipment. It has been estimated by ARB that the background chronic cancer risk in our Sacramento region from all toxic air contaminants is 520 in a million, of which diesel particulate matter accounts for almost 70% (or 360 in a million). These risks are additive to the risks associated with the rail yard, and the Grant Program is a recognition of this fact and an attempt to address mitigation strategies for the background risks. During the three years of the Agreement, UPRR has agreed to make grants totaling no less than \$150,000 (\$50,000 per year) to achieve a one-ton diesel particulate matter reduction in the

Roseville area. Diesel particulate matter is expensive to reduce, as compared to nitrogen oxides reductions. The cost effectiveness parameters used by ARB in the Carl Moyer Grant program are \$14,300 to reduce one ton of nitrogen oxide and/or reactive organic gas and experience shows that it may cost as much as 20 times that to reduce a ton of diesel pm.

For 2005, District Staff applied the \$50,000 received from UPRR towards our annual Clean Air Grant program cycle and used the funds to retrofit four Roseville City refuse trucks with emission control systems that will reduce both NOx and PM. The city had an existing grant application filed with staff for these devices, and it was logical to increase the award amount by the \$50,000 to allow for these additional systems at \$12,500 each. For purposes of project emissions calculations, it is estimated that these vehicles have a seven-year service life, and the four trucks with these devices installed will reduce .029 tons of per year of diesel PM for a total of .2 tons over their lifetime (.029 X 7). As an additional benefit, there will be 2.73 tons of nitrous oxide reduced over this same time period.

UPRR has been invoiced to provide the second increment of \$50,000 towards the Grant Program, which staff will utilize in the 2006 Clean Air Grant program cycle. Staff will apply the funds to a Roseville project, but as can be seen from the emissions reduction calculations above, reducing diesel particulate matter is very expensive and assuming the funds are applied to a similar project as was done in 2005, it could be extrapolated that the \$150,000 initially identified for a ton may purchase only 60% of one. The obvious options presented with this situation are to try and find lower cost projects with a higher yield or increase the grant amount at some point to compensate for the shortfall. Staff will work with UPRR to determine a course of action.

Air Monitoring Project

The Roseville Railyard Air Monitoring Project (RRAMP) has a three-year cycle associated with the UPRR mitigation plan. The first-year of intensive air monitoring took place between July and October 2005 during the seasonal period when winds most typically favor upwind/downwind conditions. More limited air monitoring will continue during the other months of the year. UPRR has committed \$100,000 to this effort, and perhaps will commit more, depending on the scope of the monitoring project; and has provided access to their property for placing equipment.

The goal of the RRAMP is to use field monitoring equipment and the latest monitoring technologies to measure the air impacts, primarily diesel, emanating from the Roseville Railyard facility. The specific objectives of this project are:

- To determine, through ambient air monitoring, localized air pollutant impacts from the emissions at the UPRR facility

- To verify the effectiveness of mitigation measures (over time) proposed by UPRR
- To improve the accuracy of future modeling analyses
- To provide feedback to the public in regard to air quality conditions related to objectives (1) and (2).

Project Design - Due to the fact that there are no measurement methods available to exclusively measure DPM emitted from the railyard or distinguish railyard-generated DPM from other DPM sources (e.g., diesel truck traffic along I-80 and other roadways), the study design is critical to delineate the effects from the UPRR facility. A Technical Advisory Committee (TAC) has been formed to review the project's monitoring design and analytical strategy and guide the implementation of the project. This will help to assure that the project is scientifically sound and credible. Attachment 5 is a list of the TAC members.

The TAC has held 5 meetings to date and has approved the final monitoring design and analytical strategy. The success of the study design relies on two key elements: (1) that the only DPM source between the railyard upwind place and the railyard downwind place is the railyard itself; and (2) continuous monitoring at both upwind and downwind sites is conducted during the time of the year when the wind blows directionally from the upwind to the downwind sites.

Based on historical wind data analyses, the intensive monitoring is being scheduled in the summer months because persistent wind conditions favorable to upwind/downwind monitoring are most reliable during this season. Using such an upwind/downwind monitoring strategy, we expect to detect the differences between upwind and downwind measurements that represent the emissions from the railyard alone.

Monitoring Station Locations- In order to select appropriate upwind/downwind monitoring sites, a mobile-van survey was conducted by the Desert Research Institute (DRI) in April 2005. This survey provided information on the spatial variations in pollutant concentrations around the Roseville Railyard during a time of the day when meteorological conditions are most conducive to maximum exposures in downwind residential areas of Roseville. Four monitoring sites for the RRAMP were determined based on the results of the survey: Denio, Pool, Church St., and Vernon St. sites. A map of the site locations is attached (Attachment 6).

Each RRAMP monitoring site has installed the following instruments: continuous monitors for PM_{2.5}, black carbon (indicative of diesel particulates), and nitrogen oxides [NO_x]; filter-based monitors for PM_{2.5} and organic and elemental carbon; and meteorological and ancillary equipment. Continuous monitors and meteorological equipment provide hourly average concentration measurements. and can be analyzed with respect to specific wind conditions.

Filter-based monitors, on the other hand, collect samples over a range of wind conditions for 24-hour period. The meteorological monitors measure wind speed and wind direction.

First Year Monitoring - The first-year monitoring of this project began on July 15 and ended on October 15, 2005. The first pair of upwind/downwind sites (Denio and Pool) functioned during the entire first-year monitoring period. The second pair of upwind/downwind sites (Church St. and Vernon St.) operated only from September 9 to October 15, 2005 when sufficient additional monitors became available. The summary of data completeness is attached (Attachment 7).

During the first-year monitoring period, ARB staff performed a site audit on the Denio and Pool sites on September 8, 2005. The audit included a station survey and an instrumental examination at the sites. The audit results concluded that all instruments functioned and were operated perfectly except for the NO_x analyzer at the Pool site, which had a systemic discrepancy due to a leak in the sampling probe. A new probe was re-installed by the District staff and re-tested by the ARB staff immediately. The result of the retest met ARB's operation requirements. The previous data from this NO_x analyzer will have a quality control (QC) adjustment based on the ARB staff's recommendation.

Data Analysis and Report - For the needed data analysis part of the project, a Request For Proposal (RFP) was released on September 1, 2005. This RFP was to solicit proposals for statistical data analyses and interpretations that are necessary to accomplish the objectives of the RRAMP. The District received proposals from Countess Environmental, Desert Research Institute (DRI), and Sonoma Technology. A review panel comprised of a subset of TAC members reviewed and ranked all proposals based on their technical merits, research experience, and cost. DRI was selected as the data analysis contractor. The District staff held a kick-off meeting with Dr. Eric Fujita, the principal investigator for the contract, on October 31, 2005.

This contract requires DRI to perform necessary data review, data analysis, and data interpretations in order to accomplish the first two objectives of the project, as specified in the contract: (1) to determine the impacts from the UPRR facility as measured as the differences between upwind and downwind monitoring site pairs; and (2) to determine any discernible trends in reduced impacts over a three-year period as a result of emissions mitigations implemented by UPRR. The District has delivered the first year data to Dr. Fujita. DRI will provide a draft report and a presentation to the TAC for review and comments in February 2006. The final report for the first year data will be submitted to the Board in April 2006.

It should be noted that this project is being supported by several entities, in addition to Placer County and UPRR. Specifically, Sacramento Metro AQMD has provided staff support and funding for some of the equipment; CARB has provided expertise and the field audit; South Coast AQMD has provided laboratory support for the filter analyses; EPA Region IX has provided a \$50,000 grant to assist with equipment procurement; and the University of California, Davis Delta Group, under the auspices of Dr. Thomas Cahill, has provided adjunct particulate sampling which will enhance the results of the study. (Some preliminary results confirm the appropriateness of the study design.)

In addition, the District also submitted a grant application to EPA for funding support for year two of the project. The application includes both diesel particulate monitoring as well as other air toxics, in the amount of \$218,000. As of this time, the grant request has been screened into the final round for consideration for funding, and an announcement is anticipated by the end of December.

Fiscal Impact:

As implementation of the three major elements of our local Agreement unfolds, a key component is the continuing availability of financial and technical resources through the three-year cycle. UPRR has and continues to fulfill their financial obligations in a timely manner and the District's FY 2005/2006 Budget contains funding to support both mitigation measures and the monitoring project, which has been and will likely continue to be needed as leverage to secure other financial commitments. As has been reported throughout this update, staff has been successful in obtaining support from a myriad of public and private entities to date and District management will continue to seek opportunities to further the overall program objectives through use of both regional incentive funds and grant opportunities.

Recommendation:

None. This is an informational item to provide an overall status to your Board on the actions and activities related to the Agreement between the District and UPRR.

It is staff's opinion that there has been significant progress towards implementation of the elements of our local Agreement. That said, the ability currently to quantify emissions reductions associated with mitigation measures being implemented is difficult and staff cannot determine at this time what progress has been made to reduce overall facility emissions by 10% from those that formed the baseline profile for the ARB Roseville Railyard Study (1999-2000). One tool that may assist in this endeavor in the future will be utilization of the monitoring data at the conclusion of year 2. It should also be noted that the bulk of mitigation measures will be coming on line over the next several years,

and that our Agreement is to achieve at least a 10% reduction by the end of 2007. ARB staff have estimated that they anticipate that the Statewide Agreement will result in a 20% reduction of emissions from rail yards by the end of June 2008 from existing levels.

Staff plans on providing this same update to the Roseville community in January via the standing City/UPRR Committee. Staff will continue to update your Board throughout 2006 and provide a similar year-end summary at your December 2006 Board meeting.

- Attachment #1:** Agreement Between UPRR & PCAPCD, dated December 9, 2004
- Attachment #2:** Executive Summary, ARB Staff Report Public Meeting to Consider the ARB/Railroad Statewide Agreement
- Attachment #3:** UPRR Memorandum 11/30/05 providing Roseville specific status of idling and fuel program elements of the Statewide MOU
- Attachment #4:** Advanced Locomotive Emission Control System Demonstration Project Description and Objectives
- Attachment #5:** Technical Advisory Committee Roster
- Attachment #6:** Map of Monitoring Stations
- Attachment #7:** Summary of Air Monitoring Data Completeness

ATTACHMENT #1

SUBJECT:

Agreement Between UPRR & PCAPCD, dated December 9, 2004

1 **WHEREAS**, the California Air Resources Board (CARB) designated diesel exhaust
2 particulate matter as a Toxic Air Contaminant in August 1998; and

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4 **WHEREAS**, in 1999 and early 2000 the District was concerned about the diesel emissions
5 from locomotives at Union Pacific's Roseville Rail Yard and their impact upon public
6 health and requested that CARB conduct a risk assessment; and

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8 **WHEREAS**, the risk assessment was undertaken to determine the level of risk to the public from
9 the emissions at the rail yard, to define what the risk meant in comparable terms to other sources
10 of diesel emissions and to ascertain what could be done to reduce the emissions; and

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12 **WHEREAS**, the District received the risk assessment from CARB on October 14, 2004 in a
13 report titled Roseville Rail Yard Study which indicated that the diesel particulate matter
14 emissions from the rail yard are widely dispersed over a large area at levels that pose a cancer risk
15 concern; and

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17 **WHEREAS**, both Union Pacific Rail Road Company and the District are desirous of reducing
18 those risks

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20 **IT IS THEREFORE RESOLVED** that the Placer County Air Pollution Control District
21 Board does approve the Agreement (Exhibit #1) between Union Pacific Rail Road Company
22 (UPRR) and the District pertaining to mitigation measures and monitoring for the Roseville
23 Rail Yard and authorizes the Chairman and APCO to sign.

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25 Exhibit #1: Mitigation and Monitoring Agreement, UPRR and PCAPCD

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1 **AGREEMENT**

2 This Agreement is made and entered into this 9TH day of December,
3 2004, by and between the PLACER COUNTY AIR POLLUTION CONTROL
4 DISTRICT, a County air pollution control district formed pursuant to California Health
5 and Safety Code section 40100 et seq. (District), and UNION PACIFIC RAILROAD
6 COMPANY (UP).

7 **WHEREAS**

8 The District, UP and the California Air Resources Board cooperated in
9 preparing an analysis of diesel particulate matter ("DPM") emissions from the J.R.
10 Davis Rail Yard (the "Yard") in Roseville, California;

11 During the three-year period it took to complete the analysis of DPM
12 emissions from the Yard, UP made substantial efforts to reduce DPM emissions from
13 the Yard, which UP estimates to have resulted in a 15 percent reduction in such
14 emissions;

15 The results of this study are set forth in a report entitled *Roseville Rail*
16 *Yard Study* (dated October 14, 2004) (the "Report"); and

17 The District and UP have agreed that further reducing DPM emissions
18 from the Yard will lead to an improvement in air quality.

19 **NOW THEREFORE**

20 In consideration of their mutual promises, covenants, and conditions,
21 the parties hereby agree as follows:

22 **1. TIME FOR AGREEMENT**

23 This Agreement shall be in effect for a period of three years from the
24 date entered into, unless earlier terminated pursuant to paragraph 5 hereof.

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1 **2. SCOPE OF WORK**

2 **A. The Mitigation Plan**

3 UP and the District shall work cooperatively to develop and implement a
4 Mitigation Plan that reflects the following:

5 i. UP is committed to the goal of reducing diesel particulate matter
6 ("DPM") emissions from its Roseville operations by at least an additional 10% over
7 the next three years, for a total reduction of at least 25% from the baseline period
8 when data for the Report was collected (1999-2000);

9 ii. Specific mitigation measures will be evaluated by UP, working with
10 the District, over the next six months;

11 iii. The results of the mitigation measures evaluation will be presented
12 to the District Board and community in April 2005;

13 iv. Progress reports towards achieving the emissions reductions
14 specified in section A(i) shall be presented to the District Board and community by the
15 end of calendar years 2005, 2006 and 2007; and

16 v. The District will work cooperatively with UP to assist the railroad in
17 obtaining available grants and funding for mitigating emissions.

18 **B. The Grant Program**

19 During the period 2005, 2006 and 2007, UP, in cooperation with the
20 District, shall make grants totaling no less than \$150,000 (\$50,000 per calendar year)
21 to achieve a one-ton DPM emission reduction in the Roseville area. In the event that
22 one or more opportunities to achieve DPM emission reductions is identified in 2005 or
23 2006, UP may, in its sole discretion, elect not to make the grants at a rate of \$50,000
24 per year, but instead to grant a greater proportion of the \$150,000 total in such
25 year(s). Grants for each year shall be made no later than the end of the calendar
26 year.

27

28

1 **C. The Monitoring Plan**

2 UP and the District shall work cooperatively to develop and implement a
3 Monitoring Plan that reflects the following:

- 4 i. The District shall work cooperatively with UP to identify the goals of a monitoring
5 program for diesel exhaust from the Yard;
- 6 ii. UP and the District shall work cooperatively to arrange for necessary access to
7 UP property to facilitate implementation of a monitoring program for diesel
8 exhaust from the Yard;
- 9 iii. UP shall provide technical assistance to the District in the design and
10 implementation of a monitoring program for diesel exhaust from the Yard; and
- 11 iv. UP shall provide financial assistance to the District in the design and
12 implementation of a monitoring program for DPM from the Yard; the amount of
13 this assistance will be not less than \$100,000, and may, in UP's sole discretion, be
14 more depending on the cost of such a program.

15 Design of the Monitoring Plan shall commence no later than December 31, 2004, with
16 an implementation date and monitoring timeframe to be determined as elements of that
17 Plan.

18 **3. CONFIDENTIAL BUSINESS INFORMATION**

19 UP may, from time to time, provide the District with confidential business
20 information in performing its obligations under this Agreement, and the District may
21 from time to time comment upon or analyze such submissions. This exchange of
22 information is not intended to be, nor shall it be construed as, a waiver of any properly
23 asserted claim of trade secret or confidential business information, which claims shall
24 be governed by the California Public Records Act, Government Code section 6250 et
25 seq.

26 **4. AUTHORITY NOT AFFECTED**

27 Each of the parties recognizes that Union Pacific Railroad is federally
28 regulated and that some or all of the District's authority to regulate the railroad may

1 be preempted. Nothing in this Agreement is intended to affect the scope of such
2 preemption or the District's residual regulatory authority.

3 **5. TERMINATION**

4 **A. Breach of Agreement:** Either the District or UP may
5 immediately suspend or terminate this Agreement, in whole or in part, where in the
6 determination of one of the parties there is:

- 7 i. An illegal or improper use of funds;
- 8 ii. A failure to comply with any material term of this Agreement;
- 9 iii. A substantially incorrect or incomplete report submitted by UP to the
10 District; or
- 11 iv. Improperly performed services.

12 In the event either UP or the District determines that one or more of the above
13 conditions exists, the other party shall be allowed reasonable time to cure.

14 UP and the District each waive any claims they may have against each
15 other, and their respective officers, agents, employees or volunteers from damage or
16 loss caused by any suit or proceeding directly or indirectly attacking the validity of this
17 Agreement, or any part of this Agreement and any judgment or award declaring this
18 Agreement either void or voidable, or delaying the performance of any part of this
19 Agreement.

20 Waiver by any party of any default, breach or condition precedent will
21 not be constructed as waiver of any other default, breach or condition precedent or
22 any other right under this Agreement.

23 **B. Without Cause:** Either party may terminate this Agreement at
24 any time without cause upon giving the other party at least thirty (30) days' advance
25 written notice of intention to terminate.

26 **6. MODIFICATION**

27 No alteration, variations or modifications of the terms of this Agreement
28 is valid unless made in writing and signed by all of the parties.

1 **7. NON-ASSIGNMENT**

2 No party shall assign, transfer, or subcontract this Agreement, nor its
3 respective rights or duties under this Agreement, without the prior express, written
4 consent of the other party. Each party may employ consultants to assist it in
5 performing hereunder, and the use of such consultants shall not be considered an
6 assignment.

7 **8. NOTICES**

8 The persons and their addresses having authority to give and receive
9 notices under this Agreement are as follows:

10

11 **UNION PACIFIC**

12 Union Pacific Railroad Company
13 c/o David P. Young, Esq.
14 808 Travis Street, Suite 620
15 Houston, TX 77002

16 With a copy to

17 Michael J. Steel
18 Pillsbury Winthrop LLP
19 P.O. Box 7880
20 San Francisco, CA 94120

DISTRICT

Thomas J. Christofk
Placer County Air Pollution Control
District
11464 B Avenue
Auburn, CA 95603

21 Any and all notices between the District and UP provided for or
22 permitted under this Agreement or by law shall be in writing and shall be deemed duly
23 served when personally delivered to one of the parties, or in lieu of such personal
24 service, when deposited in the United States mail, postage prepared, addressed to
25 such party.

26 **9. CONFLICT OF INTEREST**

27 No officer, employee, or agent of the District who exercises any function
28 or responsibility for planning and carrying out the services provided under this

1 Agreement shall have any direct or indirect personal financial interest in this
2 Agreement. UP shall comply with all federal and state conflict of interest laws,
3 statutes, and regulations, which shall be applicable to all parties and beneficiaries
4 under this Agreement and any officer, agent, or employee of the District.

5 **10. GOVERNING LAW**

6 This Agreement shall be governed in all respects by the laws of the
7 State of California. Venue for any action arising out of this Agreement shall only be in
8 Placer County, California.

9 **11. BINDING ON SUCCESSORS**

10 This Agreement, including all covenants and conditions contained
11 herein, shall be binding upon and inure to the benefit of the parties, including their
12 respective successors-in-interest, approved assigns, and legal representatives.

13 **12. NO THIRD-PARTY BENEFICIARIES**

14 Notwithstanding anything else stated to the contrary herein, it is
15 understood that UP's obligations under this Agreement are being rendered only for
16 the benefit of the District, and no other person, firm, corporation, or entity shall be
17 deemed an intended third-party beneficiary of this Agreement. No person other than
18 the District or UP may seek to enforce the terms of this Agreement either directly or
19 indirectly.

20 **13. SEVERABILITY**

21 In the event that any one or more of the provisions contained in this
22 Agreement shall for any reason be held to be unenforceable in any respect by a court
23 of competent jurisdiction, such holding shall not affect any other provisions of this
24 Agreement, and the Agreement shall then be construed as if such unenforceable
25 provisions are not a part hereof.

26 **14. ENTIRE AGREEMENT**

27 This Agreement constitutes the entire agreement between UP and the
28 District with respect to the subject matter hereof and supersedes all previous

1 negotiations, proposals, commitments, writings, advertisements, publications, and
2 understandings of any nature whatsoever unless expressly included in this
3 Agreement.

4 **IN WITNESS WHEREOF**, the parties hereto have caused this Agreement
5 to be executed as of the day and year first hereinabove written.

6
7 **UNION PACIFIC**
8 Union Pacific Railroad Company, Inc.

DISTRICT
Placer County Air Pollution Control
District

9
10
11
12 By RM Guinaila
13 [title] SR. AVP Safety + Environment

By 
Kent Nakata, Chair
Governing Board

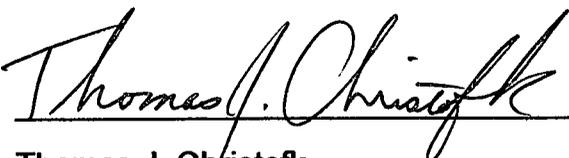
14
15
16 **Approved as to legal form:**
17 Pillsbury Winthrop LLP
18
19
20 _____

Approved as to legal form:
Placer County Air Pollution Control
District

21 Michael J. Steel


District Counsel

22
23
24 **Recommended for approval:**
Placer County Air Pollution Control
District


Thomas J. Christofk
Executive Director/APCO

25
26
27
28

ATTACHMENT #2

SUBJECT:

**Executive Summary, ARB Staff Report
Public Meeting to
Consider the ARB/Railroad Statewide Agreement**

EXECUTIVE SUMMARY

On June 24, 2005, the Executive Officer of the Air Resources Board (ARB or Board) entered into a pollution reduction agreement with Union Pacific Railroad (UP) and BNSF Railway (BNSF). The Agreement secured the commitment of UP and BNSF to expeditiously implement a number of feasible and cost-effective measures to reduce emissions from locomotives throughout California. The Agreement initiated cooperative efforts between the railroads and the ARB to assess and mitigate public health risks around 17 major rail yards throughout the State. The Agreement also includes provisions for ongoing public involvement at each major rail yard, where community and environmental justice concerns can be addressed directly.

The Agreement leaves intact all authority and discretion that existed prior to its enactment. It does not affect the enforcement of State or local air district opacity or nuisance requirements, and does not preclude further regulatory actions within the existing legal authority of the Board or local air districts. The state legislature is also free to act as it sees fit. However, the UP and BNSF entered into the Agreement in large part because they desired to implement uniform measures statewide, and they retained the option to be released from individual elements of the Agreement, if they are subject to new overlapping requirements via local or State actions.

The voluntary agreement was developed through direct negotiations between the railroads and ARB staff (staff). The Board and the public were briefed on this process at the Board meeting in February 2005 and informed that these efforts were intended as near term actions to reduce locomotive emissions. However, outside parties were not participants in the negotiations and the details of the Agreement were not disclosed until the negotiations had been completed.

After the announcement of the Agreement, a number of community and environmental organizations, local air districts, and state legislators expressed numerous concerns. These included objections that the process for developing the Agreement did not provide for public participation, that the content of the Agreement was inadequate, and that the Agreement would jeopardize efforts by State legislators and local air districts to control railroad emissions in a different way.

In response to these concerns, the Board took several actions. At its July meeting, the Board adopted Resolution 05-40 which provides that the Executive Officer may enter into future agreements with air pollution sources for emissions reductions or amendments to such existing agreements, subject to the condition that they be approved by the Board. In addition, the Board directed the Executive Officer to notify the Board and the public before commencing negotiations, to solicit public comments on the subject of the agreement, and to provide periodic reports to the Board.

The Board also decided to review the recent railroad Agreement, directed staff to conduct two public meetings to share background information on the Agreement, and solicit comments from the public and other interested stakeholders. The public meetings were held on August 10 in Sacramento and August 31 in Commerce. The Board also committed to conduct a special Board meeting in Southern California to receive public comment on the Agreement and determine how to proceed relative to the current Agreement.

The Board meeting is scheduled for October 27, 2005, at the ARB offices in El Monte. This staff report has been developed to explain the background, context, and provisions of the Agreement and summarize and respond to the comments received by staff.

Major Provisions of the Agreement

The Agreement establishes a statewide program to reduce diesel particulate emissions from locomotives at the State's rail yards by:

- Phasing out non-essential idling by locomotives within six months;
- Installing idling reduction devices on California-based locomotives within 3 years;
- Identifying and expeditiously repairing locomotives with excessive smoke; and
- Maximizing the use of ultra low sulfur (15 parts per million (ppm)) diesel fuel by January 1, 2007, six years before such fuel is required by federal regulation.

When fully implemented, these aspects of the Agreement are expected to achieve a 20 percent reduction in locomotive diesel particulate matter emissions near rail yards.

In addition to the statewide idling restrictions, cleaner fuel, and smoke repair requirements, many rail yards throughout the State are covered by additional elements of the Agreement. Program Coordinators are required at each of the 32 covered yards and they are responsible for implementing and insuring compliance with the idling and visible emission elements. At the 17 largest rail yards, known as Designated Rail Yards, the railroads have committed to evaluating and reducing pollution risks. Under the Agreement, the railroads will meet with local communities and local air districts at these 17 yards to develop near-term mitigation measures that can be implemented to reduce emissions and risk. The railroads will also develop information so that the ARB can perform health risk assessments to characterize and quantify the risk from these rail yards. These assessments will then be used to identify further mitigation measures. Public participation is required at each yard during each of these efforts.

The Agreement includes a commitment to evaluate remote sensing technology to identify in-use locomotives with excessive emissions. The Agreement also commits \$3.5 million by the railroads to continue evaluating the feasibility of installing diesel particulate traps on locomotives, and evaluate other technologies, such as hybrid and alternative fueled locomotives, to further reduce locomotive emissions.

Failure by the railroads to implement any of these actions is subject to penalties. Individual violations of the idling and repair provisions can result in fines of up to \$1,200 per locomotive, per day. Violations of major program elements, including failure to implement specific requirements, can result in penalties of up to \$40,000 per month per element.

Public Participation as Part of the Agreement

Both UP and BNSF have committed to a process of outreach and communication with the communities and the local air districts affected by their operations at the 17 major rail yards. Staff has also committed to participate in this outreach effort. This effort is intended to ensure that local communities and others can have a meaningful role in determining what specific actions are taken to reduce emissions on a rail yard by rail yard basis. Under the Agreement, the railroads are obligated to:

- Meet with community members to identify measures to reduce the impact of rail yard emissions on adjacent residential neighborhoods;
- Provide periodic progress reports to community representatives on the implementation of risk mitigation plans and preparation of risk assessments;
- Meet with representatives from the affected community, staff, and the local air district to discuss the results of the draft health risk assessment for each yard;
- Upon completion of risk assessments, hold meetings within 60 days to discuss the findings and gain community input on mitigation measures;
- Involve community representatives in semi-annual meetings on efforts to develop and deploy new technologies to reduce locomotive emissions; and
- Establish a system to enable local residents to voluntarily report locomotives that do not comply with smoke limits or idling restrictions.

Staff is also committed to working with community residents and local air districts to implement various actions related to the Agreement. These include:

- Working cooperatively with local air districts to establish uniform health risk assessment guidelines;
- Providing for a public review of health risk assessment guidelines;
- Working cooperatively with local air districts to evaluate, and where appropriate, partner on, medium- and longer-term control technology assessments and demonstrations, and;
- Working cooperatively with local air districts to seek funding on mitigation measures.

ARB's Comprehensive Program for Addressing Rail Yard Emissions

The Agreement is one part of ARB's comprehensive program to reduce emissions from railroad operations. The major elements, described below, include:

- Accelerate locomotive turnover by 2010;
- Expedite statewide measures to reduce emissions near rail yards;
- Perform yard by yard risk assessment and mitigation;
- Adopt national "Tier 3" locomotive standards and accelerate the introduction of Tier 3 locomotives into California;
- Adopt and implement ARB rules to limit emissions from intermodal equipment at rail yards; and
- Other measures identified in the Business, Transportation, and Housing Agency and California Environmental Protection Agency Goods Movement Action Plan.

In 1998, ARB established a memorandum of understanding (1998 MOU) with the railroads for the South Coast Air Basin (Basin) that requires the complete conversion to the cleanest available locomotives (Tier 2 locomotives) by 2010. The 1998 MOU achieved a vastly accelerated locomotive turnover schedule of five years versus the industry average of 30 years. It ensures a 65 percent reduction in locomotive emissions in the Basin from the pre-MOU baseline by 2010, and results in substantial statewide benefits as well. The MOU process was used because federal law preempts the State's authority to control emissions from new and in-use locomotive engines.

In October 2004, ARB completed the first-ever risk assessment of a major rail yard at the UP facility in Roseville. The study showed that there were localized risks in excess of 500 potential cancer cases per million people exposed. In addition, there were elevated risks to over 155,000 people living in the vicinity of the rail yard. These findings highlighted the need to seek emission reductions in the vicinity of rail yards throughout the State. As a result, staff began discussions with the railroads on what could be done rapidly to reduce the emissions around rail yards. The Agreement is the product of these efforts.

The emissions reductions achieved through the Agreement were viewed by staff and the railroads as the best way to make significant progress until far greater and essential emission reductions could be obtained through the deployment of new, far cleaner locomotives. To enable this, United States Environmental Protection Agency (U.S. EPA) needs to complete its rulemaking for Tier 3 locomotives, expected to be finalized in 2007. These new locomotives, once available, will enable very large reductions in diesel particulate matter and oxide of nitrogen emissions. Once the schedule for the availability of these locomotives is set, ARB and the railroads will need to replicate the 1998 agreement on a statewide basis, and agree to a schedule to expeditiously place these locomotives in California service.

The ARB is also exercising its regulatory authority to reduce emissions at rail yards both through the use of cleaner locomotive fuels and from other non-locomotive sources. In 2004, the Board approved requirements for the use of California diesel fuel in intrastate locomotives beginning in 2007. In December 2005, the Board will consider a control measure to greatly reduce emissions from cargo handling equipment at ports and intermodal rail yards. Staff has also begun preliminary work on another regulation to reduce both diesel PM and criteria pollutant emissions from other compression ignition off-road equipment throughout the State, some of which is used at non-intermodal rail yards. The Board is scheduled to consider this proposed regulation in 2006.

Finally, reducing emissions from rail operations has an important role in California's overall efforts to address the statewide emission impacts from goods movement. The ARB is developing a comprehensive plan to address emissions from goods movement as part of the Governor's Goods Movement Action Plan. This plan is expected to identify a number of strategies that will involve direct regulation actions, voluntary measures that may be developed through agreements with sources, and the use of State and federal incentive funds.

Why a Negotiated Agreement

ARB generally relies on rulemaking as the primary means to ensure emission reductions. Voluntary agreements are an option when the Board's legal authority to impose emission reductions by regulation is limited or unclear (see discussion below) and where there is a sincere commitment on industry's part to negotiate in good faith. Both factors were present in this case. This led staff to conclude that a voluntary agreement would enable California to obtain greater and quicker emission reductions and public health protections than could be obtained through any other process. Staff and the railroads focused on what actions could be taken quickly to address rail yard emissions, using a voluntary agreement to avoid unduly contentious or protracted rulemaking efforts and the likelihood of further delays due to legal challenges.

Why Federal Preemption Makes a Negotiated Agreement the Best Option

Federal law significantly restricts the abilities of states and local jurisdictions to control locomotive emissions, or to enforce rules that affect national railroad transportation. The 1990 federal Clean Air Act (CAA), prohibits states and political subdivisions from adopting or attempting to "enforce any standard or other requirement relating to the control of emissions...from new locomotives or new engines used in locomotives." (CAA section 209(e)(1)(B).)

Under its final rule for locomotives, the U.S. EPA interpreted the preemption broadly. In contrast to all other federal rules for non-road engines, U.S. EPA defined "new" to include not only factory-new locomotives, but also remanufactured locomotives and locomotive engines. The effect is that virtually all locomotives and engines are considered "new" for purposes of preemption, regardless of their age or mileage accumulation.

The authority to adopt regulations for locomotives is further constrained by other federal acts, including the Interstate Commerce Commission Termination Act of 1995 (the ICCTA; 49 U.S.C.A. section 10501 et seq.). Congress enacted the ICCTA, which effectively deregulated the rail and motor carrier industries, to ensure the economic viability of the two industries. As generally interpreted by the courts and the Surface Transportation Board (STB), the ICCTA has a broad preemption limiting states, and even conflicting federal programs, from adopting rules that affect national railroad transportation. Under section 10501, STB has exclusive and preemptive authority over interstate rail transportation and its operations, including the locomotives and railroad facilities. Federal courts have typically interpreted the preemption broadly and found that most state regulations directly affecting the railroads and their operations are preempted.

What this means is that states and local agencies have limited authority to require the railroads to mitigate emissions from locomotives. Rules have to be narrowly and carefully crafted to survive preemption, and this limits the emission reductions that can be obtained. While the ARB and local air districts may attempt to adopt broader regulatory requirements, it is highly likely that any significant requirement affecting locomotives would be challenged in court. This could result in a significant delay in implementation even if the rules survive. It is also quite possible that the railroads would be successful in their legal challenge of some aspects of even carefully crafted rules and the hoped for emission benefits would not be realized.

Because the Agreement avoids the limitations on effectiveness due to preemption, the legal uncertainties and the time consumed in contentious rulemaking, staff believes it was the superior approach and provides a greater potential for timely emission reductions that cannot be guaranteed by legislation, ARB regulation, or local air district rules.

Impact on ARB and Local District Authority

The local air districts' authority over rail yards and locomotives will not change as a result of the Agreement. Local air districts have the statutory authority to cite locomotive operators for visible emission violations as specified under Health and Safety Code section 41701, nuisance violations as specified under Health and Safety Code section 41700, or any other applicable statute, local air district rule, or regulation applicable to locomotives and rail yards that is not subject to federal preemption.

Also, by entering into the Agreement, ARB did not cede its right to exercise any of its authority over the railroads and rail yards to the extent it is not preempted. If the railroads fail to perform any of the obligations set forth in the Agreement, staff could recommend that the Board approve statewide regulations, again to the extent that they are not preempted, to attempt to achieve the benefits anticipated from the Agreement.

If a local air district adopts regulations that overlap an element covered by the Agreement, the railroads have the ability to opt out of their responsibility to implement that specific program element under the statewide Agreement through a release clause contained in the Agreement¹. For instance, a local rule or regulation that addresses locomotive idling would allow the railroads to opt out of the idling restriction of the Agreement, either in that district or on a statewide basis. However, the other elements of the Agreement would remain in effect. Districts considering overlapping rules will need to consider the possibility that local rulemaking could result in the loss of certain local benefits from the statewide Agreement.

If the opt-out provisions were to be exercised by the railroads on a statewide basis, this could also result in the loss of benefits in other areas of the State outside the local air district that is pursuing its own regulations. However, the railroads would incur significant risk in exercising this option, knowing that other local air districts could decide that it is necessary to pursue local regulations. This could result in a patchwork of different regulations within the State, an outcome the railroads wish to avoid.

Potential Emission Reduction Impacts Associated with Rescinding the Agreement

The Agreement provides significant and immediate locomotive emission reductions that are needed to reduce exposure and risk around rail yards. Rescinding the Agreement will forfeit these emission reductions. There is little likelihood that they would be restored through a second negotiation with the railroads. Alternatively, rules approved by ARB or local air districts to control locomotive emissions would likely be challenged in court and possibly preempted, resulting in no emission reductions. At a minimum, the implementation of any ARB or local air district rule that successfully withstood a legal challenge would be significantly delayed. This would result in little or no emission reductions in the intervening period, as opposed to the immediate emission reductions provided by the Agreement.

Public Comments on the Agreement

As previously discussed, staff held two meetings (one in Sacramento and one in Commerce) to solicit public comments on the Agreement. Staff presented information on the program elements of the Agreement, discussed key issues, and accepted both verbal and written public comments. Approximately 100 people attended the meeting in Sacramento, and over 250 people attended the meeting in Commerce. Nearly 90 people testified on the Agreement, including 30 persons testifying as individuals or members of community groups, 28 elected officials, 7 representatives of local air districts, 18 environmental organizations, and 5 representatives of business groups, including the UP and BNSF railroads. A large majority of those providing testimony

¹ The rationale for including the release clause (commonly referred to by commenters as the "poison pill") in the Agreement is explained on Page ES 9.

expressed opposition to the Agreement and requested that the Board rescind the agreement. Many comments suggested that if the Agreement is not rescinded, it should be modified in various ways. Staff has categorized the comments received at the meetings into the following general comments, accompanied by short staff responses:

- *The Agreement is so flawed that it should be rejected by the Board and rescinded.*

The Agreement will obtain significant locomotive emissions reductions that are needed to reduce exposure and risk around rail yards. Rescinding the Agreement will forfeit these reductions, and there is little likelihood that they would be successfully restored through either a second negotiation or a rulemaking process.

- *It was inappropriate and bad public policy for the railroads and ARB to reach such an agreement with no opportunity for public comment and input. The exclusion of the public from the development process violated the Board's commitment to Environmental Justice and open participation.*

The Agreement was a negotiated document, entered into voluntarily between the railroads and ARB. There are wide differences among other parties related to both the acceptable content and appropriateness of any voluntary agreement dealing with railroad operations. Staff concluded it would be impossible to directly involve interested parties in the negotiations and reach any meaningful agreement. However, because public participation is critical at individual rail yards, the elements of the Agreement provide for significant community interaction, which had not occurred to date. Staff viewed the other aspects of the Agreement (idling, clean fuels and smoke reduction), whereby the railroads committed to statewide, unilateral actions to reduce emissions, as purely positive steps that could be pursued without extensive public debate.

- *It was not necessary for ARB staff to enter into an agreement with the railroads because ARB already has the legal authority to adopt regulations that achieve the same goals as the Agreement.*

The California Legislature has granted ARB broad authority to regulate locomotive emissions, and has specifically directed the ARB to achieve the maximum degree of emission reductions by the earliest practicable date from off-road equipment and vehicles, including locomotives. However, while this authority under State law is quite clear, preemption limitations at the federal level, which are supreme to State law, restrain the ability of ARB to engage in a regulatory approach targeting railroad emissions. These limitations meant that the Agreement, as opposed to regulation, was the preferable course of action to ensure timely and certain emission benefits from railroad operations.

- *The Agreement caused pending legislation supported by the South Coast District, and environmental and community groups to be withdrawn. The ARB should modify its opposition to these bills and support their passage as the appropriate mechanism to reduce emissions from railroad operations.*

There were three bills in this year's session of the Legislature that focused on pollution from railroad operations. The Administration opposed two of these bills: Assembly Bill (AB) 888 and Senate Bill (SB) 459. However, the opposition to these bills is not related to any element of the Agreement, and would have been the same in the absence of negotiation of the Agreement. The remaining bill, AB 1222, concerns remote sensing of locomotives and is anticipated by and consistent with the Agreement. AB 1222 was signed by the Governor on October 6, 2005, and will be implemented per the legislation.

- *The Agreement interferes with local rulemakings and is counter to the principle that local agencies have the right to pursue more stringent requirements than required statewide.*

The Agreement does not remove or restrict any local authorities. Local air districts maintain their authority to adopt appropriate rules and regulations consistent with the scope of their regulatory authority under State and federal law. However, the Agreement provides benefits that could be lost if local air districts decide to exercise their authority. Therefore, each agency will need to consider this factor prior to taking actions that overlap with the statewide agreement.

Railroad and rail yard operations, and their associated emission impacts, are statewide; staff believes there is substantial merit in taking a uniform approach relative to many aspects of rail operation. This approach is consistent with many California air pollution control programs addressing statewide sources, including fuel specifications, motor vehicle emission standards, and consumer products. A statewide approach also provides a uniform set of compliance requirements for railroads, allowing them to more effectively manage their operations and train employees to meet emission reduction obligations. This is important since train crews can traverse many different parts of the State over a short period of time, and compliance with a patchwork of different operational standards in different parts of the State would be very difficult and cumbersome for the railroads to implement.

- *The release clause should be deleted (the release clause allows the railroads to opt out of portions of the agreement if subject to overlapping local control. It is usually referred to by commenters as the "poison pill".)*

The railroads operate nationally and believe uniform operating requirements throughout the State are essential for a consistent and efficient mechanism to implement operational changes that produce emission reductions. Because of this, during the negotiations, the railroads indicated that any agreement had to ensure that they would not have to comply with multiple requirements within the State. Staff does not believe that the railroads would have entered any agreement that could obligate them to two overlapping and potentially inconsistent methods of control.

Much of the concern about the release clause is based on the ability of the railroads to exercise it on a statewide basis, even if overlapping requirements are being pursued in only one area. As stated previously, the railroads would incur significant risk in exercising this option, knowing that other local air districts could decide that it is in their interest to adopt their own local regulations. This could result in a patchwork of different regulations within the State. If the railroads decide to opt-out of an element of the Agreement because of a local action, staff believes that the best course is to work with the railroads to convince them it is in their interest to implement the Agreement in all other areas.

- *The Agreement is not stringent enough.*

The Agreement achieves very significant reductions and represents the maximum commitment staff could obtain through negotiations. The Agreement achieves emission benefits where they would otherwise be difficult or impossible for the ARB or local air districts to obtain via regulation. Staff believes that most of what could be achieved, both with respect to content and timing, is included in the Agreement.

- *The Agreement is not enforceable.*

The Agreement is enforceable at both the State and local level. Some elements, such as the locomotive idling provisions, can be enforced directly by either ARB or local air district staff upon completion of ARB developed enforcement training. Others, such as failure to comply with the repair requirements for locomotives with excessive visible emission, are subject to enforcement action exclusively by ARB staff. Additionally, specific recordkeeping requirements in the Agreement allow staff to ensure, on a regular basis, that the requirements in the Agreement are implemented. Violations of any of these provisions can result in escalating penalties that can become quite substantial. Failure on the part of the railroads to implement the necessary steps to meet the performance standards, training, or compliance date requirements of the Agreement can result in even more substantial penalties. Staff will monitor compliance with all provisions of the Agreement, and seek penalties as appropriate for failure to comply.

- *The penalties provided in the Agreement are not consistent with those provided in State law for violations of air pollution laws and regulations from other air pollution sources.*

Staff believes the penalty structure of the Agreement is adequate to ensure that the railroads fully implement and meet their obligations under the Agreement. This includes penalties of up to \$1,200 per locomotive, per day, for both individual violations of either the idling or smoking locomotive repair provisions, as well as more substantial penalties of up to \$40,000 per month for failure to implement specific program elements. While these penalties are neither as significant nor as prescriptive as those provided under State law for violations of State or local regulations, they represent the level of punitive action to which the railroads would agree for failure to meet any of their obligations under the Agreement. Also, staff believes these penalty amounts are consistent with the penalty assessments local air districts have historically collected through mutual settlement agreements with other sources under their jurisdiction for comparable emission violations.

Implementation of the Agreement

Staff has begun to implement the program elements of the Agreement on the agreed-upon schedule. This has included meetings with environmental organizations and local air districts to provide staff an opportunity to discuss the program elements of the Agreement and to hear comments and concerns. Through this process, staff has committed to work with communities and local air districts on the development of guidelines for the health risk assessments, the joint development of the statewide complaint-reporting process for locomotives and rail yards, and to cooperate on the evaluation of the feasibility of future emission control technologies.

To date, the railroads have met all of the commitments contained in the Agreement. This includes having provided information to staff identifying the Program Coordinators for the "Designated" and "Covered" rail yards, established a complaint reporting process for the community, and provided staff with an inventory of their intrastate (captive) locomotive fleet, including identifying which locomotives have already been equipped with anti-idling devices. The railroads have also submitted their plans to establish a visible emission reduction and repair program. In addition, the railroads have submitted their plans to train appropriate rail yard staff and train crews on the idling requirements of the Agreement, and the individual visible emission reduction and repair program plans. Staff will continue to work with the railroads to ensure that the program element commitments contained in the Agreement are satisfied.

Staff Recommendation

Staff recommends the Board direct staff to continue to implement the Agreement.

Staff also recommends the Board direct staff to:

- Clarify terms in the Agreement, so as to provide greater specificity to all interested stakeholders;
- Report back to the Board within 6 months and every year thereafter, on progress in implementing the program elements of the Agreements; and
- As part of the annual reports to the Board, provide an assessment of the efforts to work with communities, local air districts, and other interested stakeholders.

ATTACHMENT #3

SUBJECT:

**UPRR Memorandum 11/30/05 providing Roseville
specific status of idling and fuel program elements
of the Statewide MOU**



November 30, 2005

Tom,

Per our previous discussions, I've used the Statewide MOU sections covering idling and fuel to organize an update for each item addressed comparing the requirements of the MOU to our progress in Roseville. These short, J. R. Davis Yard specific status reports will show what we've done already, and where we are going in the future for part of those 2 program elements.

1. Locomotive Idling-Reduction Program.

The goal of this Program Element is to effectively eliminate non-essential locomotive idling, both inside and outside of rail yards. It is anticipated that the locomotive idling-reduction program will expedite the installation of locomotive idling reduction devices and implement highly-effective locomotive operational idling reduction procedures in California.

(a) Automatic Idling-Reduction Devices Shall Be Installed on Intrastate Locomotives Expeditiously.¹ The Participating Railroads shall install automatic idling-reduction devices on all intrastate locomotives based in California that are not already so equipped as of the Effective Date in accordance with the following schedule:

Date	Cumulative Percent of Unequipped Intrastate Locomotives To Be Equipped by Date
June 30, 2006	35%
June 30, 2007	70%
June 30, 2008	>99%

ALL NEW ROAD LOCOMOTIVES UPRR HAS PURCHASED FOR THE PAST 4 YEARS HAVE AUTO START STOP. GIVEN THE AMOUNT AND NATURE OF THE RAIL TRAFFIC IN ROSEVILLE, A DISPROPORTIONATELY HIGHER PERCENTAGE OF NEW

LOCOMOTIVES ARE SERVICED OR PASS THROUGH ROSEVILLE THAN AN AVERAGE LOCATION ON OUR SYSTEM.

THE MAJORITY OF INTRASTATE LOCOMOTIVES IN/AROUND ROSEVILLE WERE FITTED WITH AUTO START STOP CAPABILITY 3 YEARS AGO. ABOUT 15% OF THE INTRASTATE LOCOMOTIVES IN ROSEVILLE REMAIN TO BE RETROFITTED, SO WE ARE WELL ALONG ON THIS ITEM. WE ARE ESTABLISHING CONTRACTS WITH VENDORS TO RETROFIT ALL INTRASTATE LOCOMOTIVES BY THE JUNE 30, 2008 DEADLINE.

(b) Performance Standards for Locomotives Equipped with Automatic Idling-Reduction Devices. The automatic idling-reduction devices shall limit locomotive idling to no more than 15 consecutive minutes. If the engine characteristics of a particular locomotive model will not allow a 15 minute shut-down cycle without risking excessive component failures, the automatic idling-reduction devices required pursuant to subsection (a) shall reduce locomotive idling by the maximum amount that is feasible.

MANY OF OUR AUTO START STOP SYSTEMS ARE PRESET FOR 20 MINUTES RATHER THAN 15 MINUTES, REQUIRING THAT WE LOOK MORE CLOSELY AT THE POTENTIAL FOR PREMATURE COMPONENT FAILURE SHOULD THEY BE RESET TO THE LOWER TIME.

(c) Inventory of Intrastate Locomotive Fleet. Within 60 days after the Effective Date, the Participating Railroads will provide information on their intrastate locomotive fleet based in California, including locomotive manufacturer, model number, certification level, locomotive number, the availability of automatic idling-reduction devices for each locomotive make and model, and the idling reduction limits these devices can feasibly achieve. The Participating Railroads will also provide information regarding intrastate locomotives based in California already equipped with automatic idling-reduction devices. This information shall include locomotive number, manufacturer, and model of the automatic idling-reduction device installed, the idling reduction limits that the device can feasibly achieve, date of installation, and any other information the railroad or ARB may deem necessary. Every April thereafter, the Participating Railroads agree to submit the same information for each intrastate locomotive equipped with an automatic idling-reduction device under subsection (a) during the previous 12 months. As part of its annual report to ARB, the Participating Railroads will also report the number of locomotives and overall percentage of locomotives owned by them nationwide that foreseeably may operate in California and that have been equipped with automatic idling-reduction devices during the previous 12 months.

THIS REQUIREMENT WAS MET ON SCHEDULE.

(d) Performance Standards for Locomotives Not Equipped with Idling-Reduction Devices. Notwithstanding the Participating Railroads' obligation to install automatic idling-reduction devices on at least 99 percent of their intrastate locomotives by June 30, 2008, the Participating Railroads agree to exert their best efforts to limit the non-essential idling of locomotives not equipped with automatic idling-reduction devices. In no event shall a locomotive be engaged in non-essential idling for more than 60 consecutive minutes. The

Participating Railroads shall limit non-essential idling of locomotives installed with automatic idling reduction devices to the limits specified in subsection (b).

THIS STANDARD IS INCORPORATED INTO OUR SHUTDOWN POLICY; OUR POLICY IS COMPLETELY CONSISTENT WITH THIS REQUIREMENT.

(e) Exceptions to Idling Limits. Subsections (b) and (d) shall not apply when it is essential that a locomotive be idling. It shall be considered essential for a locomotive to idle to ensure an adequate supply of air for air brakes or for some other safety purpose, to prevent the freezing of engine coolant, to ensure that locomotive cab temperatures in an occupied cab remain within federally required guidelines, and to engage in necessary maintenance activities. The parties agree that necessary maintenance includes, but may not be limited to, fueling, testing, tuning, servicing, and repairing. Within 60 days after the Effective Date, the Participating Railroads may submit to ARB for consideration a more exhaustive listing of necessary maintenance activities that require extended idling, which shall be used in enforcement of this Program Element. An unoccupied locomotive shall include either an individual locomotive with no personnel on-board, or the trailing locomotives in a consist where only the lead locomotive has personnel on-board. It shall be considered essential for an unoccupied locomotive not equipped with an automatic idling-reduction device to idle when the anticipated idling period will be less than 60 minutes. The Participating Railroads shall make efforts to notify train crews of anticipated wait times for such events such as train meets, track repair, emergency activities, etc. which could result in idling events greater than 60 minutes.

UPRR ADVISED CARB THAT WE DO NOT HAVE A MORE EXHAUSTIVE LISTING OF NECESSARY MAINTENANCE ACTIVITIES THAT WOULD REQUIRE EXTENDED IDLING.

(f) Participating Railroads' Idling Reduction Training Programs. Within 90 days after the Effective Date, the Participating Railroads and ARB agree to establish procedures, training and any other appropriate educational programs necessary to implement and execute the provisions of this section. ARB will provide the necessary training for ARB inspectors and, if a district desires to participate in this Program Element, for inspectors from local districts. The Participating Railroads will provide the necessary training for locomotive operators, local rail yard and regional dispatchers, and any other appropriate rail yard employees. Such training shall include instruction that appropriate rail yard employees shall shut down locomotives not equipped with idling-reduction devices if they become aware that nonessential idling will exceed 60 minutes. The Participating Railroads and ARB shall undertake efforts to assure compliance with the provisions of this section, including maintaining records of training. The Participating Railroads and ARB shall make every reasonable effort to minimize the amount of time to complete this training. Information on the establishment, implementation (including training schedules), and compliance with the training components of this subsection, and any other information the railroad or ARB may deem necessary, shall be provided to the designated ARB representative within 120 days of the Effective Date of this Agreement, and every April thereafter.

UPRR HAS DEVELOPED NEW TRAINING MATERIALS, REVISED OUR TRAINING PROCEDURE, AND SUBMITTED THOSE MATERIALS TO CARB AS REQUIRED. ON MONDAY, DECEMBER 5th, WE MET WITH KEY PERSONNEL ON THE 2 SERVICE UNITS

IN CALIFORNIA TO DEVELOP A MORE COMPREHENSIVE PROGRAM FOR TRAINING LOCOMOTIVE OPERATORS, RAIL YARD AND REGIONAL DISPATCHERS AND OTHER APPROPRIATE RAIL YARD EMPLOYEES.

WE HAVE HELPED CARB WITH THEIR EFFORTS TO FAMILAIRIZE THEIR INSPECTORS BY HOLDING A DISCUSSION AND TOUR OF THE ROSEVILLE YARD ON FRIDAY, DECEMBER 2nd. MORE SPECIFIC FOLLOW UP MEETINGS ARE ANTICIPATED TO ENSURE CARB PERSONNEL ARE VERSED IN YARD ACTIVITY.

(g) Participating Railroads' Rail Yard Idling Reduction Program Coordinators. This subsection applies to the rail yards listed in Attachment A (the "Designated Yards"), plus the rail yards listed in Attachment B (the "Covered Yards"). To implement the standards established by this section, the Participating Railroads will establish a single point of contact (a Program Coordinator) for all Covered Yards who will be responsible for maintaining and providing records required to demonstrate compliance with this section. The name and contact information for the program coordinator for each Covered Yard shall be provided to ARB within 30 days after the Effective Date.

UPRR ESTABLISHED THE PROGRAM COORDINATOR FOR THE ROSEVILLE YARD AND SUBMITTED TO CARD AS REQUIRED.

(h) Idling Reduction Program Community Reporting Process. Within 60 days after the effective date and in conjunction with ARB and local residents, the respective Participating Railroad shall establish a process at each Covered Yard in the state for informing members of the community regarding how they can report excessively idling locomotives and notifying them of what actions have been taken by the railroad in addressing any identified problems.

UPRR HAS AN ESTABLISHED PROCESS FOR ROSEVILLE – AND FOR THE ENTIRE SYSTEM - FOR THE REPORTING OF LOCOMOTIVES THAT ARE EXCESSIELY IDLING.

(i) ARB Locomotive Idling-Reduction Enforcement Program. A detailed enforcement protocol to determine the specific procedures for enforcing this Program Element will be developed by ARB no later than December 31, 2005, and updated as necessary, to ensure that each ARB or participating air district staff who is enforcing the provisions of this Program Element is knowledgeable of the provisions, intent and protocols governing this section. Each notice of violation (NOV) issued for this Program Element shall include a detailed description of the alleged violation, including time, identification and location of the locomotive; all facts relating to subsection (b) (in the case of locomotives equipped with automatic idling-reduction devices); and all facts relating to subsection (d) (in the case of locomotives not equipped with automatic idling-reduction devices). If possible, every NOV shall include the Program Coordinator's acknowledgment of receipt of the railroad's copy of the notice by fax or otherwise. Copies of notices for violation of this Program Element will be provided to the Program Coordinator (or designee) upon completion or as soon as practical if the contact is not available. For an NOV issued by an air district, the district shall, within 48 hours, mail, fax or electronically transmit a copy of the NOV to the designated ARB representative. ARB shall have sole authority to assess or modify a penalty, to waive any penalty or to determine that no violation has occurred under this Program Element. In the event of a dispute between ARB and

the Participating Railroad concerning a penalty, either party may activate the appeal procedures set forth in subsection (a)(iii) of Program Element 10.

WE ARE CONTINUING TO WORK WITH ARB AS THEY DEVELOP THEIR ENFORCEMENT PROTOCOLS. LAST FRIDAY, DECEMBER 2nd, ABOUT 2 DOZEN ARB ADMINISTRATORS AND STAFF - INCLUDING SOME FROM THE ENFORCEMENT SECTION - TOURED OUR ROSEVILLE YARD TO OBTAIN A BETTER UNDERSTANDING OF GENERAL RAIL OPERATIONS. THIS FRIDAY, DECEMBER 9th, A GROUP OF 8 TO 10 ENFORCEMENT STAFF ONLY WILL TAKE A MORE IN DEPTH LOOK AT ALL ASPECTS OF IDLING; THEY WILL BE ACCOMPANIED BY OUR DIRECTOR OF TERMINAL OPERATIONS.

NOTE THERE IS REFERENCE TO OUR PROGRAM COORDINATOR'S - IT IS IMPERATIVE THAT THEY BE CONTACTED WHEN AN NOV IS ISSUED SO THAT THE OPERATIONAL STATUS OF THE OFFENDING LOCOMOTIVE CAN BE DETERMINED AT THAT POINT IN TIME. WE MUST DIFFERENTIATE BETWEEN A 'WORKING' LOCOMOTIVE ENGAGED IN ESSENTIAL IDLING AND ONE THAT IS IDLING UNNECESSARILY. UNLESS ONE THOROUGHLY UNDERSTANDS YARD OPERATIONS, THAT DISTINCTION MAY BE DIFFICULT TO MAKE.

2. Early Introduction of Lower Sulfur Diesel in Locomotives.

The goal of this Program Element is to achieve emission benefits from the use of cleaner, lower sulfur on-highway diesel fuel in locomotives earlier than is required under existing federal and California regulations.

(a) Supply of Lower Sulfur On-Highway Diesel Fuel to Locomotives within California. The Participating Railroads agree to maximize the use of lower sulfur on-highway diesel fuel in locomotives operating in California, and agree to ensure that, after December 31, 2006, at least 80 percent of the fuel supplied to locomotives fueled in California meets the specifications for either California diesel fuel (CARB diesel) or U.S. EPA on-highway diesel fuel.

WE WILL CERTAINLY COMPLY WITH THIS PROVISION BY THE DEADLINE. HISTORICALLY, BETWEEN 40 AND 70% OF THE FUEL WE DISPENSE IN ROSEVILLE IS CARB DIESEL. AT TIMES, 100% IS CARB DIESEL.

I do hope this update is beneficial for you and your Board of Directors. I will attend the meeting on December 8th, and will be able to clarify any of these items or address any additional concerns at that time.

Please, as always, call if questions.

Sincerely,

Lanny A. Schmid
Director Environmental Operations

ATTACHMENT #4

SUBJECT:

**Advanced Locomotive Emission Control
System Demonstration Project Description and Objectives**

ADVANCED LOCOMOTIVE EMISSION CONTROL SYSTEM DEMONSTRATION PROJECT DESCRIPTION AND OBJECTIVES

This demonstration is a collaborative project involving many parties, including Placer County Air Pollution Control District, Sacramento Metropolitan Air Quality Management District, Union Pacific Railroad, Advanced Cleanup Technologies, EPA, CARB, and South Coast Air Quality Management District. The project is an outgrowth of the California Air Resources Board's health risk assessment of the J. R. Davis rail yard located in Roseville, CA. and the subsequent agreement between Placer County Air Pollution Control District and Union Pacific Railroad Company, which includes a mitigation plan for reducing diesel particulate emissions from the rail yard. Part of the mitigation plan is to consider stationary air pollution control equipment to capture and treat emissions from stationary locomotives that are idling or undergoing engine load tests. This project will demonstrate the effectiveness of one set of stationary air pollution control equipment in treating PM, NO_x, SO_x, and VOC emissions from locomotives.

The Advanced Locomotive Emission Control System (ALECS) demonstration project is a short-term effort where the locomotive-specific interfaces will be developed, existing emissions control equipment from an unrelated project will be moved to the Roseville rail yard, testing will be conducted on stationary and slow-moving locomotives to determine the effectiveness of the control equipment, and the control equipment will be returned to the original project. The test results and project findings are to be documented in a final report.

The project is structured in two phases. The first phase accomplishes the locomotive interface design, test location definition and design, development of the test protocol, and acquisition of the locomotive interface hardware. The second phase will ship the ALECS to the Roseville rail yard, erect the ALECS on the test site, startup the ALECS equipment, test two different locomotive types to the test protocol, disassemble the ALECS and ship back to ACTI, and prepare the final report. The major schedule milestones are to start phase I in September 2005, start phase II with shipment of ALECS to Roseville in March 2006, complete testing in June, 2006, and issue the final report in September 2006.

The specific objectives of this demonstration project are as follows:

Objective 1: Demonstrate the Effectiveness of Stationary Control Equipment on Locomotive Exhaust: The exhaust from rail locomotives is purported to be unique due to special design objectives utilized in locomotive engine development whereby a considerable amount of lubricating oil is released with the engine exhaust. This demonstration of the ALECS equipment should quantify the overall capture and control efficiency of PM, NO_x, SO_x, and VOC in actual locomotive exhaust in a rail yard environment. Locomotive engines in common use come in two distinct technologies; 2-stroke and 4-stroke. This demonstration will test one engine of each technology. Sound measurements will

be taken with and without the control equipment to determine the extent of noise reduction due to the control equipment.

Emissions testing will be conducted according to a test protocol developed for this project. The test protocol will prescribe accepted test methods appropriate to the pollutants being measured. The protocol will be reviewed by the air districts, CARB, and EPA. The testing will be conducted on the locomotive without any control equipment to establish the baseline emissions, and then with the control equipment to establish the control efficiency. If appropriate, these tests could be combined to measure exhaust concentrations before the control equipment and upon exit from the control equipment.

Objective 2: Demonstrate the Attachment Scheme Between the Locomotive and the Stationary Control Equipment: Since a rail yard is a busy place where efficiency of operations is important, the attachment of the emissions control equipment to the locomotive must be quick, simple, and safe to the operating personnel. Attachment and capture efficiency will be demonstrated on locomotives with one and two emission stacks. During the emissions testing phase of this project, multiple attachments and disconnects shall be performed to demonstrate this capability. Rail yard personnel shall be given a chance to operate the attachment controls.

Objective 3: Demonstrate the Capability of Some Locomotive Movement While Connected to the Control Equipment: One of the design features of the ALECS is to allow movement of the locomotive along the track for a prescribed distance while connected to the emissions control equipment. During the emissions testing, some portion of the testing shall be conducted with the locomotive connected to the stationary control equipment and the locomotive moving to demonstrate this capability.

Objective 4: Develop Improved Information on Capital Cost, Operating Procedures, and Operating Costs: The underlying purpose of this demonstration project is to provide information on performance, operation and cost of using stationary emissions control equipment to treat locomotive exhaust in rail yards that will enable the railroad and equipment suppliers to make business decisions on moving forward in deploying this type of equipment. During the installation and operation of the ALECS, information shall be collected and recorded that will enable capital and life cycle costs to be generated. Rail yard facility requirements for infrastructure and support utilities will be defined. These cost estimates shall be documented in the final report. Railroad personnel shall be instructed on operation and maintenance of the ALECS during the demonstration project.

The ALECS to be used for this demonstration is borrowed from another project where the equipment size was optimized for another application. As part of this objective, the appropriate size and quantity of ALECS's will be estimated to serve

the J. R. Davis Rail Yard. The cost estimates will be adjusted for size and documented in the final report.

Objective 5: Document Test Results and Project Findings in a Final Report:

Since this demonstration project has the purpose of generating information on performance and operation of the ALECS to allow railroads to make business decisions on use of this stationary control equipment on their rail yards, the project results will be documented in a final report. The final report will include, as a minimum, details of the locomotives tested, configuration of the test setup and test equipment, emission and noise test results with and without the control equipment, and estimates of the capital and operating costs of deploying a permanent system in a rail yard.

ATTACHMENT #5

SUBJECT:

Technical Advisory Committee Roster

**ROSEVILLE RAILYARD AIR MONITORING PROJECT
TECHNICAL ADVISORY COMMITTEE**

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ATTACHMENT #6

SUBJECT:

Map of Monitoring Stations

Map of Site Location

ATTACHMENT #7

SUBJECT:

Summary of Air Monitoring Data Completeness

Summary of Data Completeness