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EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
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December 22, 2006

Ross B. Dindio
Chief of Operations
Massachusetts Turnpike Authority
State Transportation Building
Ten Park Plaza, Suite 4160
Boston, MA 02116

Re: Final Acceptance of Central Artery/Tunnel Project Operating Certification Under 310 CMR 7.38

Dear Mr. Dindio:

On June 5, 2006, the Massachusetts Department of Environmental Protection (MassDEP) received a request from the Massachusetts Turnpike Authority (MTA) for review and acceptance of the Central Artery/Tunnel Project (CA/T Project) Operating Certification (Operating Certification) pursuant to "Certification of Tunnel Ventilation Systems in the Metropolitan Boston Air Pollution Control District," 310 CMR 7.38. MTA's request included copies of a Technical Support Document entitled, "Central Artery (I-93)/Tunnel (I-90) Project, Operating Certification of the Project Ventilation System" dated June 2, 2006. On July 5, 2006, MassDEP notified MTA that the Operating Certification was incomplete and required the submission of supplemental information MassDEP deemed necessary to complete its review and to initiate the public review and determination process pursuant to 310 CMR 7.38(5). MTA provided the requested supplemental information to MassDEP in a revised Operating Certification on August 25, 2006. MassDEP reviewed the revised Operating Certification and MTA's request was found to be complete on September 25, 2006. On September 26, 2006 MassDEP issued a Proposed Acceptance of the Operating Certification to MTA. Pursuant to 310 CMR 7.38(5) and (11), MassDEP gave notice and held a public hearing on the Operating Certification and MassDEP's Proposed Acceptance on November 14, 2006. Comments were accepted until November 17, 2006. This letter is MassDEP's Final Acceptance of the Operating Certification subject to certain conditions. This Final Acceptance shall expire on December 21, 2011.

Overview of Regulation

The requirements of 310 CMR 7.38 apply to the construction and operation of any tunnel ventilation system for highways within the Metropolitan Boston Air Pollution Control District. The regulations provide for comprehensive and systematic air quality analysis of highway tunnel ventilation systems to ensure that the emissions from tunnel ventilation systems do not result in any exceedances of either the National Ambient Air Quality Standards (NAAQS) or MassDEP guidelines.

This information is available in alternate format. Call Donald M. Gomes, ADA Coordinator at 617-556-1057. TDD Service - 1-800-298-2207.

MassDEP on the World Wide Web: <http://www.mass.gov/dep>

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Pursuant to 310 CMR 7.38(4), no person shall operate a tunnel ventilation system or open for general public use any project roadway subject to 310 CMR 7.38 without first certifying and receiving written acceptance by MassDEP that the project will not cause or exacerbate a violation of the NAAQS, guidelines, criteria specified in 310 CMR 7.38(2)(a) through (c), and of the preconstruction certification accepted by MassDEP under 310 CMR 7.38(3).¹ In addition to the demonstration of compliance with the certification criteria set forth in 310 CMR 7.38(2)(a) through (c) and the preconstruction certification accepted by MassDEP pursuant to 310 CMR 7.38(3), the operating certification is required to include a Contingency Plan consisting of measures that shall be implemented in cases of exceedance of the Emission Limits.

Summary of Preconstruction Certification Process

On February 20, 1991, to comply with the provisions of the Ventilation Certification Regulation 310 CMR 7.38(2), the Massachusetts Department of Public Works, now the Massachusetts Highway Department (MHD), submitted a “Preconstruction Certification of the Tunnel Ventilation System for the CA/T Project” (Preconstruction Certification). In accordance with the procedures in 310 CMR 7.38(3)(b), the Preconstruction Certification was found to be complete by MassDEP on March 27, 1991, and on May 7, 1991, MassDEP conducted a public hearing on the Preconstruction Certification pursuant to 310 CMR 7.38(11). After considering the information presented at the public hearing and during the public comment process, MassDEP accepted the Preconstruction Certification subject to conditions set forth in the decision document dated July 8, 1991, “Conditional Acceptance of Preconstruction Certification of the Central Artery/Third Harbor Tunnel Project” (Conditional Acceptance), included as Attachment 1. MassDEP determined that the mitigation measures proposed by MHD included in the Preconstruction Certification and set forth in the Conditional Acceptance were necessary to mitigate potential adverse air quality impacts from the CA/T Project and to meet the criteria set forth in 310 CMR 7.38. The mitigation measures set forth in the Conditional Acceptance included public transportation measures, transportation management measures, and a high occupancy vehicle (HOV) program.

On January 7, 1999, MTA, on behalf of MHD, submitted to MassDEP for review and acceptance an amendment to the Preconstruction Certification. The amendment to the Preconstruction Certification included an update to reflect the air quality and transportation mitigation commitments required of the Executive Office of Transportation and Construction (EOTC), now Executive Office of Transportation (EOT).

The amended Preconstruction Certification was found to be complete by MassDEP on February 26, 1999, and on March 30, 1999, MassDEP conducted a public hearing on the Amended Preconstruction Certification pursuant to 310 CMR 7.38(11). MassDEP issued proposed decision documents on the Amended Preconstruction Certification on April 29, 1999 and conducted a public hearing on May 20, 1999. After review of the information submitted by MTA, MHD, and EOTC and information generated during the public hearing process, MassDEP accepted the Amended Preconstruction Certification subject to certain conditions in a document dated September 1, 2000, “DEP Determination on the Amended Preconstruction Certification of the Central Artery/Third Harbor Tunnel Project Under 310

¹ In correspondence to MTA regarding emission certification dated September 17, 1999 and July 21, 2003, MassDEP determined that for the CA/T Project, the following pollutants would be addressed: carbon monoxide (CO), nitrogen dioxide (NO₂), non-methane hydrocarbons (NMHCs), and particulate matter having an aerodynamic diameter of 10 microns or less (PM₁₀). See Section 16 below for a discussion of particulate matter having an aerodynamic diameter of 2.5 microns or less (PM_{2.5}).

CMR 7.38” (Determination), included as Attachment 2. An Administrative Consent Order (ACO) by and between MassDEP and EOTC, dated September 1, 2000, was incorporated by reference and made part of MassDEP’s Determination. The ACO was amended on May 23, 2002 and on January 26, 2005; these amendments are included as Attachment 3.

The Conditional Acceptance and the Determination required a number of mitigation measures designed to “mitigate potential adverse air quality impacts from the CA/T Project and meet the criteria for project certification.” To address delays in certain mitigation measures, the ACO and amendments of the ACO required additional measures to provide reductions in vehicle miles traveled and emissions during delays of the required mitigation measures.

MassDEP’s Final Acceptance of the Operating Certification

MassDEP reviewed MTA’s Operating Certification and found it to be complete on September 25, 2006, pursuant to 310 CMR 7.38(5). In accordance with 310 CMR 7.38(5) and (11), once MassDEP determined that the Operating Certification was complete, MassDEP gave notice and held a public hearing soliciting comments on the Operating Certification and MassDEP’s Proposed Acceptance. Pursuant to 310 CMR 7.38(5), after reviewing the Operating Certification and public comments, MassDEP hereby issues this Final Acceptance of the Operating Certification (Final Acceptance), subject to the following conditions listed below.

Conditions of Final Acceptance

1. Connection to the Preconstruction Certification

MassDEP issued the “Conditional Acceptance of Preconstruction Certification of the Central Artery/Third Harbor Tunnel Project” to the Massachusetts Department of Public Works on July 8, 1991 pursuant to 310 CMR 7.38(2) and (3) (Attachment 1 to this Final Acceptance). On September 1, 2000, MassDEP accepted the Amended Preconstruction Certification request submitted by MTA on January 7, 1999 (Attachment 2 to this Final Acceptance). The conditions and measures in the Preconstruction Certification as amended on September 1, 2000 are hereby fully incorporated into this Final Acceptance.

2. Emission Limits

The Emission Limits shown in Table 1 will ensure that all NAAQS and MassDEP guidelines for CO (carbon monoxide), PM₁₀ (particulate matter having an aerodynamic diameter of 10 microns or less), and NO₂ (nitrogen dioxide) based on NO_x (nitrogen oxides) will not be exceeded in the CA/T Project area. Air pollutant emission rates from the CA/T Project shall be kept to the lowest practical level at all times, but shall not exceed the Emission Limits as specified in Table 1.

Continuous Emission Monitors (CEMs) for CO and PM₁₀ are located in each Ventilation Zone in the CA/T Project area, and will be used to obtain emission concentrations to compare against Emission Limits for CO and PM₁₀. However, there are no CEMs for NO₂. Instead, NO₂ levels will be determined using a methodology developed by a MTA and MassDEP technical working group. The method will use a CO/NO_x regression model to determine NO_x levels (from measured CO levels) for comparison with NO_x Emission Limits developed for each Ventilation Zone. The CO/ NO_x regression model, approved by a joint MTA/MassDEP technical working group in 2003, was based upon an analysis of monitoring data collected at co-located CO and NO_x monitors in the Ted Williams Tunnel. The CO/NO_x regression model will need to be recalibrated every five years to account for on-going changes in vehicle classification, vehicle emissions, and updated monitoring data at the time of renewal.

NO_x Emission Limits for each Ventilation Zone were based upon air quality modeling using five years of meteorological data. NO_x emission rates were determined for each Ventilation Zone and EPA-approved dispersion and physical modeling techniques were employed to estimate hourly NO_x impacts at receptor points in the CA/T Project area. Predicted NO_x concentrations at each receptor point were then converted to NO₂ concentrations using the EPA-approved Ozone Limiting Method (OLM). The NO_x Emission Limits for each Ventilation Zone ensure that NO_x emissions will not exceed the MassDEP Hourly Guideline for NO₂.

Air pollutant emission rates from the CA/T Project shall be kept to the lowest practical level at all times, but shall not exceed the Emission Limits as specified in Table 1.

Table 1. Summary of Emission Limits

Location*	1-Hr CO Emission Limit (ppm)	8-Hr CO Emission Limit (ppm)	1-Hr NO_x Emission Limit (ppm)	24-Hr PM₁₀ Emission Limit (ug/m³)
VB 1	70	70	8.88	500
VB 3	70	70	8.88	500
VB 4	70	70	8.88	500
VB 5	70	70	8.88	500
VB 6	70	70	8.88	500
VB 7	70	70	8.88	500
Ramp L-CS	52	39	6.64	NA
Ramp CN-S	66	58	8.38	NA
Ramp SA-CN	70	70	8.88	NA
Ramp CS-SA**	56	46	7.14	150***
Ramp ST-SA**	70	51	8.88	NA
Ramp CS-P	70	70	8.88	NA
DST**	25	23	3.30	NA
Ramp F	70	70	8.88	NA

Acronyms are defined as: Leverett Circle to Central Artery Southbound (L-CS), Central Artery Northbound to Storrow Drive (C-NS), Surface Artery to Central Artery Northbound (SA-CN), Central Artery Southbound to Surface Artery (CS-SA), Sumner Tunnel to Surface Artery (ST-SA), Central Artery Southbound to Purchase Street (CS-P), I-90 Westbound to Congress Street (Ramp F), part per million (ppm), microgram per cubic meter (µg/m³).

- * Vent Building (VB) location includes all Ventilation Zones of the VB.
- ** Represent the existing CS-SA, ST-SA, and DST configurations with current portal location. In the event that parcels are developed during the 5-year certification renewal period, MTA must meet the Emission Limits appropriate for the future configuration and portal location as discussed in Section 7 below.
- *** An ambient PM₁₀ monitor is located outside Ramp CS-SA. See Section 3.3.4.2. of MTA’s Operating Certification for details.

In cooperation with MassDEP, MTA has established emission Action Levels for Ventilation Zones as indicated in Table 2. The Action Levels are approximately 80% of the Emission Limits shown in Table 1. The Action Levels were established as precautionary measures to avoid exceedances of the Emission Limits. In order to avoid exceedances of Emission Limits (Table 1), the following CO and PM₁₀ Action Levels were established for each Ventilation Zone.

Table 2. Emission Action Levels

Location	Rolling 1-Hour CO Action Level (ppm)	Rolling 8-Hour PM₁₀ Action Level (µg/m³)
VB 1	60	NA*
VB 3	60	500
VB 4	60	NA*
VB 5	60	500
VB 6	60	NA*
VB 7	60	500
Ramp L-CS	42	NA
Ramp CN-S	53	NA
Ramp SA-CN	60	NA
Ramp CS-SA	47	120**
Ramp ST-SA	60	NA
Ramp CS-P	60	NA
DST	20	NA
Ramp F	60	NA

* VB 1, 4, and 6 do not have PM₁₀ monitors. PM₁₀ monitors in VB 3, 5, and 7 will be used to trigger actions throughout the CA/T Project as discussed in Section 6 below.

** Ramp CS-SA PM₁₀ Action Level is for a calendar day, not Rolling 8 hours.

CO CEMs output shall be averaged over sixty minutes. The MTA's Operation Control Center (OCC) display for each Ventilation Zone at any moment shall show the rolling average of the CO values from the CO CEMs over the preceding sixty minutes, which rolling 1-hour average will be updated at least every minute.

PM₁₀ CEMs output shall be averaged over eight hours, such that OCC display for each Ventilation Zone at any moment shall show the rolling average of the PM₁₀ values from the PM₁₀ CEMs over the preceding eight hours, which rolling 8-hour average will be updated at least every minute.

There is no Emission Limit or Action Level for NMHCs or volatile organic compounds (VOCs). The Operating Certification demonstrated compliance with 310 CMR 7.38(2)(c) (non-methane hydrocarbon budget) through a regional modeling analysis comparing Build to No-Build conditions within the CA/T Project area for the year 2005. MTA and MassDEP developed the analysis in cooperation with the Central Transportation Planning Staff. The analysis established a VOCs emission budget of 6,095.9 kilograms per day that cannot be exceeded and must be verified every five years upon renewal of the Operating Certification.

3. Contingency Plan

Pursuant to 310 CMR 7.38(4)(b), the Operating Certification submittal is required to include a Contingency Plan of measures which must be implemented in cases of exceedances of the Emission Limits (Table 1). The Contingency Plan is required to identify available contingency measures, including but not limited to, alternative tunnel ventilation system operations and maintenance, transportation control measures (TCMs), a commitment for implementing said measures, a schedule for implementing measures on a days-to-full effectiveness basis, and an analysis of the daily air quality

impact of the measures on the emissions from the tunnel ventilation system and within the CA/T Project area.

The primary aim of MTA's Contingency Plan is to implement pre-emptive actions to avoid exceedances of Emission Limits. This approach relies on in-tunnel CO and PM₁₀ monitoring data from each ventilation zone to trigger actions at the OCC to increase ventilation rates as needed to avoid exceedances of Emission Limits. Action Levels (Table 2) were established as precautionary measures to allow operational actions to be taken to avoid exceedances of the Emission Limits. MTA's Contingency Plan includes this commitment to alternative tunnel ventilation system operations and maintenance procedures for CO, NO_x, and PM₁₀ for all ventilation zones (see Section 5). As CA/T ventilation technology and emissions monitoring have developed over the course of the Project, MassDEP has determined that CA/T project-wide TCMs are neither necessary nor appropriate as Contingency Plan elements in the Operating Certification. The requirement for TCMs will be reviewed by MassDEP upon renewal of the Operating Certification in 2011. However, the Operating Certification does contain a commitment to implement specific TCM procedures for PM₁₀ at Ramp CS-SA if Action Levels are reached (see Section 5).

MassDEP supports MTA's preventive approach intended to prevent exceedances of Emission Limits; however, in the unlikely event exceedances of Emission Limits do occur, MassDEP requires MTA to follow strict notification procedures. Accordingly, the Operating Certification includes a two-step procedure whereby if an Emission Limit is exceeded, MTA shall immediately (within 4 hours of such an occurrence) verbally notify MassDEP of this exceedance. This verbal notification shall be followed with a written notification to MassDEP within 24 hours of the Emission Limit exceedance. The written notifications shall be made to MassDEP, Bureau of Waste Prevention, Consumer and Transportation Programs Division, Transportation Management Programs Branch, 1 Winter Street, Boston, MA 02108. MTA shall verbally notify Transportation Management Programs Branch by calling 617-292-5500, if unable to reach staff directly, then MTA shall speak with or leave a message at MassDEP's Emergency Response phone number, 888-304-1133.

The Operating Certification (Section 6.4.2) also includes a description of the "Emission Limit Assessment" procedure to be followed if an Emission Limit is exceeded. The assessment shall analyze whether or not an Emission Limit exceedance caused or significantly contributed to a violation of the relevant NAAQS or MassDEP guideline based on the use of site-specific meteorological and background conditions at the time of exceedance. Meteorological data collected by the National Weather Service at Boston's Logan International Airport is acceptable. The analysis shall be provided to the above MassDEP address within three business days of MTA receipt of background conditions data from MassDEP. If an Emission Limit is exceeded, MassDEP will post a notice of the exceedance on MassDEP's web site within ten business days of notification and in the MEPA Environmental Monitor as a matter of public record.

4. CEM Data Display

OCC is the nerve center of the CA/T Project where all aspects of the roadway and ventilation system are monitored and where incidents of many different kinds are handled in accordance with established protocols. The current CEMs provide air-monitoring data from monitors located throughout the system directly to OCC, with the exception of CO monitors in VB 6 and VB 7 and PM₁₀ monitors in VB 3, VB 5, VB 7, and Ramp CS-SA. These exceptions do not allow OCC staff to have real-time access to PM₁₀ or CO monitoring data for those locations to assess whether or not concentrations are approaching Action Levels that might require action. Consequently, an Action Level or an Emission Limit could be exceeded without OCC being aware of it until the monitors are manually read after the fact.

Section 6.3 “Pre-Emptive Actions” of the Operating Certification discusses this situation and proposes that monitoring data from these PM₁₀ and CO CEMs “be tracked for one continuous year.” MTA proposed that if emissions remain well below the Action Levels, MTA would not proceed to establish a CEM display at OCC for these CEMs, but would implement the display if emissions are near the Action Levels. MassDEP agrees that prior modeling results and monitoring data collected to date supports MTA’s position that “it is extremely unlikely that any of the CEM emission action levels...will ever be reached due to the deployment of the pre-emptive actions” based on readings from CA/T Project CEMs required by federal agencies. Nevertheless, MassDEP is concerned that direct display of all the MassDEP-required CEM data is not available in real-time at the OCC.

In response, MTA has been working in recent months to add direct display at the OCC for CO and PM₁₀ CEM data from VB 7, CO data from VB 6, PM₁₀ data from VB 3 and VB 5, and PM₁₀ data from the ambient monitor at Ramp CS-SA. MassDEP is aware that MTA is on a rigid schedule to complete the work necessary to provide direct display as soon as reasonably possible. Accordingly, MassDEP determines that on or before December 31, 2006, MTA shall complete this work and provide direct display (and related alarms) at the OCC for PM₁₀ data from VB 3 and VB 5, and PM₁₀ data from the ambient monitor at Ramp CS-SA. MassDEP determines that on or before January 31, 2007, MTA shall complete this work and provide direct display (and related alarms) at the OCC for CO CEM data from VB 6 and CO and PM₁₀ CEM data from VB 7.

5. Operational Requirements for Action Level Exceedances

MTA shall use the CEM equipment installed at certain Ventilation Zones and longitudinally ventilated ramps to determine real-time CO and PM₁₀ emissions and to trigger alarms when CO or PM₁₀ Action Levels, as defined in Table 2, are reached.

OCC operators shall increase supply and exhaust air (to maintain stable air flows where available) fan speeds in an affected Ventilation Zone when the Action Levels are reached and continue to increase fan speeds until CO and PM₁₀ levels are below the alarm (i.e., Action Level) set point.

Ramp CS-SA represents an ambient location and as such any increased ventilation rate at this location may not remediate PM₁₀ levels. If the monitor consistently reaches the PM₁₀ Action Level for Ramp CS-SA, MTA shall perform an emission assessment as described in Section 3 above, but in this instance, to determine the cause of the Action Level exceedance. If the emissions assessment identifies outside tunnel conditions, such as the presence of idling vehicles or a pattern of traffic congestion which adversely affects Ramp CS-SA traffic sufficient to cause an Action Level exceedance, then MTA shall make a good faith effort to work with the Boston Transportation Department (BTD) to develop an interagency agreement (“protocol”), where one or more remedial actions would be implemented by BTD, including, but not limited to, increased enforcement of anti-idling laws, changing the traffic signalization affecting Ramp CS-SA, eliminating left turn options, or adding a police detail to facilitate the movement of traffic in the Ramp CS-SA area. The purpose of developing an interagency agreement is to establish the means to expeditiously implement remedial actions to address the influence of outside tunnel conditions. If the emissions assessment identifies inside tunnel conditions, then MTA shall implement alternative ventilation system operations and maintenance at Ramp CS-SA.

For Dewey Square Tunnel (DST), MTA shall operate the ventilation fans for the Dewey Square Air Intake Structure, along with Ventilation Zone SB-1 from VB 3 at Step 3 at a minimum each weekday afternoon (2:30 p.m. to 6 p.m.). The 2:30 p.m. start time for Step 3 ventilation settings helps ensure sufficient ventilation in advance of predictable p.m. peak period traffic conditions. MTA should also

consider increasing ventilation fan speeds automatically to Step 3 for Ventilation Zones during the morning and afternoon peak traffic periods if emission concentrations for these ventilation zones increase toward the applicable Action Level in the future.

6. Additional Operational Requirements for PM₁₀ Action Level Exceedances

The PM₁₀ CEMs in VB 3, 5, and 7 will be used to trigger actions for the ventilation zones affected by the specific PM₁₀ monitor described in Table 3 throughout the CA/T Project, not only in the Ventilation Zone in which each monitor is located (as is the case for the CO CEMs). OCC operators shall increase the ventilation rate to a minimum of Step 3 in the Ventilation Zone indicated in Table 3 when the PM₁₀ Action Levels are reached by the PM₁₀ CEMs listed in Table 3 and shall continue to increase fan speeds until PM₁₀ levels are below the alarm (i.e., Action Level) set point. The ventilation settings noted above shall be maintained until the specific PM₁₀ reading has fallen below its applicable emission Action Level. MTA shall also investigate the cause of the exceeded emission Action Level and take appropriate corrective actions as necessary.

Table 3. Ventilation Zones associated with each PM₁₀ CEMs

PM ₁₀ Monitor location	Ventilation Buildings and Zones in which to increase ventilation rate	
	Ventilation Building	Ventilation Zone
VB 3 in Ventilation Zone Northbound 1 (NB-1)	3	NB-1 and NB-2
	4	NB-3 and NB-4
VB 3 in Ventilation Zone Southbound 1 (SB-1)	3	SB-1
	4	SB-2 and SB-3
	DST Air Intake Structure	
VB 5 in Ventilation Zone Westbound 2 (WB-2)	5	WB-2 and WB-3
	1	Ramp D I-90 WB to I-93 NB and both parts of I-90 WB
	6	WB
	7	WB-2 and WB-3
VB 7 in Ventilation Zone Eastbound 2 (EB-2)	7	EB-2, EB-3 and Ramp T-A/D
	5	EB-2 and EB-3
	6	EB
	1	I-90 EB and both parts of Ramp L/HOV for I-90 EB
Ramp CS-SA	4	*

* Ramp CS-SA Action Level response described in Section 5 above.

7. Development of Parcels 6 and 12 and DST Partial/Full Build

Tables 6-1 and 6-2 of the Operating Certification include Emission Limits and Action Levels, respectively, for all the Vent Buildings and Ramps based on current development conditions. In order to ensure ongoing protection of sensitive receptors, the CA/T Project also determined Emission Limits and Action Levels to take effect in the case of future development of parcels 6 and 12 and the DST area.

Table 2-45 of the Operating Certification includes Emission Limits for current conditions and conditions for planned future development actions (Parcels 6 and 12 and DST Partial/Full Build). Completion of future development actions at Parcels 6, 12, and DST would result in stricter Emission Limits (and Action Levels) for Ramps CS-SA, ST-SA and DST due to modeled impacts to sensitive receptors that would exist after completion of the development.

Therefore, concurrent with the completion of ramp covers for any of these development areas, the stricter CO and NO_x Emission Limits included in Table 2-45 (and related Action Levels) shall automatically replace those in Tables 1 and 2. In this regard, at least sixty days prior to substantial completion of construction of ramp covers, MTA shall notify MassDEP in writing of the changed condition(s).

In addition, starting on February 1, 2008, and continuing yearly until completion of the above described development, MTA shall provide MassDEP with a written update regarding the status of ramp covers and development activities at these three locations. These updates shall also indicate whether the sensitive receptors used by MTA to develop the post-development Emission Limits have changed or are likely to change, such that even stricter Emission Limits might be required. Such conditions may require additional modeling to assess and develop new Emission Limits.

8. Incident Remedial Measures

Staff from MassDEP and MTA met in June and July 2006 to review and discuss the procedures that OCC uses to manage and remediate incidents, such as breakdowns/collisions/blockages (not including tunnel fires), that might occur in the tunnel system that could affect the nature and extent of emissions regulated under 310 CMR 7.38. Based on those discussions, it is MassDEP's understanding that, in general, OCC procedures consist of three basic elements: (1) detection; (2) notification; and (3) documentation, with the main activities being:

1. Identify an incident and notify Incident Response Operations (IRO);
2. Assess the incident;
3. Remove the problem from the tunnel;
4. Ramp-up fans in impacted Ventilation Zone(s);
5. Update MTA traffic warning system and web site;
6. Check traffic queue to make sure that initial incident has not caused additional problems; and
7. Contact Boston Emergency Medical Services/Boston Fire Department, as necessary.

MassDEP has determined that procedures to deal with such incidents are not only critical aspects related to in-tunnel public safety and traffic operations, but are also critical actions to ensure full compliance with the requirements of 310 CMR 7.38. Therefore, within thirty days of MassDEP's issuance of this Final Acceptance, MTA shall provide MassDEP for it review and acceptance, its written procedures to be followed by OCC to deal with such incidents.

9. Emergency Conditions

In order to use an emergency² situation (e.g., a car fire in one of the tunnels) as an affirmative defense to an action brought for noncompliance, MTA shall provide the following information through properly signed, contemporaneous operating logs, or other relevant evidence that demonstrates:

1. An emergency incident occurred within the CA/T Project area and that MTA can identify the nature and circumstances of the emergency;

² An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which would require immediate corrective action to protect public safety, and that causes the ventilation zone to exceed a limit under the permit, due to unavoidable increases in emissions attributable to the emergency. The most likely emergency situation envisioned by this definition is a car fire in one of the tunnels. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operations, operator error or decision to keep operating despite knowledge of any of these things.

2. The ventilation systems in those sections of the system not affected by the emergency were properly operated at the time;
3. MTA took all reasonable steps as expeditiously as possible after the emergency incident was rectified to restore normal operations and minimize levels of emissions that would exceed the emissions limitations, or instituted other actions required in this Final Acceptance;
4. That relevant public safety agencies responded to the emergency as documented in incident reports or official records of the event from the responding agencies; and
5. MTA submitted an emergency notice to MassDEP consistent with the notification requirements in Section 3 above.

If an emergency episode requires immediate notification to the MassDEP Bureau of Waste Site Cleanup/Emergency Response, notification to the appropriate parties shall be made as required by law and regulation.

10. Compliance Monitoring

As required by 310 CMR 7.38(8)(a), MTA shall install and operate continuous CO and PM₁₀ CEMs as detailed in the Continuous Emissions Monitoring Air Emissions Monitoring Protocol (AEMP) (which includes Operating Certification Appendix G “Monitoring Equipment Standard Operating Procedures”) and as discussed in Sections 2 and 4 above. If MTA proposes to modify the approved AEMP, a revised protocol must be submitted to MassDEP. Major modifications to the AEMP, as determined by MassDEP, are subject to the public hearing process in 310 CMR 7.38(5), and only approved modifications may be implemented. Minor modifications to the AEMP necessary to refine and/or improve data collection from time to time, such as changes to Standard Operating Procedures and material substitution, must be submitted to and approved by MassDEP in writing prior to implementation of a modification.

In addition, MTA shall monitor traffic within the project area as required by 310 CMR 7.38(8)(b). MTA shall record hourly traffic volumes at the following four locations:

1. I-93 Southbound in the vicinity of Causeway Street
2. I-93 Northbound in the vicinity of South Station
3. I-90 Westbound in East Boston
4. I-90 Eastbound in the vicinity of Fort Point Channel

Peak hourly, peak daily, and average daily traffic volumes at each of the four locations shall be reported to MassDEP as detailed in Section 11 below.

11. Record Keeping and Reporting Requirements

a) Pursuant to the requirements of 310 CMR 7.38(9)(a)1, all records and data from the CEMs and traffic count recorders shall be maintained by MTA for a period of five years. The most recent two years of data shall be readily available to MassDEP for inspection.

b) As required by 310 CMR 7.38(9)(a)2, for the twelve months of January 2007 through December 2007, MTA shall file monthly emission reports no later than 30 days following the end of each month. As required by 310 CMR 7.38(9)(b), for the calendar quarter of January through March 2008, and for each calendar quarter thereafter, MTA shall file quarterly emission reports no later than 30 days

following the end of each calendar quarter. Emission reports shall be sent both electronically and hardcopy to MassDEP, Air Assessment Branch, Quality Assurance Section, 37 Shattuck Street, Lawrence, MA 01843-1398, with a copy of the transmittal letter sent to MassDEP, Bureau of Waste Prevention, Consumer and Transportation Programs Division, Transportation Management Programs Branch, 1 Winter Street, Boston, MA 02108. Emission reports shall contain a summary of continuous monitoring data showing any excursions above Emission Limits contained in this Final Acceptance. Evidence of each calibration event on the monitoring devices shall be included in the emission reports. Emission reports shall be submitted electronically, via storage media or e-mail. Emission reports shall contain ESC data files of calibrations and hourly monitoring results. In addition, a summary of any second-party audits conducted during the reporting period must be included. The summary reports should identify the monitors audited, the type of test conducted, and the outcome of the tests, e.g., pass/fail. Within 30 days of receipt by MTA of MassDEP comments on data validation documentation or status flags, MTA shall submit revised data files to MassDEP. Within 30 days of the date of this Final Acceptance, MTA shall submit revised data files responding to any previously received MassDEP comments on data validation documentation or status flags.

c) MTA shall collect and record traffic data in the mainline tunnels in compliance with 310 CMR 7.38(9)(a)3. Data for traffic monitoring shall include at a minimum hourly and daily traffic volumes for both directions in I-93 and I-90. Pursuant to 310 CMR 7.38(9)(a)3 and 310 CMR 7.38(9)(b), these data shall be submitted monthly to MassDEP from January 2007 to December 2007, and quarterly thereafter, respectively. MTA shall file traffic data no later than 30 days following the end of each reporting period (monthly or quarterly). Traffic data reports shall be sent to MassDEP, Bureau of Waste Prevention, Consumer and Transportation Programs Division, Transportation Management Programs Branch, 1 Winter Street, Boston, MA 02108.

d) As required by 310 CMR 7.38(9)(a)4, MTA shall file ventilation system maintenance reports. Each ventilation zone has multiple exhaust fans that serve that zone. Multiple fan redundancy enables routine and non-routine fan maintenance to occur with no loss of ventilation capacity. MassDEP requires that whenever any ventilation zone is reduced to only one available supply or one available exhaust fan because of routine or unscheduled, non-routine maintenance, MTA shall notify MassDEP using the same notification procedures established in Section 2 and provide MassDEP with ventilation system maintenance reports. Such reports shall contain a summary of maintenance checks performed, repairs to ventilation equipment, the days and the amount of time of the occurrences during which ventilation equipment was not operating in accordance with standard operation procedures, and measures taken to remediate the situation.

Ventilation system maintenance reports shall be sent to MassDEP, Bureau of Waste Prevention, Consumer and Transportation Programs Division, Transportation Management Programs Branch, 1 Winter Street, Boston, MA 02108.

e) As required by 310 CMR 7.38(10), MTA shall notify MassDEP if any equipment used to monitor emissions is removed, altered or rendered inoperative, or if there is unexpected and unavoidable failure of equipment, other than for routine maintenance periods. Such notification shall be submitted at least one month prior to equipment removal or alteration and sent to MassDEP, Air Assessment Branch, Quality Assurance Section, 37 Shattuck Street, Lawrence, MA 01843-1398, with a copy of the transmittal letter sent to MassDEP, Bureau of Waste Prevention, Consumer and Transportation Programs Division, Transportation Management Programs Branch, 1 Winter Street, Boston, MA 02108.

12. Compliance Certification

All documents submitted to MassDEP shall contain certification by the responsible official, as defined in 310 CMR 7.00, of truth, accuracy and completeness. Such certification shall be in compliance with 310 CMR 7.01(2) and contain the following language:

“I certify that I have personally examined the foregoing and am familiar with the information contained in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including possible fines and imprisonment.”

13. Noncompliance

Any noncompliance with this Final Acceptance or any condition contained herein constitutes a violation of 310 CMR 7.38 and is grounds for enforcement action. Pursuant to 310 CMR 7.38(6), if MassDEP finds that one or more of the criteria set forth in 310 CMR 7.38(2)(a) through (c) or any condition of this Final Acceptance is being violated, or is likely to be violated within the period for which the Operating Certification is valid: (i) MTA shall implement the measures in the Contingency Plan identified and conditioned in Section 3 above; and (ii) if required by MassDEP, MTA shall submit to MassDEP for its review and approval a mitigation plan which fully complies with 310 CMR 7.38(6)(a) and (b). Noncompliance may also be grounds for assessment of administrative or civil penalties under M.G.L. c.21A, §16 and 310 CMR 5.00; and civil penalties under M.G.L. c.111, §142A and 142B. This Final Acceptance does not relieve MTA from the obligation to comply with any other provisions of 310 CMR 7.00 or the Clean Air Act, or to obtain any other necessary authorizations from other governmental agencies, or to comply with all other applicable Federal, State, or Local rules and regulations, not addressed in this Final Acceptance.

14. Deviations

Deviations are instances where any condition of this Final Acceptance is violated at a time other than an emergency condition pursuant to Section 9 above. Reporting a deviation is not an affirmative defense for action brought for noncompliance. In addition to the Emission Limit exceedance notification requirements in Section 3 above, MTA shall report the following deviations from Final Acceptance requirements within three business days of discovery of such deviation to MassDEP, Bureau of Waste Prevention, Consumer and Transportation Programs Division, Transportation Management Programs Branch, 1 Winter Street, Boston, MA 02108:

1. Failure to comply with a condition of this Final Acceptance.
2. Failure to capture sufficient valid emissions monitoring data or to maintain monitoring equipment as required by this Final Acceptance.
3. Failure to perform QA/QC measures as required by this Final Acceptance.

15. Acceptance Term and Renewal

This Final Acceptance shall expire on December 21, 2011.

The CA/T Project may continue to operate until Final Acceptance by MassDEP of the renewed Operating Certification. In the event MassDEP has not taken final action on the renewal application prior to the expiration date of this Final Acceptance, this Final Acceptance shall remain in effect until MassDEP takes final action on the Operating Certification renewal, provided that a timely and complete renewal has been submitted in accordance with 310 CMR 7.38.

16. PM_{2.5} NAAQS

310 CMR 7.38(2)(a) requires that tunnel ventilation system be operated so as not to cause or exacerbate a violation of any NAAQS; NAAQS are revised over time. In 1997, EPA issued annual and daily standards for PM_{2.5}. However, EPA's implementation of these standards was delayed until 2004 due to litigation.

In September 17, 1999 correspondence to MTA regarding the CA/T Project's "Proposed Project-Wide Compliance Monitoring Program, Final Draft Report," MassDEP approved the installation of equipment for the monitoring of certain pollutants, including Particulate Matter, specifically PM₁₀. MassDEP renewed its decision to require PM₁₀ monitoring in its April 16, 2002, written approval of the CA/T Project's "Comprehensive Project-Wide Air Quality Compliance Monitoring and Assessment Program." On July 21, 2003, MassDEP approved a significantly more robust program for monitoring PM₁₀ by using Continuous Emission Monitors in place of the originally proposed "high volume" air samplers. Based on that approval, MTA installed and has been operating continuous PM₁₀ monitors at four locations, the data being an integral element of the CA/T Project's Operating Certification to verify that the CA/T Project's tunnel emissions comply with the PM₁₀ NAAQS.

At the time of MassDEP's July 21, 2003 approval of the use of continuous PM₁₀ monitors for the CA/T Project, MassDEP did not consider existing equipment for continuous PM_{2.5} monitoring to be sufficiently reliable and therefore did not require installation of such equipment.

Furthermore, subsequent to issuance of the 1997 standards, health studies have documented that the 1997 standards do not adequately protect public health. EPA has very recently adopted a tighter daily standard for PM_{2.5}. Massachusetts' attainment status under this new more restrictive standard will not be determined until 2009.

Based on more recent improvements in PM_{2.5} monitoring equipment, as well as the need to limit PM_{2.5} emissions to adequately protect public health and ensure attainment of the new standard, MassDEP requires that by June 1, 2007, MTA shall submit to MassDEP a Draft Scope of Work for a PM_{2.5} Pilot Emission Monitoring Program and implement the Program by the date required in MassDEP's approval of the Scope. The Pilot Program shall be designed to determine the practicality of replacing or supplementing PM₁₀ emission limits, action levels, and monitoring with PM_{2.5} emission limits, action levels, and monitoring in the 2012 through 2016 Operating Certification Renewal and how best to accomplish such a change. Pilot Program results should be known prior to monitoring changes, to ensure that infeasible or improper PM_{2.5} monitoring requirements are avoided. The Pilot Program will determine the practicality of PM_{2.5} monitoring; MassDEP is not presuming the outcome of the Pilot Program.

17. Reopening for Cause

This Final Acceptance may be modified, revoked, reopened, and reissued, or terminated for cause by MassDEP. The filing of a request by MTA for an Acceptance revision, re-issuance, or termination, or a notification of a planned change or anticipated noncompliance will not stay any condition of this Final Acceptance.

18. Duty to Provide Information

Upon MassDEP's written request, MTA shall furnish, within a reasonable time, any information necessary for determining whether cause exists for modifying, revoking and reissuing, or terminating this Final Acceptance, or for determining compliance with this Final Acceptance. Upon request, MTA shall furnish to MassDEP copies of records that MTA is required to retain by this Final Acceptance.

19. Duty to Supplement

MTA, upon becoming aware that any relevant facts were omitted or incorrect information is submitted in the Operating Certification, shall promptly submit such supplementary facts or corrected information. MTA shall also provide additional information as necessary to address any requirements that become applicable to the CA/T Project after the date a complete renewal is submitted but prior to release of a Final Acceptance of an Operating Certification Renewal.

MTA shall promptly, on discovery, report to MassDEP a material error or omission in any records, reports, plans, or other documents previously provided to MassDEP and not already reported.

20. Inspection and Entry

Upon presentation of credentials and other documents as may be required by law, MTA shall allow authorized representatives or contractors of MassDEP to:

1. Enter upon MTA premises where the CA/T Project’s activity is located or emissions-related activity is conducted, or where records must be kept under the conditions of this Final Acceptance;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Final Acceptance;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Final Acceptance; and
4. Sample or monitor at reasonable times any substances or parameters for the purpose of assuring compliance with this Final Acceptance.

21. Severability Clause

The provisions of this Final Acceptance are severable, and if any provision of this Final Acceptance, or the application of any provision of this Final Acceptance to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this Final Acceptance, shall not be affected thereby.

Should you have any questions, please contact Steve Lipman at 617-292-5698.

Sincerely,

SIGNATURE ON ORIGINAL

Arleen O’Donnell
Acting Commissioner

- cc. Robert W. Golledge, Jr., EOEI Secretary
John Cogliano, EOT Secretary
Michael Lewis, CA/T Project Director