State of Utah
GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality
Alan Matheson
Executive Director
DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQ-065-15a

UTAH AIR QUALITY BOARD MEETING

FINAL AGENDA

Wednesday, December 2, 2015 - 1:30 p.m.
195 North 1950 West, Room 1015
Salt Lake City, Utah 84116

I. Call-to-Order

II. Date of the Next Air Quality Board Meeting: January 6, 2016

III. Approval of the Minutes for October 7, 2015, Board Meeting.

IV. Final Adoption: Repeal of Existing SIP Subsection IX.A.10 and Re-enact with SIP Subsection IX.A.11: PM10 Maintenance Provisions for Salt Lake County, as Amended. Presented by Bill Reiss.

V. Final Adoption: Repeal of Existing SIP Subsection IX.A.11 and Re-enact with SIP Subsection IX.A.12: PM10 Maintenance Provisions for Utah County, as Amended. Presented by Bill Reiss.

VI. Final Adoption: Repeal of Existing SIP Subsection IX.A.12 and Re-enact with SIP Subsection IX.A.13: PM10 Maintenance Provisions for Ogden City, as Amended. Presented by Bill Reiss.

VII. Final Adoption: Repeal Existing SIP Subsections IX. Part H. 1, 2, 3, and 4 and Re-enact with SIP Subsections IX. Part H. 1, 2, 3, and 4: Control Measures for Area and Point Sources, Emission Limits and Operating Practices, PM10 Requirements, as Amended. Presented by Bill Reiss.

VIII. Final Adoption: Amend R307-110-10. Section IX, Control Measures for Area and Point Sources, Part A, Fine Particulate Matter; and Amend R307-110-17. Section IX, Control Measures for Area and Point Sources, Part H, Emissions Limits. Presented by Ryan Stephens.

IX. Final Adoption: Amend R307-101-2. Definitions; R307-102-1. Air Pollution Prohibited; Periodic Reports Required; R307-150. Emission Inventories; R307-201-3. Visible Emissions Standards; R307-206. Emission Standards: Abrasive Blasting; R307-303. Commercial Cooking; R307-305-3. Visible Emissions; R307-306. PM10 Nonattainment and Maintenance Areas: Abrasive Blasting; R307-401. Permit: New and Modified Sources; R307-410. Permits: Emissions Impact Analysis; R307-415. Permits: Operating Permit Requirements. Presented by Ryan Stephens.

X. Propose for Public Comment: New Rule R307-104. Conflict of Interest. Presented by Ryan Stephens.

XI. Propose for Public Comment: Amend R307-101-2. Definitions. Presented by Ryan Stephens.

XII. Informational Items.
   A. EPA's Proposed Discretionary Reclassification. Presented by Bryce Bird.
   B. Air Toxics. Presented by Robert Ford.
   C. Compliance. Presented by Jay Morris and Harold Burge.
   D. Monitoring. Presented by Bo Call.
   E. Other Items to be Brought Before the Board.

In compliance with the American with Disabilities Act, individuals with special needs (including auxiliary communicative aids and services) should contact Ashley Nelson, Office of Human Resources at (801) 536-4413 (TDD 903-3978).

ITEM 3

UTAH AIR QUALITY BOARD MEETING
October 7, 2015 – 1:30 p.m.
195 North 1950 West, Room 1015
Salt Lake City, Utah 84116

DRAFT MINUTES

I. Call-to-Order

Steve Sands called the meeting to order at 1:30 p.m.

Board members present: Michael Smith, Steve Sands, Arnold Reitze, Karma Thomson, Erin Mendenhall, Alan Matheson, Kerry Kelly, and Robert Paine

Executive Secretary: Bryce Bird

II. Date of the Next Air Quality Board Meeting: December 2, 2015

The November 2015 meeting was canceled.

III. Approval of the Minutes for September 2, 2015, Board Meeting.

- Erin Mendenhall motioned to approve the minutes as submitted. Kerry Kelly seconded. The Board approved unanimously.

IV. Final Adoption: Section XX. Part N. Enforceable Commitments for the Utah Regional Haze SIP. Presented by Jay Baker.

Jay Baker, Environmental Scientist at DAQ, stated that this item went out for a 30 day public comment period on August 15, 2015. Public comments were received and staff made clarifications in the memorandum to the Board in regards to those comments. Staff recommends that the Board adopt the attached SIP Section XX, Part N, Enforceable Commitments, for the Utah Regional Haze SIP.

In response to questions, staff responded that the 42,016 tons as stated in the response to comments came from the SO_2 and NO_x emissions reductions from Hunter, Huntington, and the Carbon units combined. Of that figure, 8,005 are from the Carbon units.

- Kerry Kelly moved for final adoption of Section XX, Part N, Enforceable Commitments for the Utah Regional Haze SIP. Michael Smith seconded. The Board approved unanimously.

V. **Final Adoption: Amend R307-110-28. Regional Haze. Presented by Ryan Stephens.**

Ryan Stephens, Environmental Planning Consultant at DAQ, stated that this rule will incorporate the enforceable commitments that the Board just adopted into the regional haze section of the State Implementation Plan (SIP). A public comment period was held and no comments were received. Staff recommends that the Board adopt R307-110-28, Regional Haze.

- Michael Smith moved that the Board approve final adoption to amend R307-110-28, Regional Haze. Erin Mendenhall seconded. The Board approved unanimously.

VI. **Propose for Public Comment: Amend R307-101-2. Definitions; R307-312-5. Hot Mix Asphalt Plants; and R307-328-4. Loading of Tank Trucks, Trailers, Railroad Tank Cars, and Other Transport Vehicles. Presented by Ryan Stephens.**

Ryan Stephens, Environmental Planning Consultant at DAQ, stated that these rules are being proposed in response to EPA's conditional approval of parts of Utah's $PM_{2.5}$ SIP. The Division sent a letter to EPA on August 4, 2015, which committed to amending these rules. These amendments will satisfy that commitment and make Utah's $PM_{2.5}$ SIP approvable by the EPA. There are no anticipated costs associated with this rule. Staff recommends that the Board propose R307-101-2, R307-312-5, and R307-328-4 for public comment.

In discussion, staff responded that the three equivalent methods, as stated in the memorandum, have distinguishable differences and also satisfies EPA's request. It was also explained that the tanks can either be loaded from the top with a submerged fill pipe or the tubing can be connected to the bottom of the tank and then fills in from the bottom. These are separate submerged delivery methods to reduce volatile organic compound generation. It was also clarified that with these proposed rule amendments, DAQ is trying to address what EPA terms "director's discretion." One of EPA's concerns was that the Director, and not the Board, had the ability to determine what equivalent methods could be used by a source. EPA felt that should be removed from these rules. Now if a source came with another option that would have otherwise been covered by or as approved by the Director it would actually have to come back through rulemaking instead. It was also discussed and noted by staff that when the rules are next amended for definitions, that the wording for "actual emissions," "chargeable pollutant," and "Clean Air Act" definitions be amended to make them more understandable.

- Erin Mendenhall moved that the Board propose for public comment the amended R307-101-2, Definitions, R307-312-5, Hot Mix Asphalt Plants, and R307-328-4, Loading of Tank Trucks, Trailers, Railroad Tank Cars, and Other Transport Vehicles. Robert Paine seconded. The Board approved unanimously.

VII. **Propose for Public Comment: Amend R307-405-3. Definitions; and R307-415-3. Definitions. Presented by Ryan Stephens.**

Ryan Stephens, Environmental Planning Consultant at DAQ, stated that these rules are being proposed in response to EPA's removal of portions of its PSD and Title V permitting regulations that were initially promulgated in 2010. EPA can no longer treat greenhouse gases as an air pollutant for the specific purpose of determining whether a source, or modification thereof, is required to obtain a prevention of significant deterioration (PSD) or Title V permit. The DAQ is proposing changes to the Utah rules, so that they will align with the change in federal regulations regarding greenhouse gases and the PSD and Title V programs. There are no anticipated costs from this amendment. Staff recommends that the Board propose R307-405-3 and R307-415-3 for public comment.

In discussion, staff responded that the withdrawal of the five Title V source applications or permits was because they were based solely as greenhouse gas sources when the tailoring rule was implemented and their removal will align with the change in federal regulations. Board member Michael Smith disclosed that his employer, IM Flash Technologies, was one of the sources that withdrew its permit.

- Karma Thomson moved that the Board propose for public comment to amend R307-405-3, Definitions, and R307-415-3, Definitions. Kerry Kelly seconded. The Board approved unanimously.

VIII. Propose for Public Comment: Amend R307-801. Utah Asbestos Rule. Presented by Ryan Stephens.

Ryan Stephens, Environmental Planning Consultant at DAQ, stated that on March 25, 2015, Governor Gary Herbert signed Utah House Bill 229, Air Quality Modifications, into law. House Bill 229 revised the statutory definition of "asbestos" and modified what suspect asbestos-containing materials need to be inspected for in residential structures of four units or less. This proposed rule amends R307-801, Utah Asbestos Rule, so that it reflects changes to and is made consistent with Utah Air Conservation Act modifications. The proposed rule includes modifications recommended by staff and the regulated communities to help the Division better administer the Utah asbestos program. Staff recommends that the Board propose amendments to R307-801, Utah Asbestos Rule, for public comment.

Public comment from Eldon Romney, an inspector, management planner, project designer, and contractor supervisor in Utah, was introduced. Mr. Romney who represents regulated community and the Utah Facilities Operation and Maintenance Association (UFOMA) have concerns with this proposed rule. He questions why is the 30 year definition of "asbestos" being proposed to change and also what health data was used to make this change when the EPA and the Occupational Safety and Health Administration have not made such a change. The proposed changes will bring up several problematic issues for the regulated community, in particular the definitions of "asbestos" and "Libby Amphibole" regarding the disturbance of vermiculite. They understand the health issues if you get enough exposure but they are not convinced that DAQ should step in and regulate it throughout the state. A petition from UFOMA was presented to the Board requesting that the Board not approve or implement the proposed changes to R307-801. They plan to be active in the public comment process for this rule but they also wanted to address the Board in person today.

In discussion, staff explained that legislation with House Bill 229 originated through DAQ's recommendation and it went through the full legislative process with committee hearings and such. The issue is that Utah is a bit unique in that it has two separate processing plants for Libby amphibole (asbestos) material, and it was very prevalent in buildings during a certain time frame in the state as well. The raw ore that was mined in Libby, Montana and caused all those health problems was actually processed and installed here in Utah. The Board has asked that when this comes before the Board again, that DAQ present the health data that led to the suggested change in legislation. If this proposal is approved, the earliest it would come before the Board would be in February 2016.

- Michael Smith moved that the Board propose for public comment to amend R307-801, Utah Asbestos Rule. Robert Paine seconded. The Board approved unanimously.

IX. Propose for Public Comment: Amend R307-110-28. Regional Haze. Presented by Ryan Stephens.

Ryan Stephens, Environmental Planning Consultant at DAQ, stated this rule will incorporate the five-year progress report for regional haze into the SIP. A public comment period was held on the progress report and a public hearing was held. EPA requires that these reports are done in compliance with the procedures of a SIP revision which includes adoption into the state SIP. This rule is being proposed to incorporate the progress report in Utah's regional haze SIP and will satisfy EPA's request to submit it as a SIP revision. This proposed comment period is for addressing this proposed rule amendment and not the progress report itself. Staff recommends that the Board propose the amended R307-110-28, Regional Haze, for public comment.

- Kerry Kelly moved that the Board propose for public comment to amend R307-110-28, Regional Haze. Robert Paine seconded. The Board approved unanimously.

X. Informational Items.

A. Petition for Rulemaking: Emission Limits, Offsets, Testing Frequency, and Public Participation. Presented by HEAL Utah, Western Resource Advocates, and Utah Physicians for a Healthy Environment.

Matt Pacenza, Executive Director at HEAL Utah, stated that in late 2014, Utah finalized its SIP to control $PM_{2.5}$. The plan included a wide range of strategies to control pollution. As the plan was developed in 2013, several key stakeholders, including the EPA, HEAL Utah, Western Resource Advocates, and Utah Physicians for a Healthy Environment, urged the DAQ to make changes to strengthen parts of the SIP that focused on point sources. The DAQ did incorporate several central parts of stakeholder feedback in the 2014 SIP, addressing startup, shutdown, and malfunction emissions and accelerating reasonable available control technology (RACT) deadlines. However, DAQ chose not to implement several key recommendations that EPA and environmentalists had urged. The listed environmental advocate groups have decided to petition the Board to pass several key rules they believe will improve our emissions control regimen and boost public faith and participation in the SIP and the permitting of point sources which contribute to Utah's failure to attain the $PM_{2.5}$ standards.

Joro Walker, Utah Director at Western Resource Advocates, gave a brief description of their proposed four rules. Rule one is in response to the acknowledgement that Utah is not meeting the 24-hour standard and this rule would enact short-term emission limits. The rule would prevent spikes by imposing a 24-hour limit and applies to state identified industrial SIP pollution sources. Rule two is in response to the current practice of stack testing every three to five years. Their rule proposes continuous emissions monitoring and annual stack tests where feasible. It also grants the division director, with public input, discretion to determine feasibility. Rule three acknowledges that current rule allows many minor pollution increases that can add up to substantial pollution additions. Their rule lowers the threshold for emission increases that require offsets and prevents many minor increases from adding to our air pollution problem. The fourth and final rule would improve public participation. Currently critical permitting documents are sometimes unavailable and short public comment periods can hinder meaningful participation. Their rule requires DAQ to provide critical documents on request and automatically extends the public comment period on request.

The presenters and staff then answered several questions from Board members. In conclusion, the environmental groups believe their proposed rules will strengthen Utah's SIP, show the EPA that authorities take our PM2.5 problem seriously, and will produce more accurate data. In addition, they will help reduce emissions, help with other criteria pollutants, and boost public confidence in point source regulation. They will provide the Board with formal petitions and rule language in the coming weeks. Staff will then analyze each rule and make a presentation to the Board of benefits and costs so that the Board can make informed decisions.

B. Clean Power Plan Final Rule. Presented by Glade Sowards.

Glade Sowards, Environmental Scientist at DAQ, explained that the Clean Power Plan (CPP) is part of the Administration's climate action plan to reduce greenhouse gas emissions. On August 3, 2015, EPA announced the final rule for new and modified electric generating units (EGUs), the final rule for existing EGUs, or the Clean Power Plan, and the proposed federal plan and model trading rules for the CPP. Under the final regulation for new sources, EPA established a CO_2 performance standard of 1,400 pounds of CO_2 per megawatt hour for new coal units and 1,000 pounds per megawatt hour for new natural gas units. Mr. Sowards continued with an overview of the CPP final rule and stated that it covers 11 power plants in Utah, that EPA established rates based on three best system of emissions reductions (BSER) building blocks, and that EPA used BSER to establish emissions performance rates for two sources categories, steam and natural gas combined cycle rates. Mr. Sowards addressed several questions from Board members. He also explained that Utah's Governor is designated as the authorized official to submit Utah's plans and that it will likely be the Air Quality Board that would finalize a plan for the Governor's submittal. Utah's initial submittal of the plan is due to EPA by September 6, 2016, with an opportunity to submit an initial submittal extension requests. Some considerations of the initial plan submittal are that it does not require adoption of any enforceable measures or final decisions, does not require legislation and/or regulations to be passed, and does not change the compliance period. Failure to submit an initial plan will trigger a federal plan. The next steps will be to start a series of stakeholder meetings with the goal of completing an initial submittal for public review by June 2016 and submittal to EPA by September 6, 2016.

C. Final Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide Primary National Ambient Air Quality Standard. Presented by Glade Sowards.

Glade Sowards, Environmental Scientist at DAQ, explained that on June 2, 2010, EPA established a primary one hour SO_2 air quality standard of 75 parts per billion. In May through June 2012, the EPA had stakeholder discussions and developed a white paper and later implemented a strategy for the 2010 standard. Then in July 2013 EPA identified 29 areas as nonattainment in 16 states where monitored air quality showed violations of the 2010 standard, to which Utah was not among those areas. Also, a court order in March 2015 required EPA to complete designations for the 2010 standard for all remaining areas in the country and to do that in three rounds. Mr. Sowards continued with an overview of the data requirements rule which was finalized on August 10, 2015. Two important dates include that by January 15, 2016, air agencies are required to submit a final list identifying sources around which air quality is to be characterized. And by July 1, 2016, each agency is required to identify, for each source on the list, the approach it will use to characterize air quality. In closing, the final next steps will be meeting with the three sources covered by

EPA's emissions threshold and working with them to select a modeling or monitoring option. Then work with EPA to develop a modeling protocol to use for air characterization modeling or monitor siting.

D. Mining in High Winds Areas. Presented by Adrian Dybwad.

Adrian Dybwad, Salt Lake County citizen, presented to the Board information on how strong winds at point of the mountain (POM) contribute to pollutants in the Salt Lake Valley. While prevailing winds may be mild in the rest of the valley, at POM winds can be in excess of 25 miles per hour. Lately, mining activities of point sources at POM have progressed up the slopes towards the bench and now into the peaks of the mountains. The prevailing winds carry dust fine to the Salt Lake and Utah County Valleys and often this dust laden wind is strongest at night when the dust is not visible. Mr. Dybwad is asking the Board to provide a continuous state and local air monitoring station in Bluffdale, Utah to determine the particle size, frequency, and density of this dust; provide an official analysis of the dust to determine its crystalline silica, particle sizes, and heavy metal content; and finally determine what rules or permit requirements should be revised to take into account unique geological areas that may contribute to windblown fugitive dust emissions. Mr. Dybwad also proposes that rules be changed that would require an operator to cease or reduce fugitive dust producing operations when wind speeds exceeds 25 miles per hour and that they follow some suggested contingency measures.

Tim Wagner, Executive Director of Utah Physicians for a Healthy Environment, shared a letter they are presenting the Draper City Council which briefly describes why the current level of mining activity is inappropriate at POM given its location in the heart of the most densely populated area of the state and they urge the Council to reject its proposal to rezone the area around the current pit to allow for expansion.

E. Air Toxics. Presented by Robert Ford.

F. Compliance. Presented by Jay Morris and Harold Burge.

G. Monitoring. Presented by Bo Call.

Bo Call, Monitoring Section Manager at DAQ, updated the Board on monitoring graphs. He noted the elevated $PM_{2.5}$ in August was due to fire events in the west. Staff is still validating and certifying that data and EPA has yet to concur if those will be approved as exceptional events. Staff added that Montana is looking at about 80 exceptional event days due to wildfires. Because it is a western states event, Utah DAQ has been talking with other western states on perhaps developing one package because of the impact across the west. Mr. Call continued that it is the end of the ozone season and updated that on October 1, 2015, the final ozone rule came out which changed the standard to 70 parts per billion (ppb) and changed some monitoring requirements. Basically, this makes Utah a year round ozone monitor state. Ozone has gotten better over the years but Utah is still showing exceedances of 70 ppb in about half the places on a three year average.

H. Other Items to be Brought Before the Board.

Public comment from Dean Dinas, of Ki-Technologies, Inc. was introduced. Mr. Dinas presented information on heavy industries that generate hydrocarbon combustion emissions in the Wasatch Front and Uinta Basin. Mr. Dinas gave an overview of plans for a liquefied natural gas network. This technology introduces natural gas as a substitute fuel for diesel in field vehicles, rigs, and electric generators, which has a multiplier effect. He is asking the Board for guidance on behalf of his company on how to introduce new equipment and technologies that would displace diesel fuels and reduce the new hydrocarbon emissions in the Uinta Basin. Mr. Dinas was asked to make an appointment with appropriate DAQ staff to see if they can help or direct him in the right direction for the guidance he seeks.

Meeting adjourned at 4:17 p.m.

ITEM 4

State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQ-070-15

M E M O R A N D U M

TO: Air Quality Board

THROUGH: Bryce C. Bird, Executive Secretary

FROM: Bill Reiss, Environmental Engineer

DATE: November 20, 2015

SUBJECT: FINAL ADOPTION: Repeal of Existing SIP Subsection IX.A.10 and Re-enact with SIP Subsection IX.A.11: PM_{10} Maintenance Provisions for Salt Lake County, as amended.

Introduction:

This item concerns a proposed State Implementation Plan (SIP) revision to address Utah's three nonattainment areas for PM_{10}, Salt Lake County, Utah County, and Ogden City.

The revision is structured as a maintenance plan. It demonstrates that these areas will continue to attain the PM_{10} standard through the year 2030 and allows Utah to request that EPA change the area designations back to attainment.

The existing SIP for PM_{10} affecting Salt Lake and Utah Counties was adopted in 1991. It resulted in attainment of the 1987 National Ambient Air Quality Standards (NAAQS) in both areas by 1996. Since that time, $PM_{2.5}$ has supplanted PM_{10} as the indicator of fine particulate matter.

Essentially, this SIP revision would close the book on PM_{10} and allow Utah to focus on meeting the $PM_{2.5}$ standard. All three of the affected areas are currently designated nonattainment for $PM_{2.5}$.

Scope:

There are two parts to the SIP revision. (This) Section IX. Part A is the SIP document itself. It addresses each of the criteria necessary to request redesignation. It includes the actual maintenance plan, which includes the quantitative demonstration of continued attainment.

Some of the items addressed in Part A include:

- monitored attainment of the PM_{10} NAAQS,
- establishment of motor vehicle emission budgets (MVEB) for purposes of transportation conformity,
- consideration of emission reduction credits, and
- contingency measures.

The second piece is SIP Section IX, Part H. It includes the emission limits for certain specific stationary sources. Inclusion of these limits within the SIP makes them federally enforceable.

The list of stationary sources to be included in Part H was updated as part of this proposal. It includes sources located in any of the nonattainment areas with actual emissions from 2011 that were at least 100 tons per year (tpy) for PM_{10}, SO_2, or NOx. It also includes sources with the potential to emit at least 100 tpy for any of these pollutants.

Using these criteria means that some sources will not be retained in the revised Part H. Other new sources that did not exist when the original SIP was written will be added.

The Board proposed this comprehensive SIP revision for public comment at the September 2, 2015 Utah Air Quality Board meeting.

<u>Re-Numbering and SIP Organization:</u>

You will notice that the proposed Subsection IX.A.10, 11, and 12 have been renumbered to IX.A.11, 12, and 13.

The way the SIP proposal was structured created an unintended problem for Utah County. It would have effectively repealed the existing Mobile Source Emissions Budgets (MVEB) for PM_{10} and NOx, leaving Utah County without any defined budgets until the year 2030, the last year of the new maintenance plan.

The problem arises because of differences between the federally approved SIP and the version of the SIP that resides within State law. To explain:

The original PM_{10} nonattainment SIPs for Salt Lake and Utah Counties created Subsections IX.A. 1 – 9 of the Utah SIP. EPA approved Subsections IX.A. 1 – 9 on July 8, 1994.

Utah County's portion of the SIP was revised in 2002, and a Subsection IX.A.10 was added at that time to address transportation conformity within Utah County. These revisions were also approved by EPA on December 23, 2002.

In 2005, Utah prepared a revision that also was structured as a maintenance plan. Maintenance provisions for Salt Lake County, Utah County, and Ogden City were prepared and located at SIP Subsections IX.A.10, 11, and 12 (respectively.) The MVEB for Utah County was addressed in Subsection IX.A.11, and the pre-existing Subsection IX.A.10 was overwritten.

Subsequently, however, EPA proposed to disapprove the 2005 maintenance plan, and Utah withdrew it from consideration. As a federal matter, Utah County's existing MVEB still resides in Subsection IX.A.10. There is no IX.A.11, or 12.

In September, we recommended repealing the existing Subsections IX.A.10, 11, & 12, (the State-approved, Maintenance Provisions for Salt Lake County, Utah County and Ogden City respectively), and re-enacting with new maintenance provisions for the same three areas at the same respective SIP locations.

Assuming the Board was to approve these revisions, they would then be submitted to EPA for federal approval. At that point, Utah would essentially be asking EPA to over-write existing Subsection IX.A.10 (Utah County's MVEB) with the new maintenance provisions for Salt Lake County.

To prevent this, each of the three maintenance plans will be re-positioned. Rather than using Subsections IX.A.10, 11, and 12, the new maintenance provisions for the three areas should appear in Subsections IX.A.11, 12, and 13. EPA can then approve them into the federal SIP while leaving Subsection IX.A.10 intact.

For this reason, you will notice, in every case, the appropriate re-numbering of the plans that were proposed in September.

Comments Received and Other Amendments:

A 30-day public comment period was held. A summary of each of the comments that was received, along with a response from UDAQ, is attached.

Any recommended revision to SIP Subsection IX.A.11 has been identified in the amended attachment using strikeout and underline. Where these amendments are in response to the comments received, they are highlighted in red color coding.

Some of the comments also directed UDAQ to make revisions to the technical support documentation (TSD.) Since this technical material is not explicitly part of the rulemaking action, these revisions have not been prepared for the December 2015 Air Quality Board meeting. They will, however, be completed in time for official submittal to the EPA.

Finally, the reader should still note that blue text is specific to the Salt Lake County nonattainment area, green text is specific to Utah County, and purple text is specific to Ogden City.

Staff Recommendation: Staff recommends that the Board repeal existing (State) SIP Subsection IX.A.10, and re-enact with SIP Subsection IX.A.11: PM_{10} Maintenance Provisions for Salt Lake County, as amended.

UTAH

PM_{10} Maintenance Provisions for Salt Lake County

Section IX.A.11[~~10~~]

Adopted by the Air Quality Board

December 2, 2015

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Section IX.A.11[~~10~~]
PM_{10} Maintenance Provisions for Salt Lake County

IX.A.11[~~10~~].a Introduction

The State of Utah is requesting that the U.S. Environmental Protection Agency (EPA) redesignate the Salt Lake County nonattainment area to attainment status for the 24-hour PM_{10} National Ambient Air Quality Standard (NAAQS).

The foregoing Subsections 1-9 of Part IX.A of the Utah State Implementation Plans (SIP) were written in 1991 to address violations of the NAAQS for PM_{10} in both Utah County and Salt Lake County. These areas were each classified as Initial Moderate PM_{10} Nonattainment Areas, and as such required "nonattainment SIPs" to bring them into compliance with the NAAQS by a statutory attainment date. The control measures adopted as part of those plans have proven successful in that regard, and at the time of this writing (2015) each of these areas continues to show compliance with the federal health standards for PM_{10}.

This Subsection 11[~~10~~] of Part IX.A of the Utah SIP represents the second chapter of the PM_{10} story for Salt Lake County, and demonstrates that the area has achieved compliance with the PM_{10} NAAQS and will continue to maintain that standard through the year 2030. As such, it is written in accordance with Section 175A (42 U.S.C. 7505a) of the federal Clean Air Act (the Act), and should serve to satisfy the requirement of Section 107(d)(3)(E)(iv) of the Act.

This section is hereafter referred to as the "Maintenance Plan" or "the Plan," and contains the maintenance provisions of the PM_{10} SIP for Salt Lake County.

While the Maintenance Plan could be written to replace all that had come before, it is presented herein as an addendum to Subsections 1-9 in the interest of providing the reader with some sense of historical perspective. Subsections 1-9 are retained for historical purposes, as is the federally approved Subsection 10 (transportation conformity for Utah County). [~~while existing subsection 10 (transportation conformity for Utah County) is herein replaced. A more current evaluation of transportation conformity for Utah County is presented in Section IX.A.11.~~]

In a similar way, any references to the Technical Support Document (TSD) in this section means actually Supplement IV-15 to the Technical Support Document for the PM_{10} SIP.

Background

The Act requires areas failing to meet the federal ambient PM_{10} standard to develop SIP revisions with sufficient control requirements to expeditiously attain and maintain the standard. On July 1, 1987, EPA promulgated a new NAAQS for particulate matter with a diameter of 10 microns or less (PM_{10}), and listed Salt Lake County as a Group I area for PM_{10}. This designation was based on historical data for the previous standard, total suspended particulate, and indicated there was a 95% probability the area would exceed the new PM_{10} standard. Group I area SIPs were due in April 1988, but Utah was unable to complete the SIP by that date. In 1989, several citizens groups sued EPA (*Preservation Counsel v. Reilly*, civil Action (No. 89-C262-G (D, Utah)) for failure to implement a Federal Implementation Plan (FIP) under provisions of §110(c)(1) of the Clean Air Act (42 U.S.C. 7410(c)(1)).

A settlement agreement in January 1990 called for Utah to submit a SIP and for EPA to approve it by December 31, 1991. In August 1991, the parties voluntarily agreed to dismiss the lawsuit and the complaint and vacate the settlement agreement.

The Clean Air Act Amendments of November 1990 redesignated Group I areas as initial moderate nonattainment areas and required that SIPs be submitted by November 15, 1991. These moderate area SIPs were to require installation of Reasonably Available Control Measures (RACM) on industrial sources by December 10, 1993 and a demonstration the NAAQS would be attained no later than December 31, 1994.

(1) The PM_{10} SIP

On November 14, 1991, Utah submitted a SIP for Salt Lake and Utah Counties that demonstrated attainment of the PM_{10} standards in Salt Lake and Utah Counties for 10 years, 1993 through 2003. EPA published approval of the SIP on July 8, 1994 (59 FR 35036).

(2) Supplemental History of SIP Approval - PM_{10}

Utah's SIP included two provisions that promised additional action by the state: 1) a road salting and sanding program, and 2) a diesel vehicle emissions inspection and maintenance program.

On February 3, 1995, Utah submitted amendments to the SIP to specify the details of the road salting and sanding program promised as a control measure. EPA published approval of the road salting and sanding provisions on December 6, 1999 (64 FR 68031).

On February 6, 1996, Utah submitted to EPA a new SIP Section XXI, a diesel vehicle inspection and maintenance program.

Also, in April 1992, EPA published the "General Preamble," describing EPA's views on reviewing state SIP submittals. One of the requirements was that moderate nonattainment area states must submit contingency plans by November 15, 1993.

On July 31, 1994, Utah submitted an amendment to the PM_{10} SIP that required lowering the threshold for calling no-burn days as a contingency measure for Salt Lake, Davis and Utah Counties.

On July 18, 1997, EPA promulgated a new form of the PM_{10} standard. As a way to simplify EPA's process of revoking the old PM_{10} standard, EPA requested on April 6, 1998, that Utah withdraw its submittals of contingency measures. Utah submitted a letter requesting withdrawal on November 9, 1998, and EPA returned the submittals on January 29, 1999.

(3) Attainment of the PM_{10} Standard and Reasonable Further Progress

By statute, EPA was to determine whether Initial Moderate Areas were attaining the standard as of December 31, 1994. This determination requires an examination of the three previous calendar years of monitoring data (in this case 1992, 1993 and 1994). The 24-hour NAAQS allows no more than three expected exceedances of the 24-hour standard at any monitor in this 3-year period. Since the statutory deadline for the implementation of RACM was not until the end of 1993, it was reasonable to presume that the area might not be able to show attainment with a 3-

year data set until the end of 1996 even if the control measures were having the desired effect. Presumably for this reason, Section188(d) of the Act, (42 U.S.C. 7513(d)) allows a state to request up to two 1-year extensions of the attainment date. In doing so, the state must show that it has met all requirements of the SIP, that no more than one exceedance of the 24-hour PM_{10} NAAQS has been observed in the year prior to the request, and that the annual mean concentration for such year is less than or equal to the annual standard.

EPA's Office of Air Quality Planning and Standards issued a guidance memorandum concerning extension requests (November 14, 1994), clarifying that the authority delegated to the Administrator for extending moderate area attainment dates is discretionary. In exercising this discretionary authority, it says, EPA will examine the air quality planning progress made in the area, and in addition to the two criteria specified in Section 188(d), EPA will be disinclined to grant an attainment date extension unless a state has, in substantial part, addressed its moderate PM_{10} planning obligations for the area. The EPA will expect the State to have adopted and substantially implemented control measures submitted to address the requirement for implementing RACM/RACT in the moderate nonattainment area, as this was the central control requirement applicable to such areas. Furthermore it said, “EPA believes this request is appropriate, as it provides a reliable indication that any improvement in air quality evidenced by a low number of exceedances reflects the application of permanent steps to improve the air quality in the region, rather than temporary economic or meteorological changes.” As part of this showing, EPA expected the State to demonstrate that the PM_{10} nonattainment area has made emission reductions amounting to reasonable further progress (RFP) toward attainment of the NAAQS, as defined in Section 171(1) of the Act.

On May 11, 1995, Utah requested one-year extensions of the attainment date for both Salt Lake and Utah Counties. On October 18, 1995, EPA sent a letter granting the requests for extensions, and on January 25, 1996, sent a letter indicating that EPA would publish a rulemaking action on the extension requests.

Along with the extension requests in 1995, Utah submitted a milestone report as required under Section 172(1) of the Act, (42 U.S.C. 7501(1)) to assess progress toward attainment. This milestone report addressed two issues: 1) that all control measures in the approved plan had been implemented, and 2) that reasonable further progress (RFP) had been made toward attainment of the standard in terms of reducing emissions. As defined in Section 171(1), RFP means such annual incremental reductions in emissions of the relevant air pollutant as are required to ensure attainment of the applicable NAAQS by the applicable date.

On June 18, 2001, EPA published notice in the Federal Register (66 FR 32752) that Utah’s extension requests were granted, that Salt Lake County attained the PM_{10} standard by December 31, 1995, and that Utah County attained the standard by December 31, 1996. The notice stated that these areas remain moderate nonattainment areas and are not subject to the additional requirements of serious nonattainment areas.

IX.A.11[~~10~~].b Pre-requisites to Area Redesignation

Section107(d)(3)(E) of the Act outlines five requirements that must be satisfied in order that a state may petition the Administrator to redesignate a nonattainment area back to attainment. These requirements are summarized as follows: 1) the Administrator determines that the area has attained the applicable NAAQS, 2) the Administrator has fully approved the applicable implementation plan for the area under §110(k) of the Act, 3) the Administrator determines that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan … and other permanent and enforceable reductions, 4) the Administrator has fully approved a maintenance plan for the area as meeting the requirements of §175A of the Act, and 5) the State containing such area has met all requirements applicable to the area under §110 and Part D of the Act.

Each of these requirements will be addressed below. Certainly, the central element from this list is the maintenance plan found at Subsection IX.A.11[~~10~~].c below. Section 175A of the Act contains the necessary requirements of a maintenance plan, and EPA policy based on the Act requires additional elements in order that such plan be federally approvable. Table IX.A.11[~~10~~].1 identifies the prerequisites that must be fulfilled before a nonattainment area may be redesignated to attainment under Section 107(d)(3)(E) of the Act.

Table IX.A. 11[~~10~~]. 1 Prerequisites to Redesignation in the federal Clean Air Act (CAA)

Category	**Requirement**	**Reference**	**Addressed in Section**
Attainment of Standard	Three consecutive years of PM_{10} monitoring data must show that violations of the standard are no longer occurring.	CAA §107(d)(3)(E)(i)	IX.A. 11[~~10~~].b(1)
Approved State Implementation Plan	The SIP for the area must be fully approved.	CAA §107(d)(3)(E)(ii)	IX.A. 11[~~10~~].b(2)
Permanent and Enforceable Emissions Reductions	The State must be able to reasonably attribute the improvement in air quality to emission reductions that are permanent and enforceable	CAA §107(d)(3)(E)(iii), Calcagni memo (Sect 3, para 2)	IX.A. 11[~~10~~].b(3)
Section 110 and Part D requirements	The State must verify that the area has met all requirements applicable to the area under section 110 and Part D.	CAA: §107(d)(3)(E)(v), §110(a)(2), Sec 171	IX.A. 11[~~10~~].b(4)
Maintenance Plan	The Administrator has fully approved the Maintenance Plan for the area as meeting the requirements of CAA §175A	CAA: §107(d)(3)(E)(iv)	IX.A. 11[~~10~~].b(5) and IX.A.11[~~10~~].c

(1) The Area Has Attained the PM_{10} NAAQS

CAA 107(d)(3)(E)(i) - *The Administrator determines that the area has attained the national ambient air quality standard.* To satisfy this requirement, the State must show that the area is attaining the applicable NAAQS. According to EPA's guidance concerning area redesignations (Procedures for Processing Requests to Redesignate Areas to Attainment, John Calcagni to Regional Air Directors, September 4, 1992 [or, Calcagni]), there are generally two components involved in making this demonstration. The first relies upon ambient air quality data which should be representative of the area of highest concentration and should be collected and quality assured in accordance with 40 CFR 58. The second component relies upon supplemental air quality modeling. Each will be discussed in turn.

(a) Ambient Air Quality Data (Monitoring)

In 1987 EPA promulgated the National Ambient Air Quality Standard (NAAQS) for PM_{10}. The NAAQS for PM_{10} is listed in 40 CFR 50.6 along with the criteria for attaining the standard. The 24-hour NAAQS is 150 micrograms per cubic meter (ug/m^3) for a 24-hour period, measured from midnight to midnight. The 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 ug/m^3, as determined in accordance with Appendix K to that part, is equal to or less than one. In other words, each monitoring site is allowed up to three expected exceedances of the 24-hour standard within a period of three calendar years. More than three expected exceedances in that three-year period is a violation of the NAAQS.

There also had been an annual standard of 50 ug/m^3. The annual standard was attained if the three-year average of individual annual averages was less than 50 ug/m^3. None of Utah's areas was ever designated nonattainment for the annual NAAQS [~~Utah never violated the annual standard at any of its monitoring stations~~], and the annual average was not retained as a PM_{10} standard when the NAAQS was revised in 2006. Nevertheless, an annual average still provides a useful metric to evaluate long-term trends in PM_{10} concentrations here in Utah where short-term meteorology has such an influence on high 24-hour concentrations during the winter season.

40 CFR 58 Appendix K, Interpretation of the National Ambient Air Quality Standards for Particulate Matter, acknowledges the uncertainty inherent in measuring ambient PM_{10} concentrations by specifying that an *observed exceedance* of the (150 ug/m^3) 24-hour health standard means a daily value that is above the level of the 24-hour standard after rounding to the nearest 10 ug/m^3 (e.g., values ending in 5 or greater are to be rounded up).

The term *expected exceedance* accounts for the possibility of missing data. Missing data can occur when a monitor is being repaired, calibrated, or is malfunctioning, leaving a time gap in the monitored readings. [~~EPA discounts these gaps if the highest recorded PM_{10} reading at the affected monitor on the day before or after the gap is not more than 75 percent of the standard, and no measured exceedance has occurred during the year.~~]

Expected exceedances are calculated from the (AQS) [~~Aerometric Information and Retrieval System (AIRS)~~] data base according to procedures contained in 40 CFR Part 50, Appendix K. The State relied on the expected exceedance values contained in the (AQS) [~~AIRS~~] Quick Look Report (AMP 450) to determine if a violation of the standard had occurred.

Data may also be flagged when circumstances indicate that it would represent an event [~~outlier~~] in the data set and not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within. 40 CFR 50.14 "Treatment of air quality monitoring data influenced by exceptional events" anticipates this, and says that a State may request EPA to exclude data showing exceedances or violations… that are directly due to an event that affects air quality, is not reasonably controllable or preventable, is an event caused by human activity that is unlikely to recur at a particular location or a natural event, from use in determinations. [~~Appendix N to Part 50 – "Interpretation of the National Ambient Air Quality Standards for Particulate Matter" anticipates this and states: "Data resulting from uncontrollable or natural events, for example structural fires or high winds, may require special consideration. In some cases, it may be appropriate to exclude these data because they could result in inappropriate values to compare with the levels of the PM standards."~~] The protocol for data handling dictates that flagging is initiated by the state or local agency, and then the EPA either concurs or indicates that it has not concurred. Some discussion will be provided to help the reader understand the occasional occurrence of wind-blown dust events that affect these nonattainment areas, and how the resulting data should be interpreted with respect to the control measures enacted to address the 24-hour NAAQS.

Using the criteria from 40 CFR 58 Appendix K, data was compiled for all PM_{10} monitors within the Salt Lake County nonattainment area that recorded a four-year data set comprising the years 2011 – 2014. For each monitor, the number of expected exceedances is reported for each year, and then the average number of expected exceedances is reported for the overlapping three-year periods. If this average number of expected exceedances is less than or equal to 1.0, then that particular monitor is said to be in compliance with the 24-hour standard for PM_{10}. In order for an area to be in compliance with the NAAQS, every monitor within that area must be in compliance.

As illustrated in the table below, the results of this exercise show that the Salt Lake County PM_{10} nonattainment area is presently attaining the NAAQS.

Table IX.A.11[~~10~~]. 2 PM_{10} Compliance in Salt Lake County, 2011-2014

Hawthorne 49-035-3006	24-hr Standard	3-Year Average
	No. Expected Exceedances	No. Expected Exceedances
2011	0.0[~~/ 0.0*~~]	
2012	0.0[~~/ 0.0*~~]	
2013	0.0[~~/ 0.0*~~]	0.0[~~/ 0.0*~~]
2014	0.0[~~/ 0.0*~~]	0.0[~~/ 0.0*~~]

North Salt Lake 49-035-0012	24-hr Standard	3-Year Average
	No. Expected Exceedances	No. Expected Exceedances
2011	0.0[~~/ 0.0*~~]	
2012	0.0[~~/ 0.0*~~]	
2013	0.0[~~/ 0.0*~~]	0.0[~~/ 0.0*~~]
2014	NA*[*]	NA*[*]

Magna 49-035-1001	24-hr Standard	3-Year Average
	No. Expected Exceedances	No. Expected Exceedances
2011	0.0[~~/ 0.0*~~]	
2012	0.0[~~/ 0.0*~~]	
2013	0.0[~~/ 0.0*~~]	0.0[~~/ 0.0*~~]
2014	0.0[~~/ 0.0*~~]	0.0[~~/ 0.0*~~]

[~~* The second set of numbers shows what would be the effect of including all of the data that has been flagged by DAQ and not yet concurred with by EPA.~~]

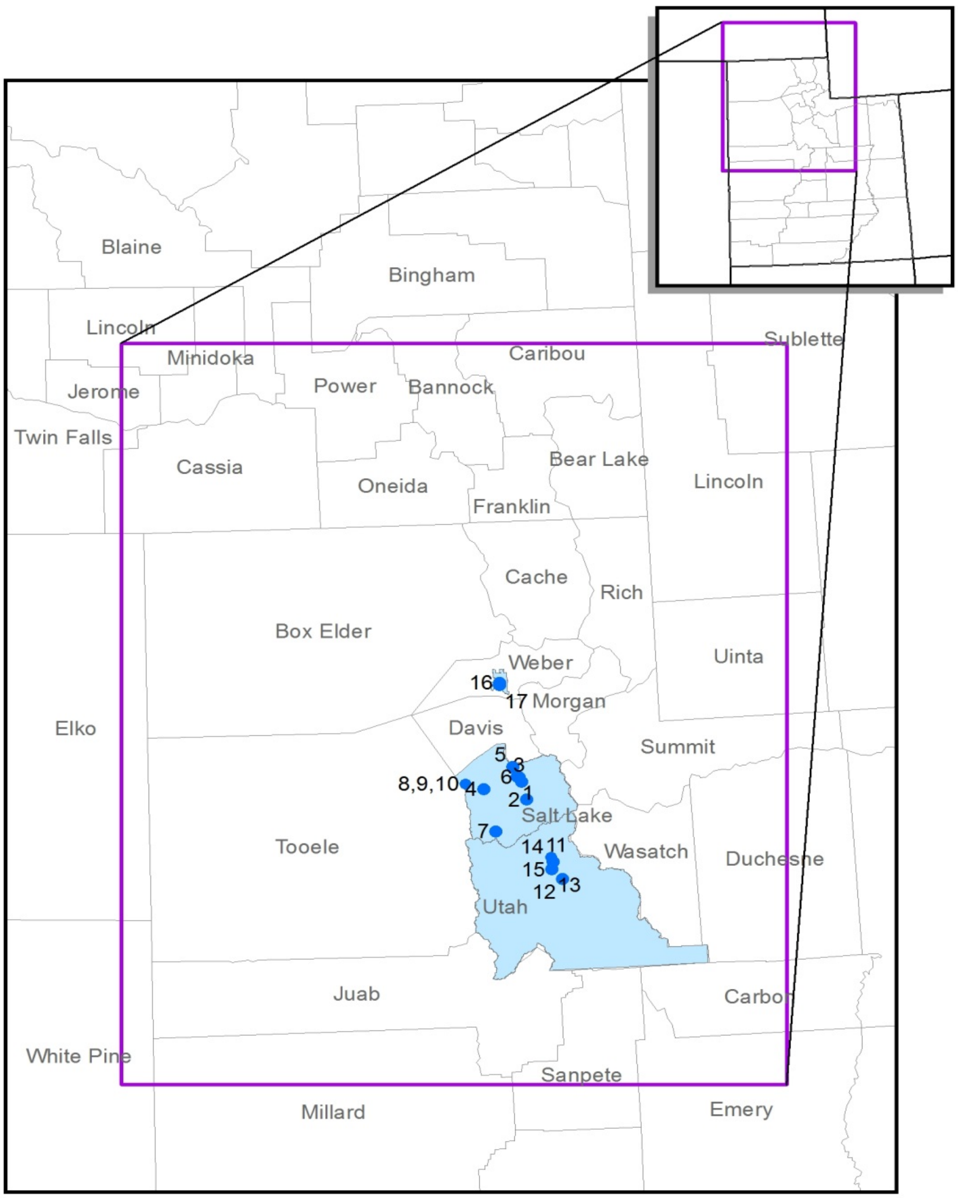
*[*] The North Salt Lake monitor was closed in September of 2013.

(b) PM_{10} Monitoring Network

The overall assessments made in the preceding paragraph were based on data collected at monitoring stations located throughout the nonattainment area. The Utah DAQ maintains a network of PM_{10} monitoring stations in accordance with 40 CFR 58. These stations are referred to as SLAMS sites, meaning that they are State and Local Air Monitoring Stations. In consultation with EPA, an Annual Monitoring Network Plan is developed to address the adequacy of the monitoring network for all criteria pollutants. Within the network, individual stations may be situated so as to monitor large sources of PM_{10}, capture the highest concentrations in the area, represent residential areas, or assess regional concentrations of PM_{10}. Collectively, these monitors make up Utah's PM_{10} monitoring network. The following paragraphs describe the network in each of Utah's three nonattainment areas for PM_{10}.

Provided in Figure IX.A.11[~~10~~]. 1 is a map of the modeling domain that shows the existing PM_{10} nonattainment areas and the locations of the monitors therein. Some of the monitors at these locations are no longer operational, but they have been included for informational purposes.

Figure IX.A.11[~~10~~]. 1 Modeling Domain



The following PM_{10} monitoring stations operated in the Salt Lake County PM_{10} nonattainment area from 1985 through 2015. They are numbered as they appear on the map:

1. Air Monitoring Center (AMC) (AIRS number 49-035-0010): This site was located in an urban city center, near an area of high vehicle use. It was closed in 1999 when DAQ lost its lease on the building.

2. Cottonwood (AIRS number 49-035-0003): This site was located in a suburban residential area. It collected data from 1986 - 2011. It was closed in 2011 due to siting criteria violations as well as safety concerns.

3. Hawthorne (AIRS number 49-035-3006): This site is located in a suburban residential area. It began collecting data in 1997, and is the NCORE site for Utah.

4. Magna (AIRS number 49-035-1001): This site is located in a suburban residential area. It was historically impacted periodically by blowing dust from a large tailings impoundment, and as such is anomalous with respect to the typical wintertime scenario that otherwise characterizes the nonattainment area. It has been collecting data since 1987.

5. North Salt Lake (AIRS number 49-035-0012): This site was located in an industrial area that is impacted by sand and gravel operations, freeway traffic, and several refineries. It was near a residential area as well. It collected data from 1985 - 2013. The monitor was situated over a sewer main, and service of that main required its removal in September 2013 and following the service, the site owner did not allow the monitor to return.

6. Salt Lake City (AIRS number 49-035-3001): This site was situated in an urban city center. It was discontinued in 1994 because of modifications that were made to the air conditioning on the roof-top.

7. Herriman #3 (AIRS number 49-035-3012): This site is located in a suburban residential area. It began collecting data in 2015.

8. Beach #2 (AQS number 49-035-0005): This site, from 1988-1990, was located near the Great Salt Lake.

9. Beach #3 (AQS number 49-035-2003): This site, from 1991-1992, was located at the Great Salt Lake Marina.

10. Beach #4 (AQS number 49-035-2004): This site, from 1991-1997, was located at the Great Salt Lake Marina.

The following PM_{10} monitoring stations operated in the Utah County PM_{10} nonattainment area from 1985 through 2015. They are numbered as they appear on the map:

11[~~8~~]. Lindon (AIRS number 49-049-4001): This site is designed to measure population exposure to PM_{10}. It is located in a suburban residential area affected by both industrial and vehicle emissions. PM_{10} has been measured at this site since 1985, and the readings taken here have consistently been the highest in Utah County. Area source emissions, primarily wood smoke, also affect the site.

12[~~9~~]. North Provo (AIRS number 49-049-0002): This is a neighborhood site in a mixed residential-commercial area in Provo, Utah. It began collecting data in 1986.

13[~~10~~]. West Orem (AIRS number 49-049-5001): This site was originally located in a residential area adjacent to a large steel mill which has since closed. It is a neighborhood site. It was situated based on computer modeling, and has historically reported high PM_{10} values, but not consistently as high as those observed at the Lindon site. The site was closed at the end of 1997 for this reason.

14. Pleasant Grove (AQS number 49-049-2001): This site, from 1985-1987, was located in a suburban area.

15. Orem (AQS number 49-049-5004): This site, from 1991-1993, was located next to a through highway in a business area.

The following PM_{10} monitoring stations operated in the Ogden City PM_{10} nonattainment area from 1986 through 2015. They are numbered as they appear on the map:

16[~~11~~]. Ogden 1 (AIRS number 49-057-0001): This site was situated in an urban city center. It was discontinued in 2000 because DAQ lost its lease on the building.

17[~~12~~]. Ogden 2 (AIRS number 49-057-0002): This site began collecting data in 2001, as a replacement for the Ogden 1 location. It, too, is situated in an urban city center.

(c) Modeling Element

EPA guidance concerning redesignation requests and maintenance plans (Calcagni) discusses the requirement that the area has attained the standard, and notes that air quality modeling may be necessary to determine the representativeness of the monitored data.

Information concerning PM_{10} monitoring in Utah is included in the Annual Monitoring Plan [~~Annual Monitoring Network Review~~] and the 5-Year Monitoring Network Assessment [~~The 5 Year Network Plan~~]. Since the early 1980's, the network review has been updated annually and submitted to EPA for approval. EPA has concurred with the annual network reviews and agreed that the PM_{10} network is adequate. EPA personnel have also visited the monitor sites on several occasions to verify compliance with federal siting requirements. Therefore, additional modeling will not be necessary to determine the representativeness of the monitored data.

The Calcagni memo goes on to say that areas that were designated nonattainment based on modeling will generally not be redesignated to attainment unless an acceptable modeling analysis indicates attainment.

Though none of Utah's three PM_{10} nonattainment areas was designated based on modeling, Calcagni also states that (when dealing with PM_{10}) dispersion modeling will generally be necessary to evaluate comprehensively sources' impacts and to determine the areas of expected high concentrations based upon current conditions. Air quality modeling was conducted for the purpose of this maintenance demonstration. It shows that all three nonattainment areas are presently in compliance, and will continue to comply with the PM_{10} NAAQS through the year 2030.

(d) EPA Acknowledgement

The data presented in the preceding paragraphs shows quite clearly that the Salt Lake County PM_{10} nonattainment area is attaining the NAAQS. As discussed before, the EPA acknowledged in the Federal Register that both Utah County and Salt Lake County had already attained.

On June 18, 2001, EPA published notice in the Federal Register (66 FR 32752) that Utah's extension requests were granted, [and] that Salt Lake County attained the PM_{10} standard by December 31, 1995. The notice stated that the area would remain a moderate nonattainment area and would not be subject to the additional requirements of serious nonattainment areas.

(2) Fully Approved Attainment Plan for PM_{10}

CAA 107(d)(3)(E)(ii) - *The Administrator has fully approved the applicable implementation plan for the area under section 110(k).*

On November 14, 1991, Utah submitted a SIP for Salt Lake and Utah Counties that demonstrated attainment for Salt Lake and Utah Counties for 10 years, 1993 through 2003. EPA published approval of the SIP on July 8, 1994 (59 FR 35036).

(3) Improvements in Air Quality Due to Permanent and Enforceable Reductions in Emissions

CAA 107(d)(3)(E)(iii) - *The Administrator determines that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan and applicable Federal air pollutant control regulations and other permanent and enforceable reductions.* Speaking further on the issue, EPA guidance (Calcagni) reads that the State must be able to reasonably attribute the improvement in air quality to emission reductions which are permanent and enforceable. In the following sections, both the improvement in air quality and the emission reductions themselves will be discussed.

(a) Improvement in Air Quality

The improvement in air quality with respect to PM_{10} can be shown in a number of ways. Improvement, in this case, is relative to the various control strategies that affected the airshed.

For the Salt Lake County nonattainment area, these control measures were implemented as the result of the nonattainment PM_{10} SIP promulgated in 1991. As discussed below, the actual implementation of the control strategies required therein first exhibits itself in the observable data in 1994. The ambient air quality data presented below includes values prior to 1994 in order to give a representation of the air quality prior to the application of any control measures. It then includes data collected from then until the present time to illustrate the effect of these controls. In considering the data presented below, it is important to keep this distinction in mind: data through 1993 represents pre-SIP conditions, and data collected from 1994 through the present represents post-SIP conditions.

Additionally, a downturn in the economy is clearly not [~~nor~~] responsible for the improvement in ambient particulate levels in Salt Lake County, Utah County, and Ogden City areas. From 2001 to present, the areas have experienced strong growth [~~while at the same time achieving~~

~~continuous attainment of the 24-hour and annual PM_{10} NAAQS~~]. Data was analyzed for the Salt Lake City Metropolitan Statistical Area from the US Department of Commerce, Bureau of Economic Analysis. According to this data, job growth from 2011 through 2013 increased by 5.5 percent, population increased by 3 percent, and personal income increased by approximately 10 percent. The estimated VMT increase was 12 percent from 2011 to present.

Expected Exceedances – Referring back to the discussion of the PM_{10} NAAQS in Subsection IX.A.11[~~10~~].b(1), it is apparent that the number of expected exceedances of the 24-hour standard is an important indicator. As such, this information has been tabulated for each of the monitors located in each of the nonattainment areas. The data in Table IX.A.11[~~10~~]. 3 below reveals a marked decline in the number of these expected exceedances, and therefore that the Salt Lake County PM_{10} nonattainment area has experienced significant improvements in air quality. The gray cells indicate that the monitor was not in operation. This improvement is especially revealing in light of the significant growth experienced during this same period in time.

Table IX.A.11[~~10~~]. 3 Salt Lake County: Expected Exceedances Per-Year, 1985-2014

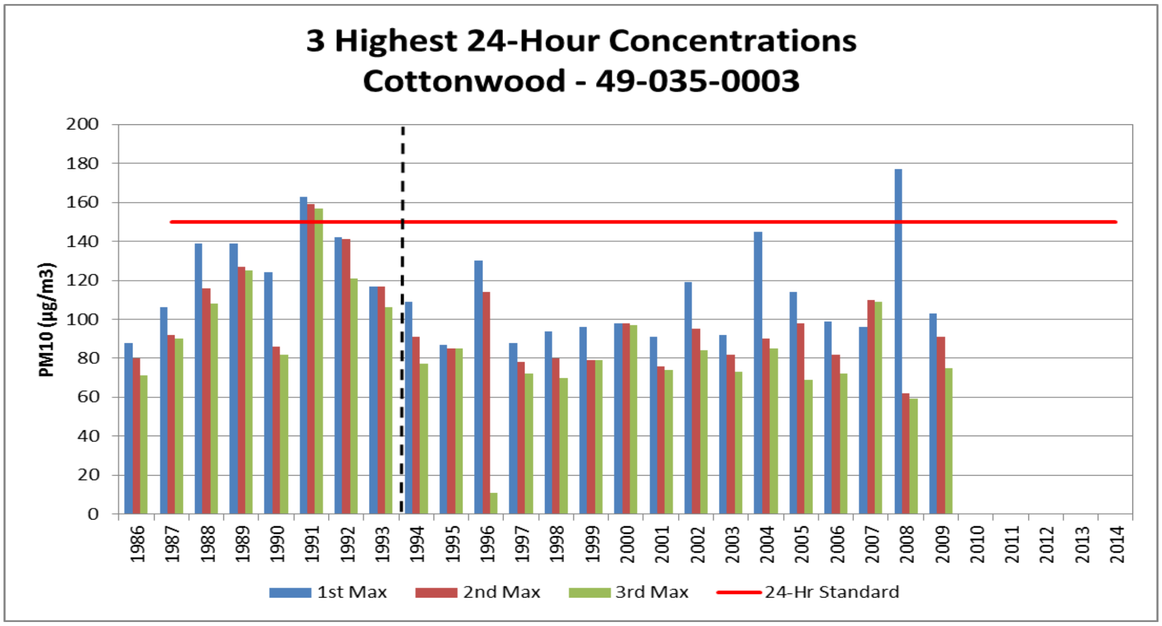
Salt Lake County Nonattainment Area					
Monitor:	**Cottonwood**	**AMC**	**North Salt Lake**	**Magna**	**Hawthorne**
1986	0.0				
1987	0.0		0.0	2.4	
1988	0.0		5.8	2.2	
1989	0.0	8.7	3.3	0.0	
1990	0.0	0.0	0.0	0.0	
1991	6.0	15.9	13.5	0.0	
1992	0.0	8.6	3.2	0.0	
1993	0.0	0.0	0.0	0.0	
1994	0.0	1.0	8.6	0.0	
1995	0.0	0.0	0.0	0.0	
1996	0.0	0.0	2.3	0.0	
1997	0.0	0.0	0.0	0.0	0.0
1998	0.0	0.0	0.0	0.0	0.0
1999	0.0	0.0	0.0	0.0	0.0
2000	0.0		0.0	0.0	0.0
2001	0.0		0.0	6.4	0.0
2002	0.0		0.0	0.0	0.0
2003	0.0		3.1	1.6	2.1
2004	0.0		1.0	0.0	0.0
2005	0.0		0.0	3.4	0.0
2006	0.0		2.2	0.0	0.0
2007	0.0		4.3	0.0	0.0
2008	3.6		2.1	0.0	2.0
2009	0.0		1.0	0.0	0.0
2010			2.0	3.0	2.1
2011			0.0	0.0	0.0
2012			0.0	0.0	0.0
2013			0.0	0.0	0.0
2014				0.0	0.0

As discussed before in section IX.A.11[~~10~~].b(1), the number of expected exceedances may include data which had been flagged by DAQ as being influenced by an exceptional event; most typically, a wind-blown dust event. Data is flagged when circumstances indicate that it would [~~represent an outlier in the data set and~~] not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within.

As such, two things should be noted: 1) The focus of the control strategy developed for the 1991 PM_{10} SIP was directed at episodes characterized by wintertime temperature inversions, elevated concentrations of secondary aerosol, and low wind speed. Under these conditions, blowing dust is generally nonexistent. Therefore, in evaluating the effectiveness of these types of controls, the inclusion of several high wind events may bias the conclusion. 2) Even with the inclusion of these values, the conclusion remains essentially the same; that since 1994 when the 1991 SIP controls were fully implemented, there has been a marked improvement in monitored air quality.

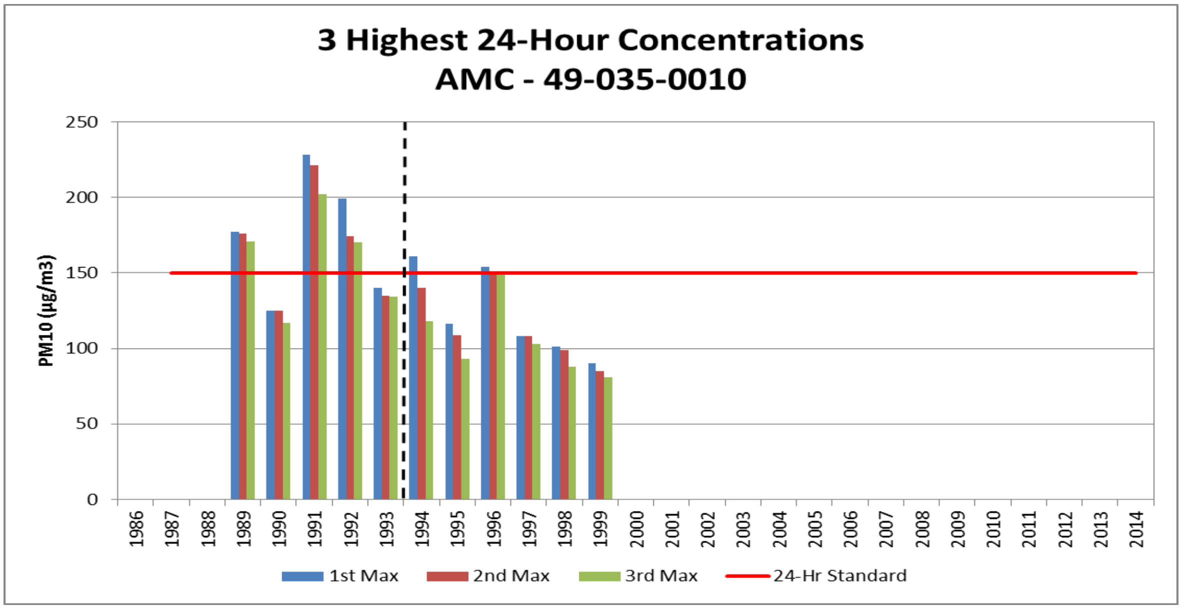
<u>Highest Values</u> – Also indicative of improvement in air quality with respect to the 24-hour standard, is the magnitude of the excessive concentrations that are observed. This is illustrated in Figures IX.A.<u>11</u>[~~10~~]. 2 - 6, which show the three highest 24-hour concentrations observed at each monitor in a particular year.

Figure IX.A.<u>11</u>[~~10~~]. 2 3 Highest 24-hr PM_{10} Concentrations; Cottonwood



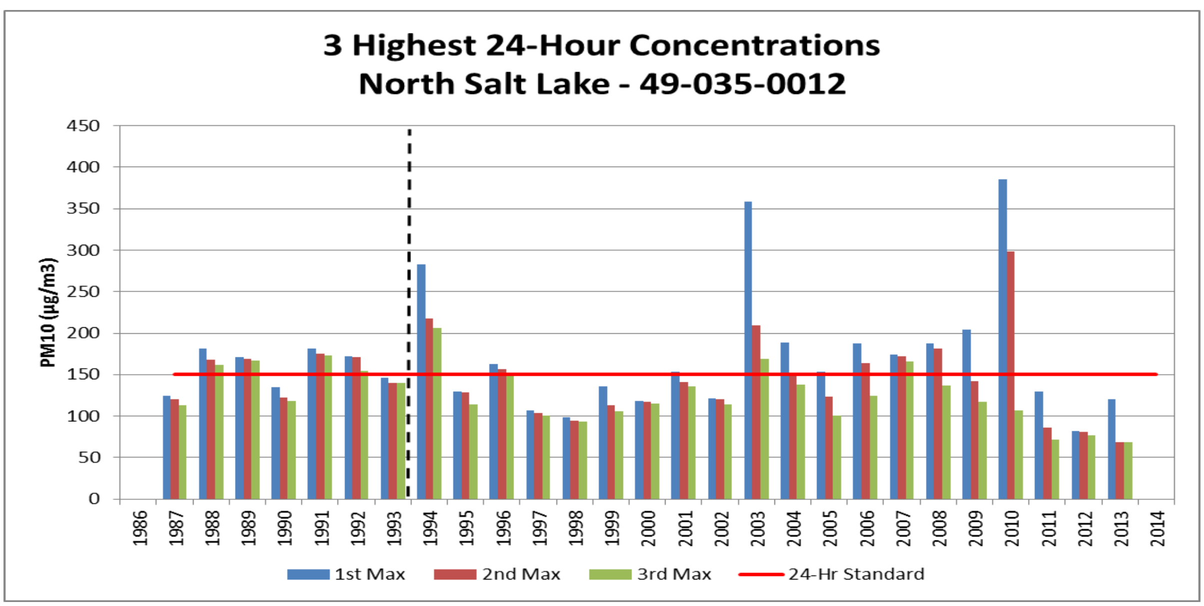
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Figure IX.A.11[~~10~~]. 3 3 Highest 24-hr PM_{10} Concentrations; AMC



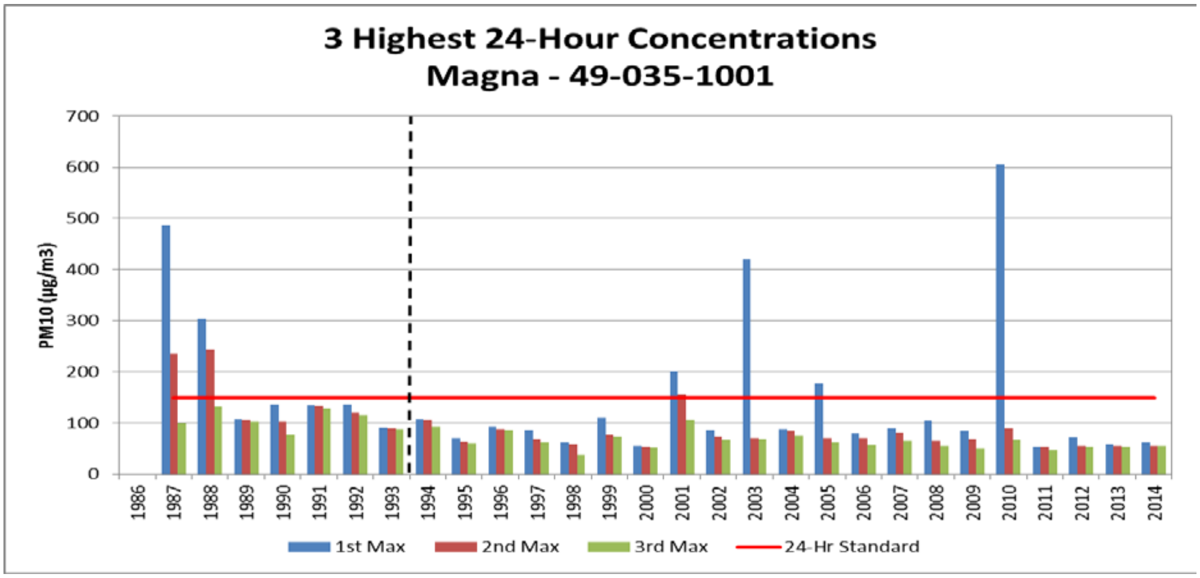
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Figure IX.A.11[~~10~~]. 4 3 Highest 24-hr PM_{10} Concentrations; North Salt Lake



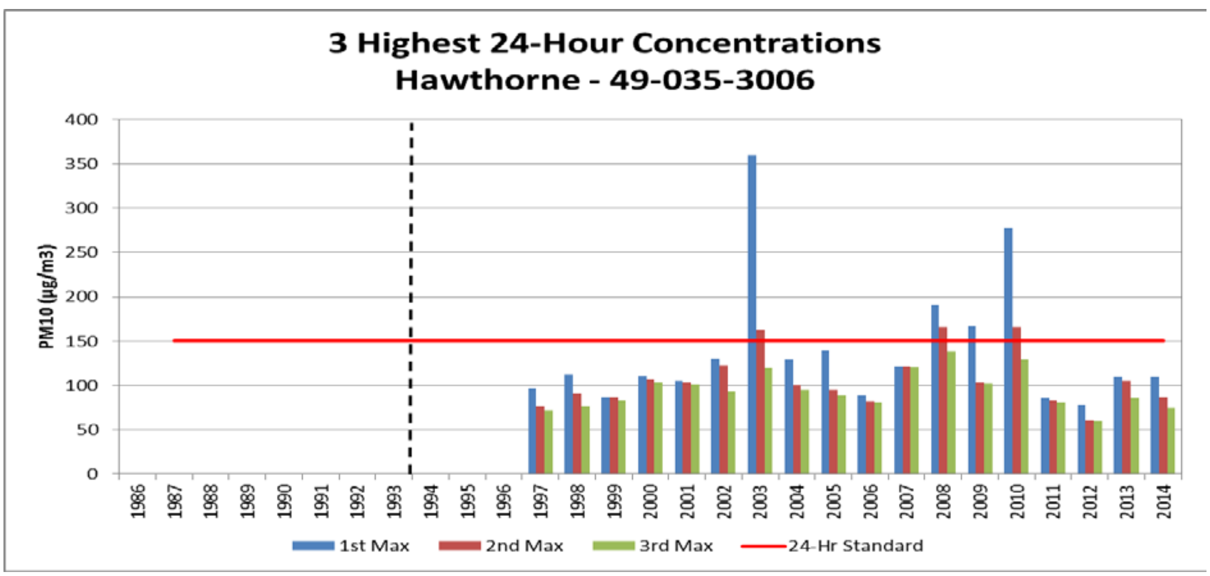
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Figure IX.A.11[~~10~~]. 5   3 Highest 24-hr PM_{10} Concentrations; Magna



(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Figure IX.A.11[~~10~~]. 6   3 Highest 24-hr PM_{10} Concentrations; Hawthorne

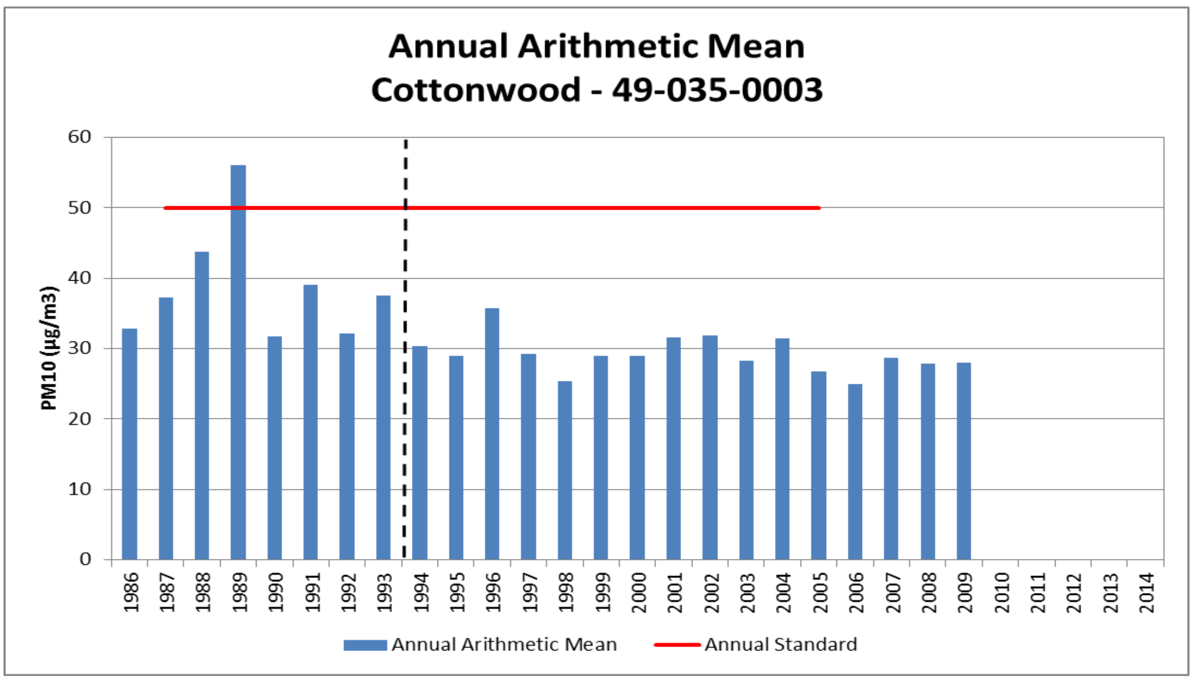


(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Again there is a noticeable improvement in the magnitude of these concentrations. It must be kept in mind, however, that some of these concentrations may have resulted from windblown dust events that occur outside of the typical scenario of wintertime air stagnation. As such, the effectiveness of any control measures directed at the precursors to PM_{10} would not be evident.

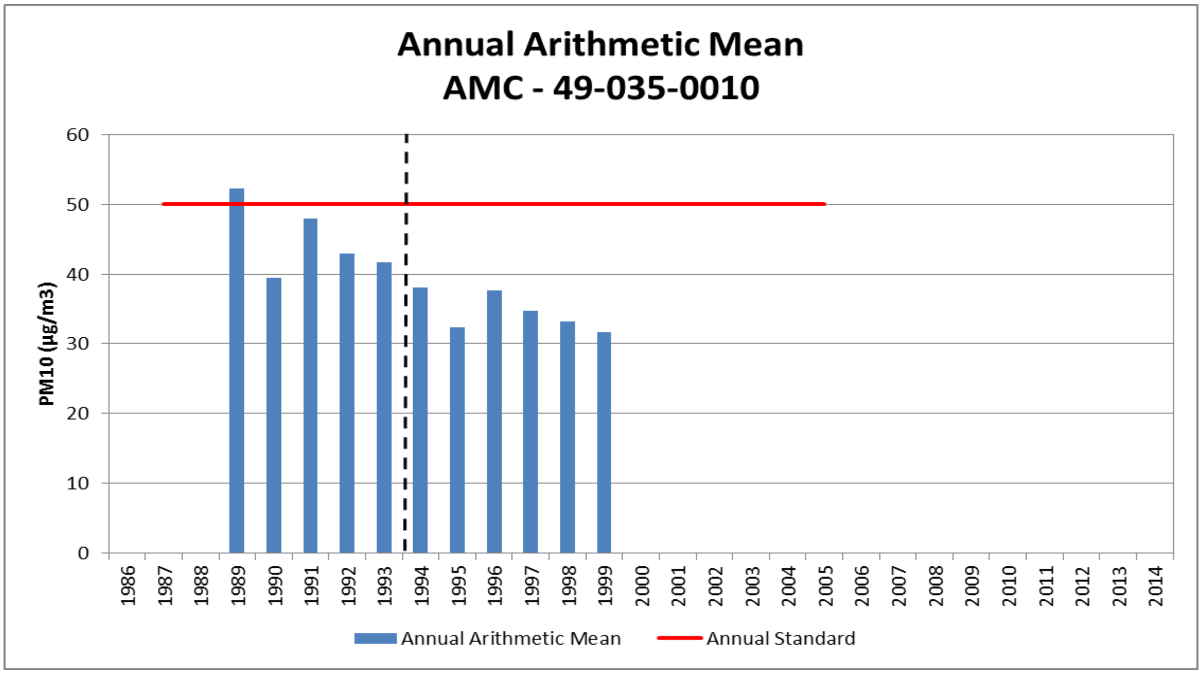
Annual Mean – Although there is no longer an annual PM_{10} standard, the annual arithmetic mean is also a significant parameter to consider. This is especially so given one of the assumptions made in the original nonattainment SIP for Salt Lake County. The SIP was developed to address the 24-hour standard for PM_{10}, but it was assumed that by controlling for the wintertime 24-hour standard, the annual arithmetic mean concentrations would also be reduced such that the annual standard would be protected (even though it had never been violated). Annual arithmetic means have been plotted in Figures IX.A.11[~~10~~] 7 - 11, and the data reveals a noticeable decline in the values of these annual means. This supports the validity of the assumption made in the SIP, and indicates that there have been significant improvements in air quality in the Salt Lake County nonattainment area.

Figure IX.A.11[~~10~~]. 7 Annual Arithmetic Mean; Cottonwood



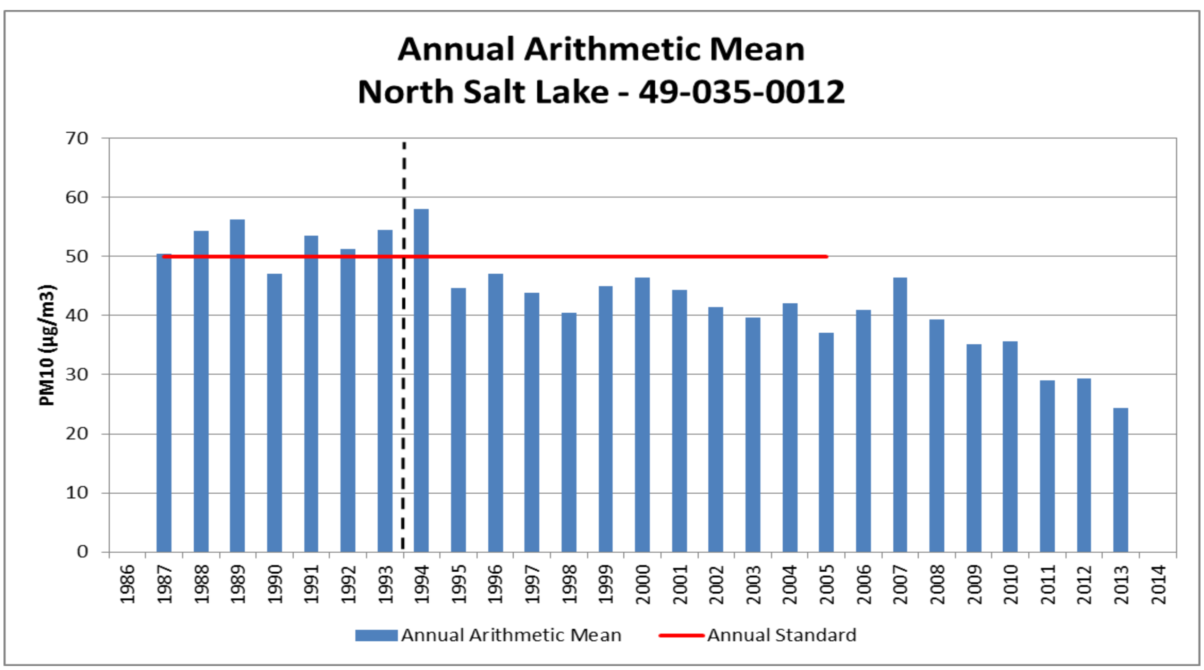
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Figure IX.A.11[~~10~~]. 8 Annual Arithmetic Mean; Cottonwood



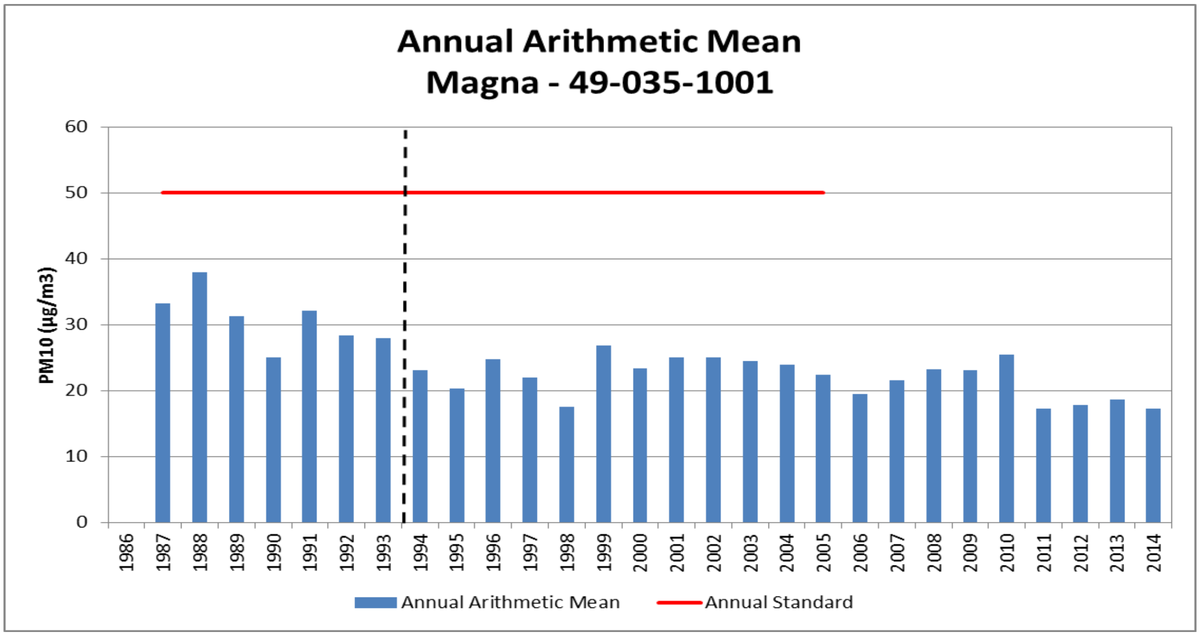
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Figure IX.A.11[~~10~~]. 9 Annual Arithmetic Mean; North Salt Lake



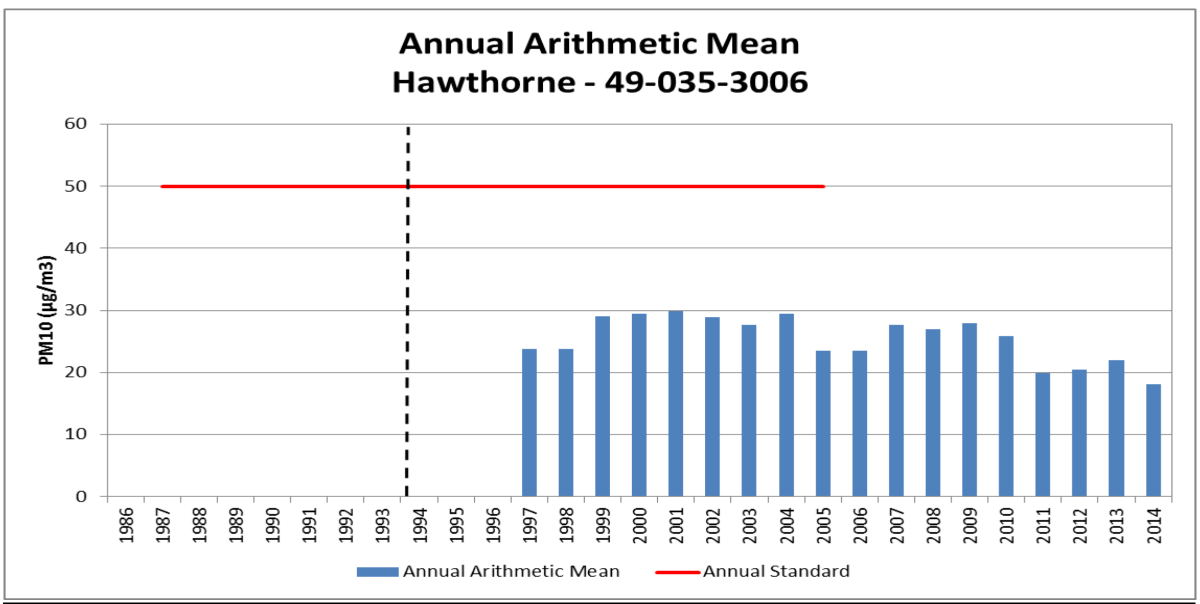
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Figure IX.A.11[~~10~~]. 10 Annual Arithmetic Mean; Magna



(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Figure IX.A.11[~~10~~]. 11 Annual Arithmetic Mean; Hawthorne



(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

As with the number of expected exceedances and the three highest values, the data in Figures IX.A.11[~~10~~]. 7 - 11 may include data which had been flagged by DAQ as being influenced by wind-blown dust events. Nevertheless, the annual averaging period tends to make these data points less significant. The downward trend of these annual mean values is truly indicative of improvements in air quality, particularly during the winter inversion season.

(b) Reduction in Emissions

As stated above, EPA guidance (Calcagni) says that the State must be able to reasonably attribute the improvement in air quality to emission reductions that are permanent and enforceable. In making this showing, the State should estimate the percent reduction (from the year that was used to determine the design value) achieved by Federal measures such as motor vehicle control, as well as by control measures that have been adopted and implemented by the State.

In Salt Lake County, the design values at each of the representative monitors were measured in 1988 or 1989 (see SIP Subsections IX.A.3-5).

As mentioned before, the ambient air quality data presented in Subsection IX.A.11[~~10~~].b(3)(a) above includes values prior to these dates in order to give a representation of the air quality prior to the application of any control measures. It then includes data collected from then until the present time to illustrate the lasting effect of these controls. In discussing the effect of the controls, as well as the control measures themselves, however, it is important to keep in mind the time necessary for their implementation.

The nonattainment SIPs for all initial moderate PM_{10} nonattainment areas included a statutory date for the implementation of reasonably available control measures (RACM), which includes reasonably available control technologies (RACT). This date was December 10, 1993 (Section 189(a) CAA). Thus, 1994 marked the first year in which these control measures were reflected in the emissions inventories for Salt Lake County.

The nonattainment SIP for the Salt Lake County PM_{10} nonattainment area included control strategies for stationary sources and area sources (including controls for woodburning, mobile sources, and road salting and sanding) of primary PM_{10} emissions as well as sulfur oxide (SO_X) and nitrogen oxide (NO_X) emissions, which are secondary sources of particulate emissions. This is discussed in SIP Subsection IX.A.6, and was reflected in the attainment demonstration presented in Subsection IX.A.5.

The RACM control measures prescribed by the nonattainment SIP and their subsequent implementation by the State were discussed in more detail in a milestone report submitted for the area.

Section 189(c) of the CAA identifies, as a required plan element, quantitative milestones which are to be achieved every 3 years, and which demonstrate reasonable further progress (RFP) toward attainment of the standard by the applicable date. As defined in CAA Section 171(1), the term *reasonable further progress* has the meaning of such annual incremental reductions in emissions of the relevant air pollutant as are required by Part D of the Act for the purpose of ensuring attainment of the NAAQS by the applicable date.

Hence, the milestone report must demonstrate that all measures in the approved nonattainment SIP have been implemented and that the milestone has been met. In the case of initial moderate areas for PM_{10}, this first milestone had the meaning of all control measures identified in the plan being sufficient to bring the area into compliance with the NAAQS by the statutory attainment date of December 31, 1994.

Section 188(d) of the Act allows States to petition the Administrator for up to two one-year extensions of the attainment date, provided that all SIP elements have been implemented and that the ambient data collected in the area during the year preceding the extension year indicates that the area is on-target to attain the NAAQS. Presumably this is because the statutory attainment date for initial moderate PM_{10} nonattainment areas occurred only one year after the statutory implementation date for RACM, the central control element of all implementation plans for such areas, and because three consecutive years of clean ambient data are needed to determine that an area has attained the standard. Because the milestone report and the request for extension of the attainment date both required a demonstration that all SIP elements had been implemented, as well as a showing of RFP, Utah combined these into a single analysis.

Utah's actions to meet these requirements and EPA's subsequent review thereof are discussed in a Federal Register notice from Monday, June 18, 2001 (66 FR 32752). In this notice, EPA granted a one-year extension of the attainment date for the Salt Lake County PM_{10} nonattainment area and determined that the area had attained the PM_{10} NAAQS by December 31, 1995. The key elements of that FR notice are reiterated below.

On May 11, 1995, Utah submitted a milestone report as required by sec.189(c)(2). On Sept.29, 1995, Utah submitted a revised version of the milestone report. It estimated current emissions from all source categories covered by the SIP and compared those to actual emissions from 1988. Based on information the State submitted in 1995, EPA believes that Utah was in substantial compliance with the requirements and commitments in the SIP for the Salt Lake County PM_{10} nonattainment area. The milestone report indicates that Utah had implemented most of its adopted control measures and had, therefore, substantially implemented the RACM/RACT requirements applicable to moderate PM_{10} nonattainment areas. It showed that in Salt Lake County, emissions of PM_{10}, SO_2 and NO_X had been reduced by approximately 60,752 tpy (from 150,292 down to 89,540). The effect of these emission reductions appears to be reflected in ambient measurements at the monitoring site [and] is evidence that the State's implementation of the PM_{10} SIP control measures resulted in emission reductions amounting to RFP in the Salt Lake County PM_{10} nonattainment area.

This Federal Register notice (66 FR 32752) and the milestone report from September 29, 1995 have been included in the TSD.

Furthermore, since these control measures are incorporated into the Utah SIP, the emission reductions that resulted are consistent with the notion of permanent and enforceable improvements in air quality. Taken together, the trends in ambient air quality illustrated in the preceding paragraph, along with the continued implementation of the nonattainment SIP for the Salt Lake County nonattainment area, provide a reliable indication that these improvements in air quality reflect the application of permanent steps to improve the air quality in the region, rather than just temporary economic or meteorological changes.

(4) State has Met Requirements of Section 110 and Part D

CAA 107(d)(3)(E)(v) - The State containing such area has met all requirements applicable to the area under section 110 and part D. Section 110(a)(2) of the Act deals with the broad scope of state implementation plans and the capacity of the respective state agency to effectively administer such a plan. Sections I through VIII of Utah's SIP contain information relevant to these criteria. Part D deals specifically with plan requirements for nonattainment areas, and includes the requirements for a maintenance plan in Section 175A.

Utah currently has an approved SIP that meets the requirements of section 110(a)(2) of the Act. Many of these elements have been in place for several decades. In the March 9, 2001 approval of Utah's Ogden City Maintenance Plan for Carbon Monoxide, EPA stated:

> On August 15, 1984, we approved revisions to Utah's SIP as meeting the requirements of section 110(a)(2) of the CAA (see 45 FR 32575). Although section 110 of the CAA was amended in 1990, most of the changes were not substantial. Thus, we have determined that the SIP revisions approved in 1984 continue to satisfy the requirements of section 110(a)(2). For further detail, see 45 FR 32575 dated August 15, 1984 (Volume 49, No. 159) or 66 FR 14079 dated March 9, 2001 (Volume 66, No. 47.)

Part D of the Act addresses "Plan Requirements for Nonattainment Areas." Subpart 1 of Part D includes the general requirements that apply to all areas designated nonattainment based on a violation of the NAAQS. Section 172(c) of this subpart contains a list of generally required elements for all nonattainment plans. Subpart 1 is followed by a series of subparts (2-5) specific to various criteria pollutants. Subpart 4 contains the provisions specific to PM_{10} nonattainment areas. The general requirements for nonattainment plans in Section 172(c) may be subsumed within or superseded by the more specific requirements of Subpart 4, but each element must be addressed in the respective nonattainment plan.

One of the pre-conditions for a maintenance plan is a fully approved (non)attainment plan for the area. This is also discussed in section IX.A.11[~~10~~].b(2).

Other Part D requirements that are applicable in nonattainment and maintenance areas include the general and transportation conformity provisions of Section 176(c) of the Act. These provisions ensure that federally funded or approved projects and actions conform to the PM_{10} SIPs and Maintenance Plans prior to the projects or actions being implemented. The State has already submitted to EPA a SIP revision implementing the requirement of Section 176(c).

For Salt Lake County, the Part D requirements for PM_{10} were addressed in an attainment SIP approved by EPA on July 8, 1994 (59 FR 35036).

(5) Maintenance Plan for PM_{10} Areas

As stated in the Act, an area may not request redesignation to attainment without first submitting, and then receiving EPA approval of, a maintenance plan. The plan is basically a quantitative showing that the area will continue to attain the NAAQS for an additional 10 years (from EPA approval), accompanied by sufficient assurance that the terms of the numeric demonstration will be administered by the State and by the EPA in an oversight capacity. The maintenance plan is the central criterion for redesignation. It is contained in the following subsection.

IX.A.11[~~10~~].c Maintenance Plan

CAA 107(d)(3)(E)(iv) - The Administrator has fully approved a maintenance plan for the area as meeting the requirements of section 175A. An approved maintenance plan is one of several criteria necessary for area redesignation as outlined in Section 107(d)(3)(E) of the Act. The maintenance plan itself, as described in Section 175A of the Act and further addressed in EPA guidance (Procedures for Processing Requests to Redesignate Areas to Attainment, John Calcagni to Regional Air Directors, September 4, 1992; or for the purpose of this document, simply "Calcagni"), has its own list of required elements. The following table is presented to summarize these requirements. Each will then be addressed in turn.

Table IX.A.11[~~10~~]. 4 Requirements of a Maintenance Plan in the Clean Air Act (CAA)

Category	Requirement	Reference	Addressed in Section
Maintenance demonstration	Provide for maintenance of the relevant NAAQS in the area for at least 10 years after redesignation.	CAA: Sec 175A(a)	IX.A. 11[~~10~~].c(1)
Revise in 8 Years	The State must submit an additional revision to the plan, 8 years after redesignation, showing an additional 10 years of maintenance.	CAA: Sec 175A(b)	IX.A. 11[~~10~~].c(8)
Continued Implementation of Nonattainment Area Control Strategy	The Clean Air Act requires continued implementation of the nonattainment area control strategy unless such measures are shown to be unnecessary for maintenance or are replaced with measures that achieve equivalent reductions.	CAA: Sec 175A(c), CAA Sec 110(l), Calcagni memo	IX.A. 11[~~10~~].c(7)
Contingency Measures	Areas seeking redesignation from nonattainment to attainment are required to develop contingency measures that include State commitments to implement additional control measures in response to future violations of the NAAQS.	CAA: Sec 175A(d)	IX.A. 11[~~10~~].c(10)
Verification of Continued Maintenance	The maintenance plan must indicate how the State will track the progress of the maintenance plan.	Calcagni memo	IX.A. 11[~~10~~].c(9)

(1) Demonstration of Maintenance - Modeling Analysis

CAA 175A(a) - Each State which submits a request under section 107(d) for redesignation of a nonattainment area as an area which has attained the NAAQS shall also submit a revision of the applicable implementation plan to provide for maintenance of the NAAQS for at least 10 years after the redesignation. The plan shall contain such additional measures, if any, as may be required to ensure such maintenance. The maintenance demonstration is discussed in EPA guidance (Calcagni) as one of the core provisions that should be considered by states for inclusion in a maintenance plan.

According to Calcagni, a State may generally demonstrate maintenance of the NAAQS by either showing that future emissions of a pollutant or its precursors will not exceed the level of the attainment inventory (discussed below) or by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS. Utah has elected to make its demonstration based on air quality modeling.

(a) Introduction

The following chapter presents an analysis using observational datasets to detail the chemical regimes of Utah's Nonattainment areas.

Prior to the development of this PM_{10} maintenance plan, UDAQ conducted a technical analysis to support the development of Utah's 24-hr State Implementation Plan for $PM_{2.5}$. That analysis included preparation of emissions inventories and meteorological data, and the evaluation and application of a regional photochemical model.

Outside of the springtime high wind events and wildfires, the Wasatch Front experiences high 24-hr PM_{10} concentrations under stable conditions during the wintertime (e.g., temperature inversion). These are the same episodes where the Wasatch Front sees its highest concentrations of 24-hr $PM_{2.5}$ that sometimes exceed the 24-hr $PM_{2.5}$ NAAQS. Most (60% to 90%) of the PM_{10} observed during high wintertime pollution days consists of $PM_{2.5}$. The dominant species of the wintertime PM_{10} is secondarily formed particulate nitrate, which is also the dominant species of $PM_{2.5}$.

Given these similarities, the $PM_{2.5}$ modeling analysis was utilized as the foundation for this PM_{10} Maintenance Plan.

The CMAQ model performance for the PM_{10} Maintenance Plan adds to the detailed model performance that was part of the UDAQ's previous $PM_{2.5}$ SIP process. Utah DAQ used the same modeling episode that was used in the $PM_{2.5}$ SIP, which is the 45-day modeling episode from the winter of 2009-2010. The modeled meteorology datasets from the Weather Research and Forecasting (WRF) model for the PM_{10} Plan are the same datasets used for the $PM_{2.5}$ SIP. Also, the CMAQ version (4.7.1) and CMAQ model setup (i.e., vertical advection module turned off) for the PM_{10} modeling matches the $PM_{2.5}$ SIP setup.

For this reason, much of the information presented below pertains specifically to the $PM_{2.5}$ evaluation. This is supplemented with information pertaining to PM_{10}, most notably with respect to the PM_{10} model performance evaluation.

The additional PM_{10} analysis is also presented in the Technical Support Document.

(b) Photochemical Modeling

Photochemical models are relied upon by federal and state regulatory agencies to support their planning efforts. Used properly, models can assist policy makers in deciding which control programs are most effective in improving air quality, and meeting specific goals and objectives. The air quality analyses were conducted with the Community Multiscale Air Quality (CMAQ) Model version 4.7.1, with emissions and meteorology inputs generated using SMOKE and WRF, respectively. CMAQ was selected because it is the open source atmospheric chemistry model co-sponsored by EPA and the National Oceanic Atmospheric Administration (NOAA), and thus approved by EPA for this plan.

(c) Domain/Grid Resolution

UDAQ selected a high resolution 4-km modeling domain to cover all of northern Utah including the portion of southern Idaho extending north of Franklin County and west to the Nevada border (Figure IX.A.11[~~10~~]. 12). This 97 x 79 horizontal grid cell domain was selected to ensure that all of the major emissions sources that have the potential to impact the nonattainment areas were included. The vertical resolution in the air quality model consists of 17 layers extending up to 15 km, with higher resolution in the boundary layer.

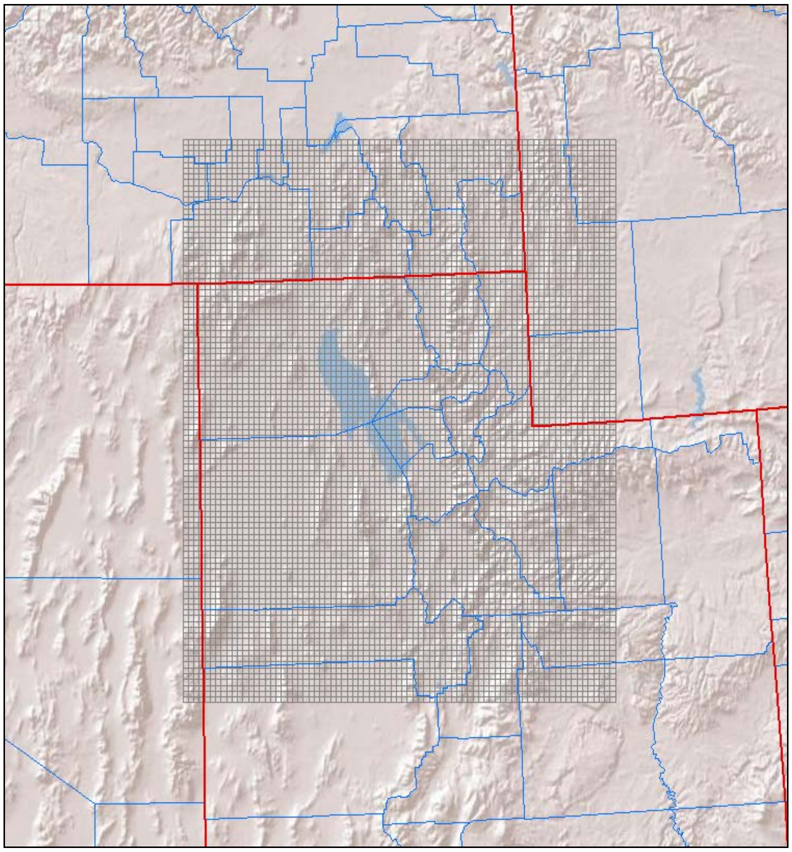


Figure IX.A.11[~~10~~]. 12 Northern Utah photochemical modeling domain.

(d) Episode Selection

According to EPA's April 2007 "Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, $PM_{2.5}$, and Regional Haze," the selection of SIP episodes for modeling should consider the following 4 criteria:

1. Select episodes that represent a variety of meteorological conditions that lead to elevated $PM_{2.5}$.

2. Select episodes during which observed concentrations are close to the baseline design value.

3. Select episodes that have extensive air quality data bases.

4. Select enough episodes such that the model attainment test is based on multiple days at each monitor violating NAAQS.

In general, UDAQ wanted to select episodes with hourly $PM_{2.5}$ concentrations that are reflective of conditions that lead to 24-hour NAAQS exceedances. From a synoptic meteorology point of view, each selected episode features a similar pattern. The typical pattern includes a deep trough over the eastern United States with a building and eastward moving ridge over the western United States. The episodes typically begin as the ridge begins to build eastward, near surface winds weaken, and rapid stabilization due to warm advection and subsidence dominate. As the ridge centers over Utah and subsidence peaks, the atmosphere becomes extremely stable and a subsidence inversion descends towards the surface. During this time, weak insolation, light winds, and cold temperatures promote the development of a persistent cold air pool. Not until the ridge moves eastward or breaks down from north to south is there enough mixing in the atmosphere to completely erode the persistent cold air pool.

From the most recent 5-year period of 2007-2011, UDAQ developed a long list of candidate $PM_{2.5}$ wintertime episodes. Three episodes were selected. An episode was selected from January 2007, an episode from February 2008, and an episode during the winter of 2009-2010 that features multi-event episodes of $PM_{2.5}$ buildup and washout.

As noted in the introduction, these episodes were also ideal from the standpoint of characterizing PM_{10} buildup and formation.

Further detail of the episodes is below:

- **Episode 1: January 11-20, 2007**

A cold front passed through Utah during the early portion of the episode and brought very cold temperatures and several inches of fresh snow to the Wasatch Front. The trough was quickly followed by a ridge that built north into British Columbia and began expanding east into Utah. This ridge did not fully center itself over Utah, but the associated light winds, cold temperatures, fresh snow, and subsidence inversion produced very stagnant conditions along the Wasatch Front. High temperatures in Salt Lake City throughout the episode were in the high teens to mid-20's Fahrenheit.

Figure IX.A.11[~~10~~]. 13 shows hourly $PM_{2.5}$ concentrations from Utah's 4 $PM_{2.5}$ monitors for January 11-20, 2007. The first 6 to 8 days of this episode are suited for modeling. The episode becomes less suited after January 18 because of the complexities in the meteorological conditions leading to temporary $PM_{2.5}$ reductions.

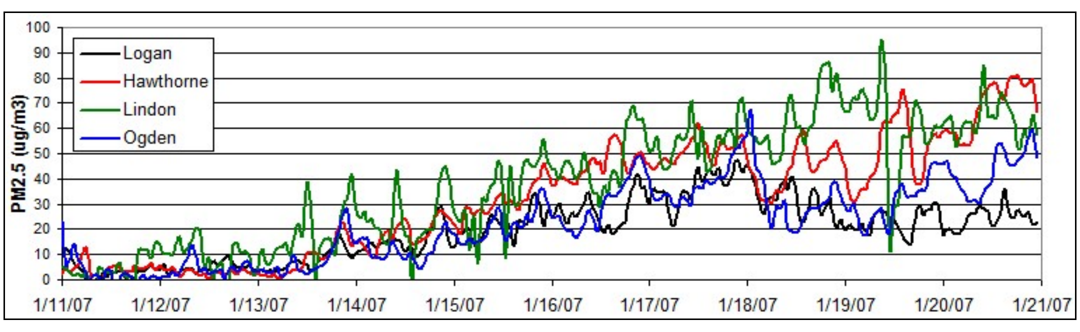


Figure IX.A.10. 13 Hourly $PM_{2.5}$ concentrations for January 11-20, 2007

- **Episode 2: February 14-18, 2008**

The February 2008 episode features a cold front passage at the start of the episode that brought significant new snow to the Wasatch Front. A ridge began building eastward from the Pacific

Coast and centered itself over Utah on Feb 20th. During this time a subsidence inversion lowered significantly from February 16 to February 19. Temperatures during this episode were mild with high temperatures at SLC in the upper 30's and lower 40's Fahrenheit.

The 24-hour average $PM_{2.5}$ exceedances observed during the proposed modeling period of February 14-19, 2008 were not exceptionally high. What makes this episode a good candidate for modeling are the high hourly values and smooth concentration build-up. The first 24-hour exceedances occurred on February 16 and were followed by a rapid increase in $PM_{2.5}$ through the first half of February 17 (Figure IX.A.11[~~10~~]. 14). During the second half of February 17, a subtle meteorological feature produced a mid-morning partial mix-out of particulate matter and forced 24-hour averages to fall. After February 18, the atmosphere began to stabilize again and resulted in even higher $PM_{2.5}$ concentrations during February 20, 21, and 22. Modeling the 14th through the 19th of this episode should successfully capture these dynamics. The smooth gradual build-up of hourly $PM_{2.5}$ is ideal for modeling.

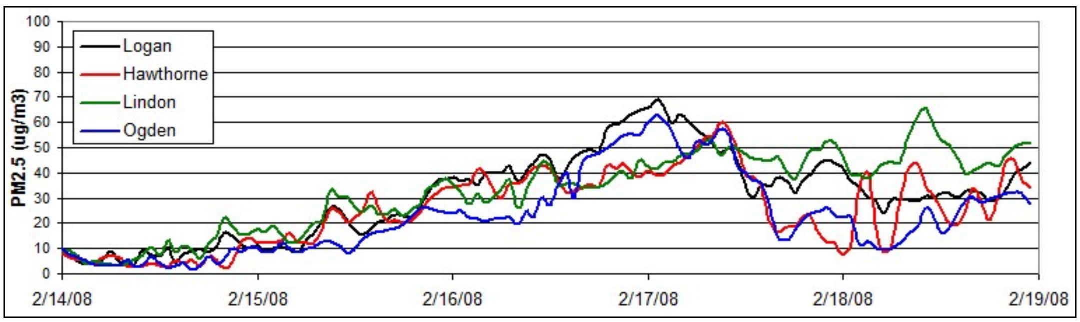


Figure IX.A.11[~~10~~]. 14 Hourly $PM_{2.5}$ concentrations for February 14-19, 2008

- **Episode 3: December 13, 2009 – January 18, 2010**

The third episode that was selected is more similar to a "season" than a single $PM_{2.5}$ episode (Figure IX.A.11[~~10~~]. 15). During the winter of 2009 and 2010, Utah was dominated by a semi-permanent ridge of high pressure that prevented strong storms from crossing Utah. This 35 day period was characterized by 4 to 5 individual $PM_{2.5}$ episodes each followed by a partial $PM_{2.5}$ mix out when a weak weather system passed through the ridge. The long length of the episode and repetitive $PM_{2.5}$ build-up and mix-out cycles makes it ideal for evaluating model strengths and weaknesses and $PM_{2.5}$ control strategies.

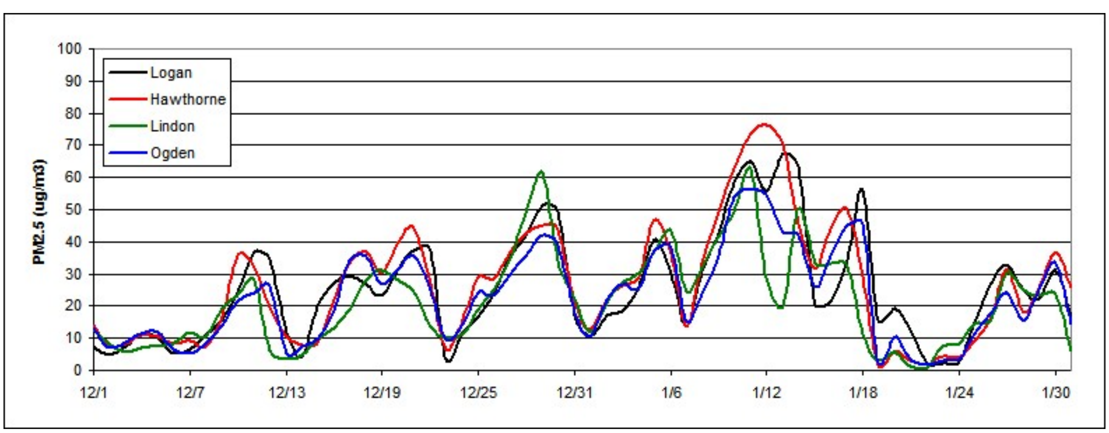


Figure IX.A.11[~~10~~]. 15 24-hour average $PM_{2.5}$ concentrations for December-January, 2009-10

(e) Meteorological Data

Meteorological inputs were derived using the Advanced Research WRF (WRF-ARW) model version 3.2. WRF contains separate modules to compute different physical processes such as surface energy budgets and soil interactions, turbulence, cloud microphysics, and atmospheric radiation. Within WRF, the user has many options for selecting the different schemes for each type of physical process. There is also a WRF Preprocessing System (WPS) that generates the initial and boundary conditions used by WRF, based on topographic datasets, land use information, and larger-scale atmospheric and oceanic models.

Model performance of WRF was assessed against observations at sites maintained by the Utah Air Monitoring Center. A summary of the performance evaluation results for WRF are presented below:

- The biggest issue with meteorological performance is the existence of a warm bias in surface temperatures during high $PM_{2.5}$ episodes. This warm bias is a common trait of WRF modeling during Utah wintertime inversions.

- WRF does a good job of replicating the light wind speeds (< 5 mph) that occur during high $PM_{2.5}$ episodes.

- WRF is able to simulate the diurnal wind flows common during high $PM_{2.5}$ episodes. WRF captures the overnight downslope and daytime upslope wind flow that occurs in Utah valley basins.

- WRF has reasonable ability to replicate the vertical temperature structure of the boundary layer (i.e., the temperature inversion), although it is difficult for WRF to reproduce the inversion when the inversion is shallow and strong (i.e., an 8 degree temperature increase over 100 vertical meters).

(f) Photochemical Model Performance Evaluation

$PM_{2.5}$ Results

The model performance evaluation focused on the magnitude, spatial pattern, and temporal variation of modeled and measured concentrations. This exercise was intended to assess whether, and to what degree, confidence in the model is warranted (and to assess whether model improvements are necessary).

CMAQ model performance was assessed with observed air quality datasets at UDAQ-maintained air monitoring sites (Figure IX.A.11[~~10~~]. 16). Measurements of observed $PM_{2.5}$ concentrations along with gaseous precursors of secondary particulate (e.g., NO_x, ozone) and carbon monoxide are made throughout winter at most of the locations in the figure . $PM_{2.5}$ speciation performance was assessed using the three Speciation Monitoring Network Sites (STN) located at the Hawthorne site in Salt Lake City, the Bountiful site in Davis County, and the Lindon site in Utah County.

PM_{10} data is also collected at Logan, Bountiful, Ogden2, Magna, Hawthorne, North Provo, and Lindon.

PM_{10} filters were collected at Bountiful, Hawthorne and Lindon, and analyzed with the goal comparing CMAQ modeled speciation to the collected PM_{10} filters. While analyzing the PM_{10} filters, most of the secondarily chemically formed particulate nitrate had been volatized, and thus could not be accounted for. This is most likely due to the age of the filters, which were collected over five years ago. Thus, a robust comparison of CMAQ modeled PM_{10} speciation to PM_{10} filter speciation could not be made for this modeling period.

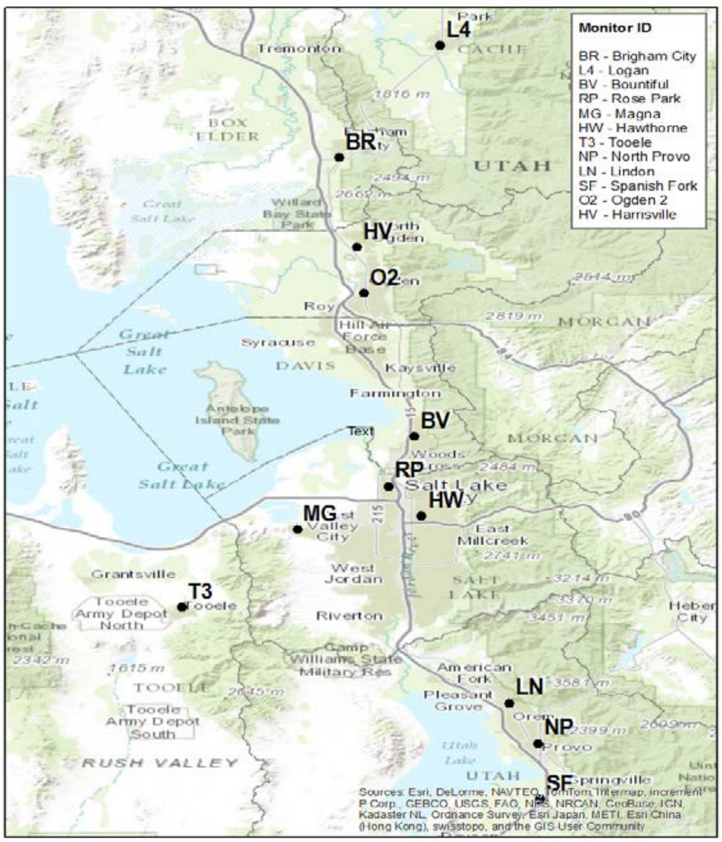


Figure IX.A.11[~~10~~]. 16 UDAQ monitoring network.

A spatial plot is provided for modeled 24-hr $PM_{2.5}$ for 2010 January 03 in Figure IX.A.11[~~10~~]. 17. The spatial plot shows the model does a reasonable job reproducing the high $PM_{2.5}$ values, and keeping those high values confined in the valley locations where emissions occur.

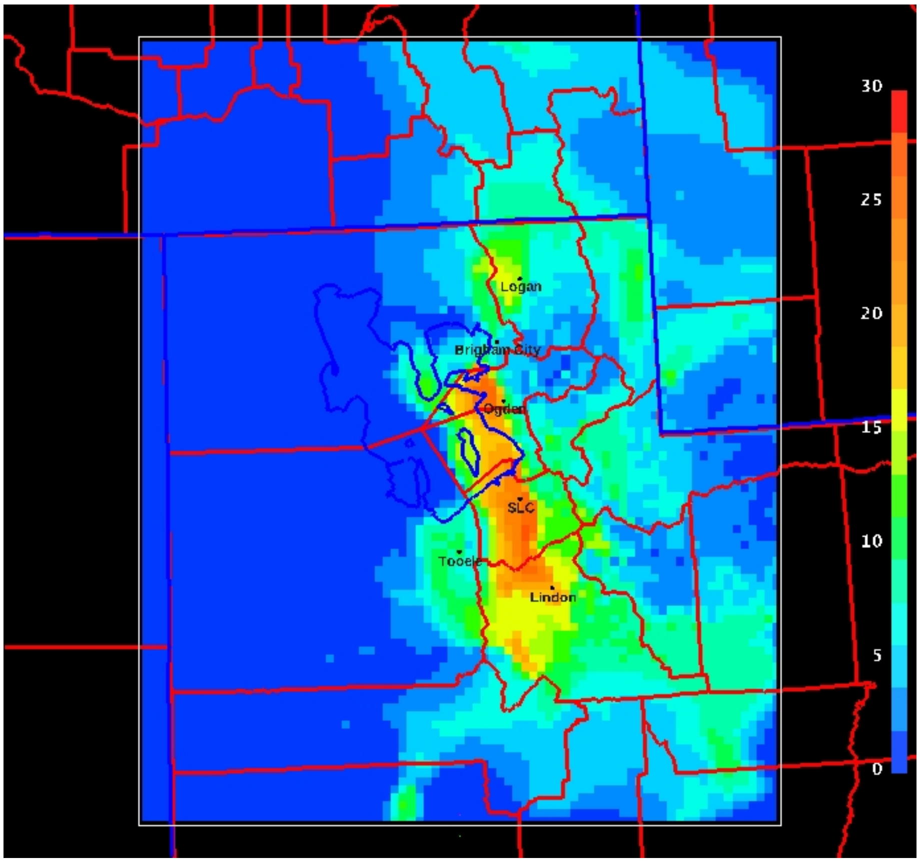


Figure IX.A.11[~~10~~]. 17 Spatial plot of CMAQ modeled 24-hr $PM_{2.5}$ ($\mu g/m^3$) for 2010 Jan. 03.

Time series of 24-hr $PM_{2.5}$ concentrations for the 13 Dec. 2009 – 15 Jan. 2010 modeling period are shown in Figs. IX.A.11[~~10~~]. 18 - 21 at the Hawthorne site in Salt Lake City, the Ogden site in Weber County, the Lindon site in Utah County, and the Logan site in Cache County. For the most part, CMAQ replicates the buildup and washout of each individual episode. While CMAQ builds 24-hr $PM_{2.5}$ concentrations during the 08 Jan. – 14 Jan. 2010 episode, it was not able to produce the > 60 $\mu g/m^3$ concentrations observed at the monitoring locations.

It is often seen that CMAQ "washes" out the $PM_{2.5}$ episode a day or two earlier than that seen in the observations. For example, on the day 21 Dec. 2009, the concentration of $PM_{2.5}$ continues to build while CMAQ has already cleaned the valley basins of high $PM_{2.5}$ concentrations. At these times, the observed cold pool that holds the $PM_{2.5}$ is often very shallow and winds just above this cold pool are southerly and strong before the approaching cold front. This situation is very difficult for a meteorological and photochemical model to reproduce. An example of this situation is shown in Fig. IX.A.11[~~10~~]. 22, where the lowest part of the Salt Lake Valley is still under a very shallow stable cold pool, yet higher elevations of the valley have already been cleared of the high $PM_{2.5}$ concentrations.

During the 24 – 30 Dec. 2009 episode, a weak meteorological disturbance brushes through the northernmost portion of Utah. It is noticeable in the observations at the Ogden monitor on 25 Dec. as $PM_{2.5}$ concentrations drop on this day before resuming an increase through Dec. 30. The meteorological model and thus CMAQ correctly pick up this disturbance, but completely clears out the building $PM_{2.5}$; and thus performance suffers at the most northern Utah monitors (e.g. Ogden, Logan). The monitors to the south (Hawthorne, Lindon) are not influence by this disturbance and building of $PM_{2.5}$ is replicated by CMAQ. This highlights another challenge of modeling $PM_{2.5}$ episodes in Utah. Often during cold pool events, weak disturbances will pass through Utah that will de-stabilize the valley inversion and cause a partial clear out of $PM_{2.5}$. However, the $PM_{2.5}$ is not completely cleared out, and after the disturbance exits, the valley inversion strengthens and the $PM_{2.5}$ concentrations continue to build. Typically, CMAQ completely mixes out the valley inversion during these weak disturbances.

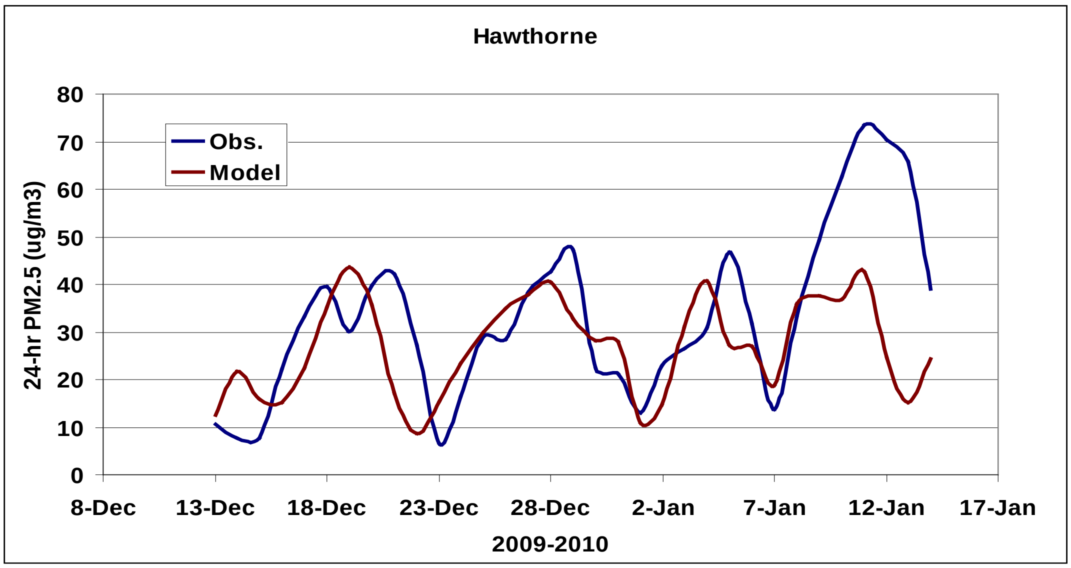


Figure IX.A.11[~~10~~]. 18 24-hr $PM_{2.5}$ time series (Hawthorne). Observed 24-hr $PM_{2.5}$ (blue trace) and CMAQ modeled 24-hr $PM_{2.5}$ (red trace).

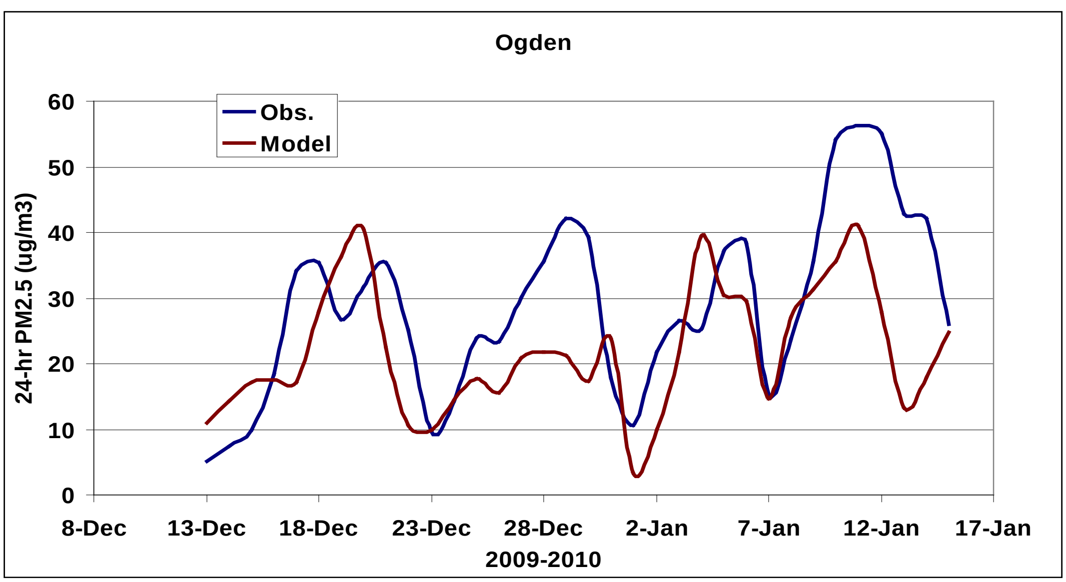


Figure IX.A.11[~~10~~]. 19 24-hr $PM_{2.5}$ time series (Ogden). Observed 24-hr $PM_{2.5}$

(blue trace) and CMAQ modeled 24-hr $PM_{2.5}$ (red trace).

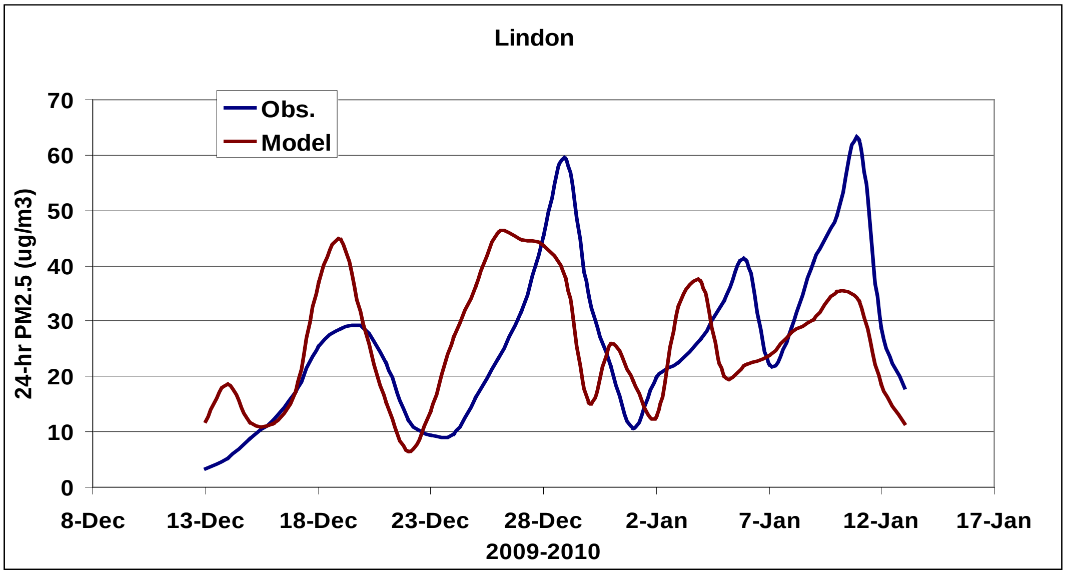


Figure IX.A.11[~~10~~]. 20 24-hr $PM_{2.5}$ time series (Lindon). Observed 24-hr $PM_{2.5}$ (blue trace) and CMAQ modeled 24-hr $PM_{2.5}$ (red trace).

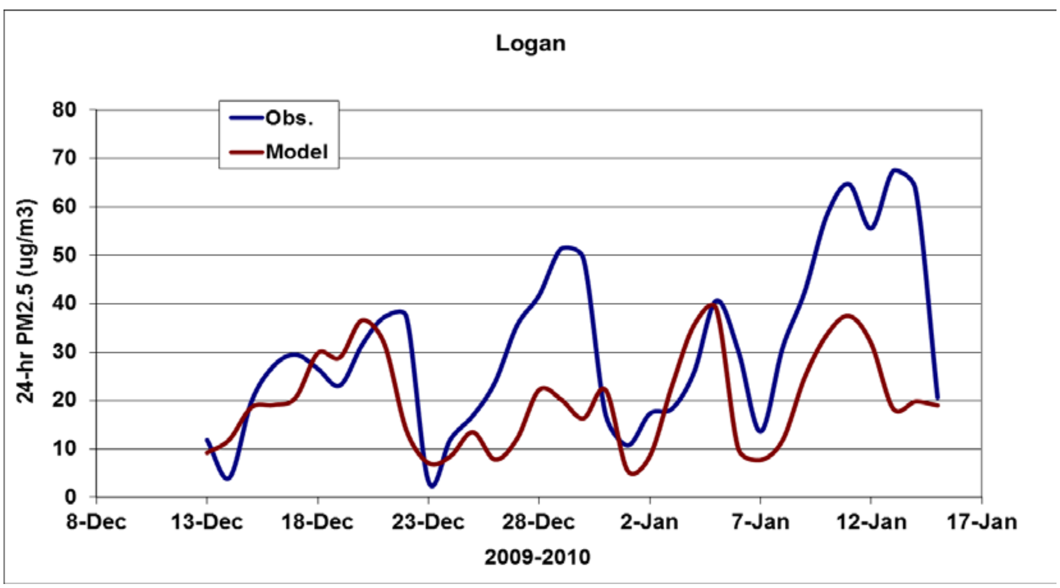


Figure IX.A.11[~~10~~]. 21 24-hr $PM_{2.5}$ time series (Logan). Observed 24-hr $PM_{2.5}$ (blue trace) and CMAQ modeled 24-hr $PM_{2.5}$ (red trace).

Figure IX.A.11[~~10~~]. 22 An example of the Salt Lake Valley at the end of a high $PM_{2.5}$ episode. The lowest elevations of the Salt Lake Valley are still experiencing an inversion and elevated $PM_{2.5}$ concentrations while the $PM_{2.5}$ has been 'cleared out' throughout the rest of the valley. These 'end of episode' clear out periods are difficult to replicate in the photochemical model.

Generally, the performance of CMAQ to replicate the buildup and clear out of $PM_{2.5}$ is good. However, it is important to verify that CMAQ is replicating the components of $PM_{2.5}$ concentrations. $PM_{2.5}$ simulated and observed speciation is shown at the 3 STN sites in Figures IX.A.11[~~10~~]. 23 -25. The observed speciation is constructed using days in which the STN filter 24-hr $PM_{2.5}$ concentration was > 35 µg/m^3. For the 2009-2010 modeling period, the observed speciation pie charts were created using 8 filter days at Hawthorne, 6 days at Lindon, and 4 days at Bountiful.

The simulated speciation is constructed using modeling days that produced 24-hr $PM_{2.5}$ concentrations > 35 µg/m^3. Using this criterion, the simulated speciation pie chart is created from 18 modeling days for Hawthorne, 14 days at Lindon, and 14 days at Bountiful.
At all 3 STN sites, the percentage of simulated nitrate is greater than 40%, while the simulated ammonium percentage is at ~15%. This indicates that the model is able to replicate the secondarily formed particulates that typically make up the majority of the measured $PM_{2.5}$ on the STN filters during wintertime pollution events.

The percentage of model simulated organic carbon is ~13% at all STN sites, which is in agreement with the observed speciation of organic carbon at Hawthorne and slightly overestimated (by ~3%) at Lindon and Bountiful.

There is no STN site in the Logan nonattainment area, and very little speciation information available in the Cache Valley. Figure IX.A.11[~~10~~]. 26 shows the model simulated speciation at Logan. Ammonium (17%) and nitrate (56%) make up a higher percentage of the simulated $PM_{2.5}$ at Logan when compared to sites along the Wasatch Front.

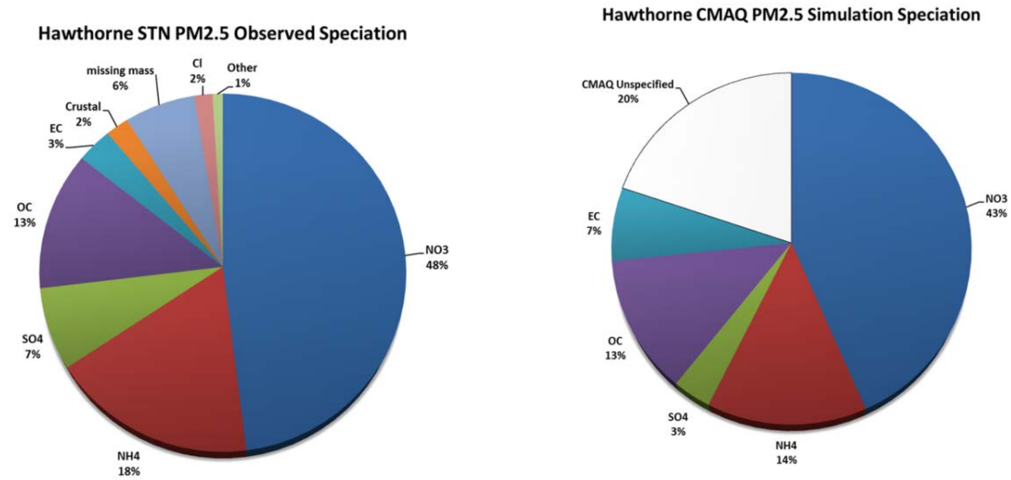


Figure IX.A.11[~~10~~]. 23 The composition of observed and model simulated average 24-hr $PM_{2.5}$ speciation averaged over days when an observed and modeled day had 24-hr concentrations > 35 µg/m^3 at the Hawthorne STN site.

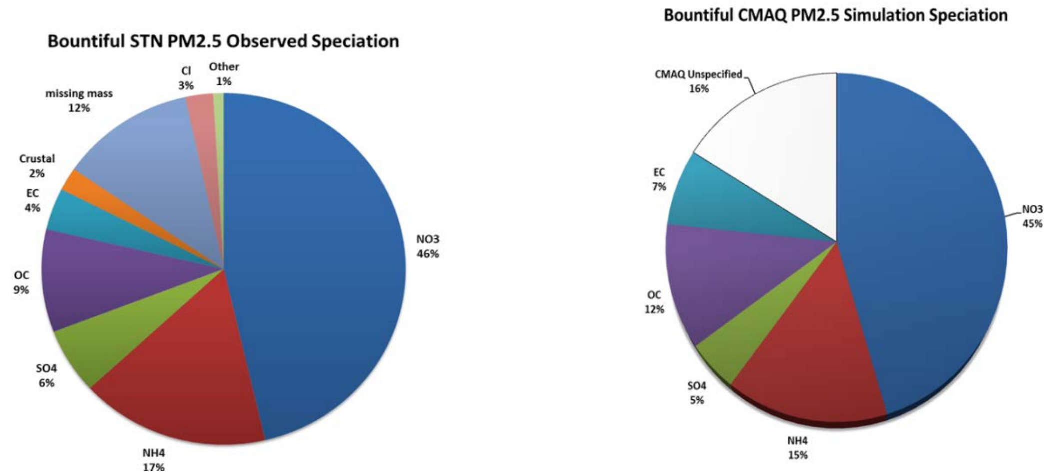


Figure IX.A.11[~~10~~]. 24 The composition of observed and model simulated average 24-hr $PM_{2.5}$ speciation averaged over days when an observed and modeled day had 24-hr concentrations > 35 µg/m^3 at the Bountiful STN site.

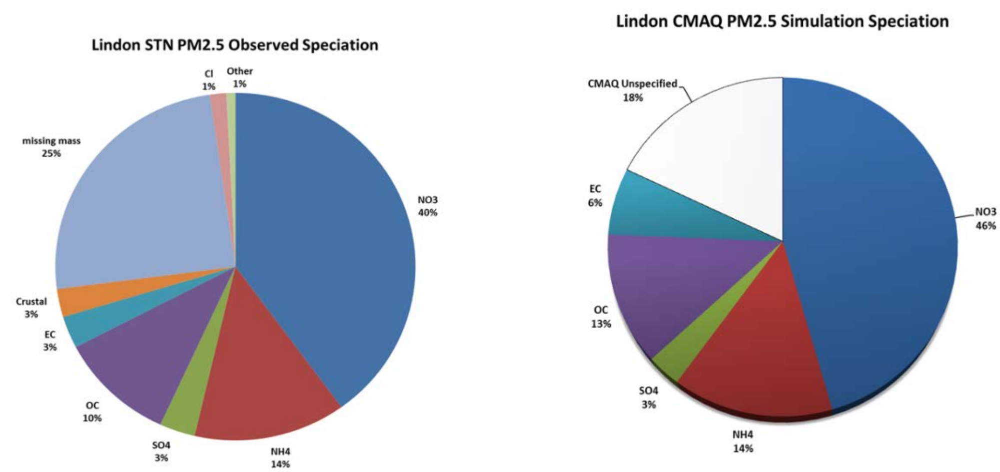


Figure IX.A.11[~~10~~]. 25 The composition of observed and model simulated average 24-hr $PM_{2.5}$ speciation averaged over days when an observed and modeled day had 24-hr concentrations > 35 µg/m^3 at the Lindon STN site.

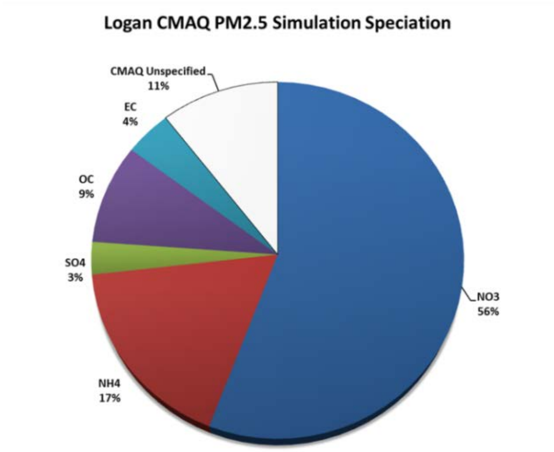


Figure IX.A.11[~~10~~]. 26 The composition of model simulated average 24-hr $PM_{2.5}$ speciation averaged over days when a modeled day had 24-hr concentrations > 35 µg/m^3 at the Logan monitoring site. No observed speciation data is available for Logan.

PM_{10} Results

As mentioned previously, the bulk of the performance for CMAQ modeled Particulate Matter (PM) for the 2009 – 2010 episode was done for the 24-hr $PM_{2.5}$ SIP. The detailed model performance was shown using time series, statistical metrics, and pie charts. For the CMAQ performance of PM_{10} in particular, UDAQ has updated the model versus observations time series plots to show PM_{10}, in addition to the prior times series using $PM_{2.5}$. For the 2009 – 2010 episode, UDAQ collected PM_{10} observational data at Hawthorne and Magna in Salt Lake County; Lindon and North Provo in Utah County; and for Ogden City.

The PM_{10} model versus observation time series is shown in Figures IX.A.11[~~10~~]. 27 - 32.

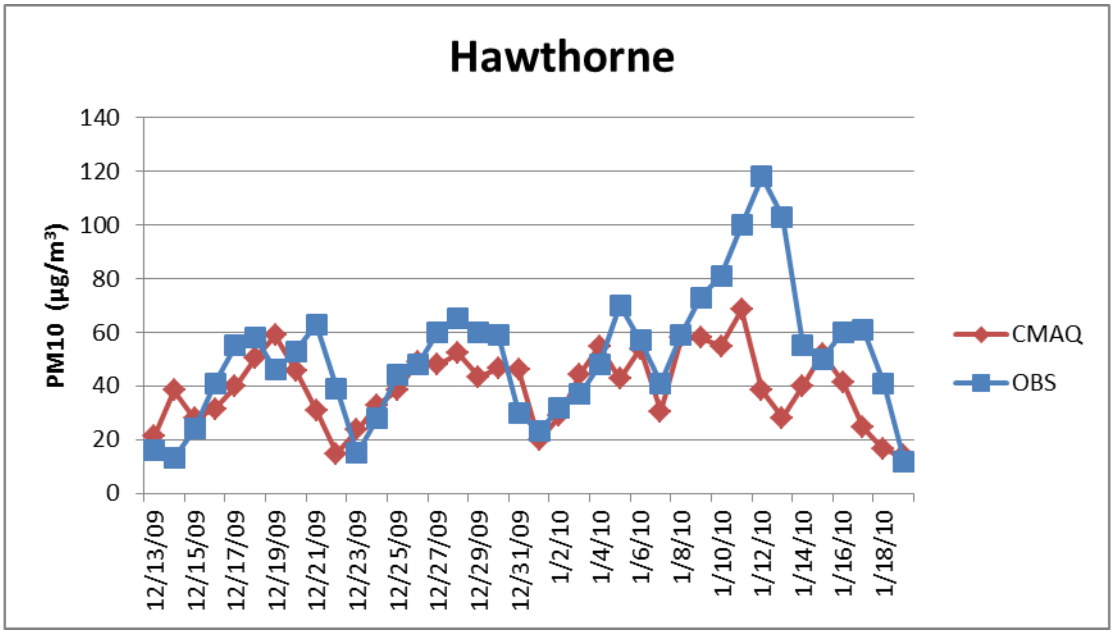


Figure IX.A.11[~~10~~]. 27 Time Series of total PM10 (ug/m3) for Hawthorne for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

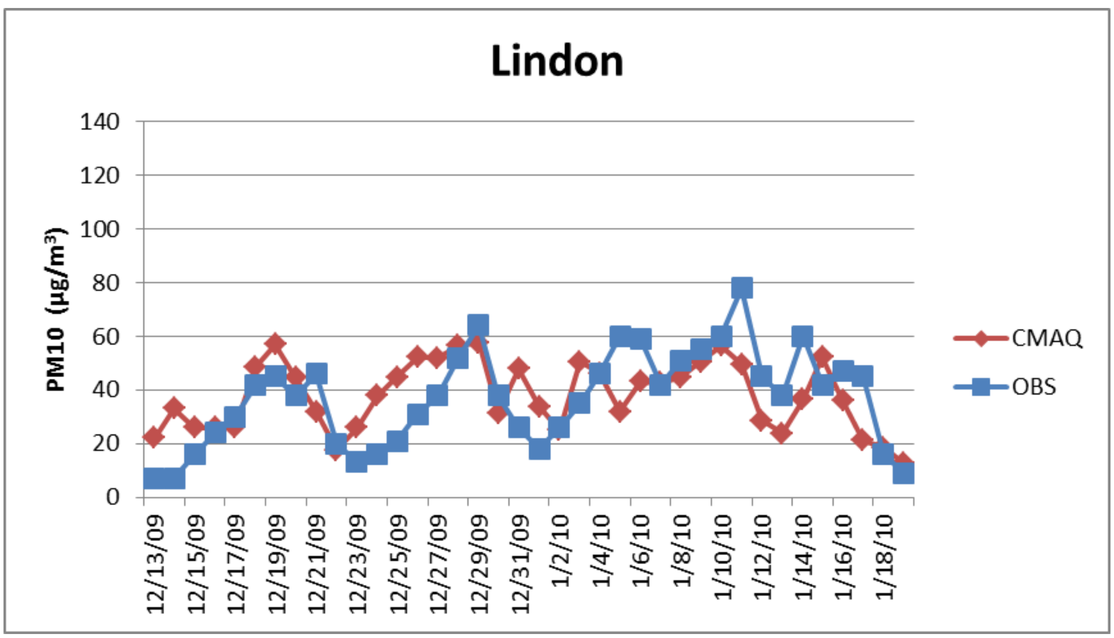


Figure IX.A.11[~~10~~]. 28 Time Series of total PM10 (ug/m3) for Lindon for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

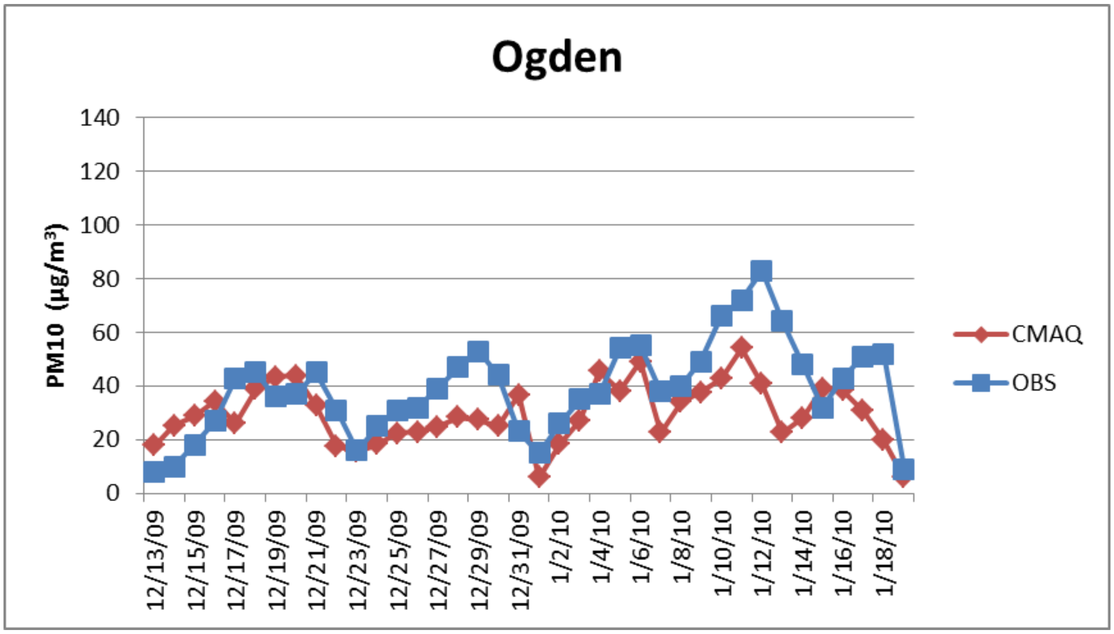


Figure IX.A.11[~~10~~]. 29 Time Series of total PM10 (ug/m3) for Ogden for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

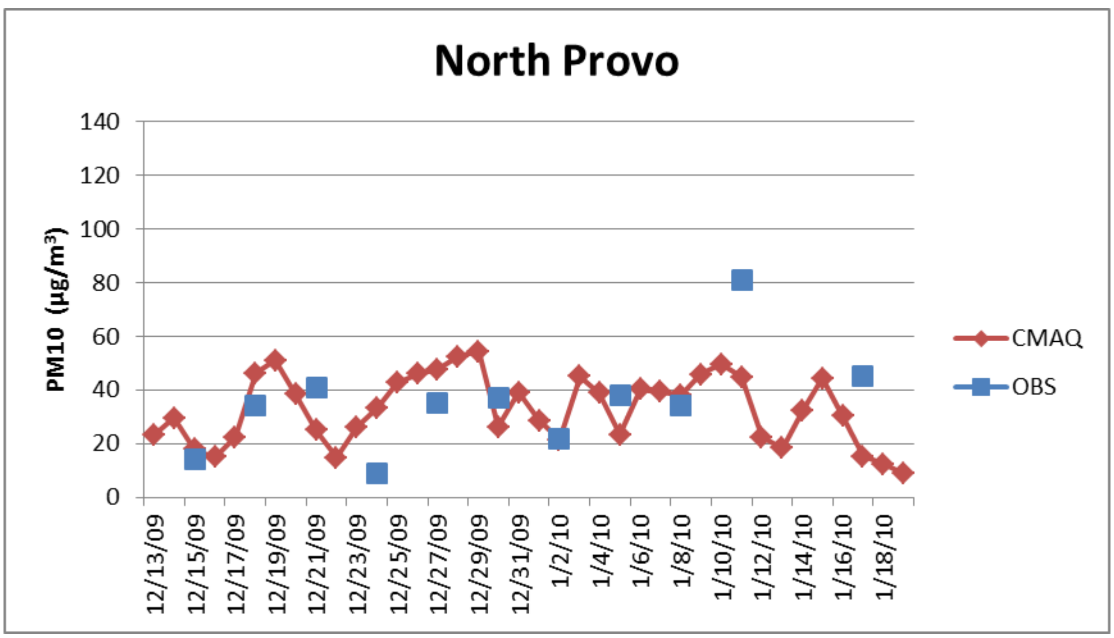


Figure IX.A.11[~~10~~]. 30 Time Series of total PM10 (ug/m3) for North Provo for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

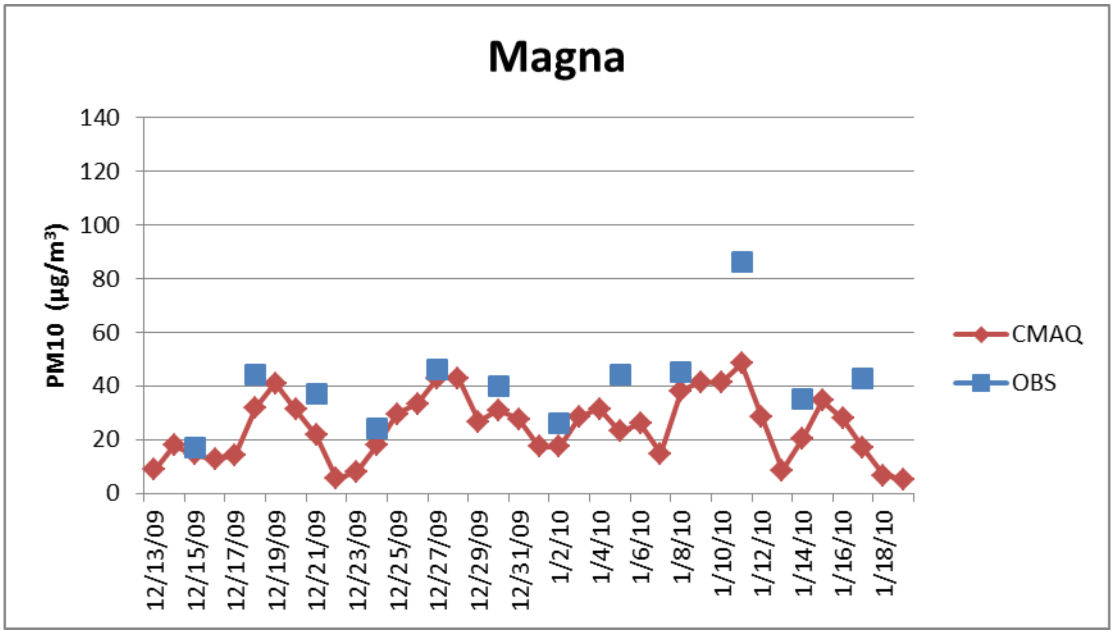


Figure IX.A.11[~~10~~]. 31 Time Series of total PM10 (ug/m3) for Magna for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

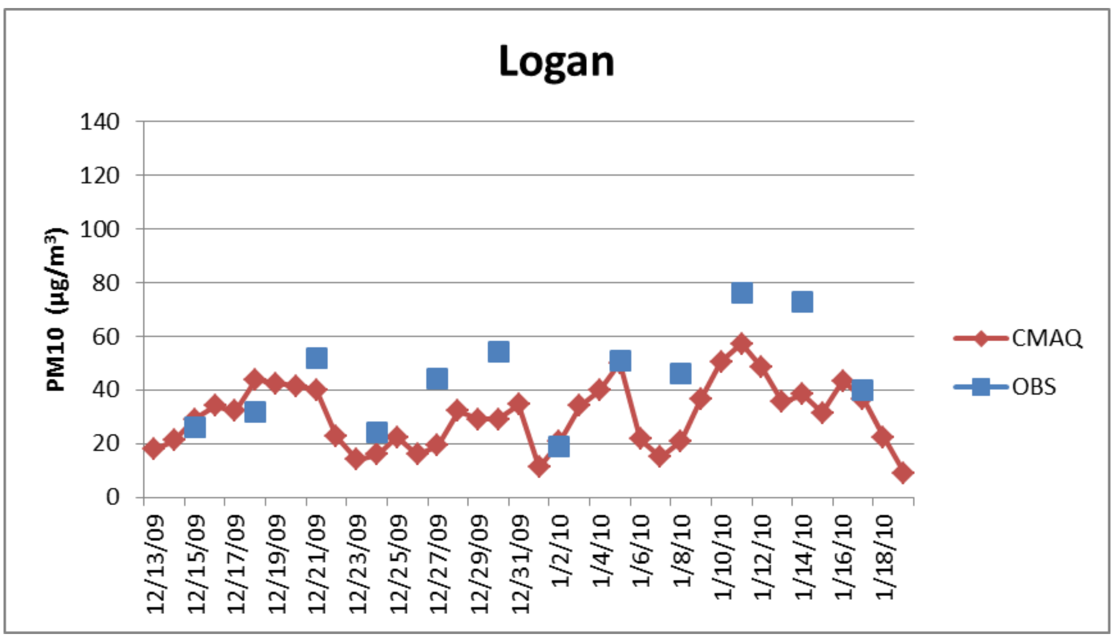


Figure IX.A.11[~~10~~]. 32 Time Series of total PM10 (ug/m3) for Logan for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

As noted before, a robust comparison of CMAQ modeled PM_{10} speciation to PM_{10} filter speciation could not be made for this modeling period because most of the secondarily chemically formed particulate nitrate had been volatized from the PM_{10} filters and thus could not be accounted for. It should be noted that CMAQ was able to produce the secondarily formed nitrate

when compared to $PM_{2.5}$ filters during the previous $PM_{2.5}$ SIP work. Therefore, UDAQ feels CMAQ shows good replication of the species that make up PM_{10} during wintertime pollution events.

(g) Summary of Model Performance

Model performance for 24-hr $PM_{2.5}$ is good and generally acceptable and can be characterized as follows:

- Good replication of the episodic buildup and clear out of $PM_{2.5}$. Often the model will clear out the simulated $PM_{2.5}$ a day too early at the end of an episode. This clear out time period is difficult to model (i.e., Figure IX.A.11[~~10~~]. 22).

- Good agreement in the magnitude of $PM_{2.5}$, as the model can consistently produce the high concentrations of $PM_{2.5}$ that coincide with observed high concentrations.

- Spatial patterns of modeled 24-hr $PM_{2.5}$, show for the most part, that the $PM_{2.5}$ is being confined in the valley basins, consistent to what is observed.

- Speciation and composition of the modeled $PM_{2.5}$ matches the observed speciation quite well. Modeled and observed nitrate are between 40% and 50% of the $PM_{2.5}$. Ammonium is between 15% and 20% for both modeled and observed $PM_{2.5}$, while modeled and observed organic carbon falls between 10% to 13% of the total $PM_{2.5.}$

For PM_{10} the CMAQ model performance is quite good at all locations along Northern Utah. CMAQ is able to re-produce the buildup and washout of the pollution episodes during the 2009 – 2010 winter. CMAQ is also able to re-produce the peak PM_{10} concentrations during most episodes. The exception being the 2010 Jan. 08 – 14 episode, where CMAQ fails to build to the extremely high PM_{10} concentration (>80 ug/m3) seen at the monitors. This episode in particular featured an "early model washout," and these results are similar to the results found in $PM_{2.5}$ modeling.

Several observations should be noted on the implications of these model performance findings on the attainment modeling presented in the following section. First, it has been demonstrated that model performance overall is acceptable and, thus, the model can be used for air quality planning purposes. Second, consistent with EPA guidance, the model is used in a relative sense to project future year values. EPA suggests that this approach "should reduce some of the uncertainty attendant with using absolute model predictions alone."

(h) Modeled Attainment Test

- **Introduction**

With acceptable performance, the model can be utilized to make future-year attainment projections. For any given (future) year, an attainment projection is made by calculating a concentration termed the Future Design Value (FDV). This calculation is made for each monitor included in the analysis, and then compared to the NAAQS (150 $\mu g/m^3$). If the FDV at every monitor located within a nonattainment area is smaller than the NAAQS, this would demonstrate attainment for that area in that future year.

A maintenance plan must demonstrate continued attainment of the NAAQS for a span of ten years. This span is measured from the time EPA approves the plan, a date which is somewhat uncertain during plan development. To be conservative, attainment projections were made for 2019, 2028, and 2030. An assessment was also made for 2024 as a "spot-check" against emission trends within the ten year span.

- **PM_{10} Baseline Design Values**

For any monitor, the FDV is greatly influenced by existing air quality at that location. This can be quantified and expressed as a Baseline Design Value (BDV). The BDV is consistent with the form of the 24-hour PM_{10} NAAQS; that is, that the probability of exceeding the standard should be no greater than once per calendar year. Quantification of the BDV for each monitor is included in the TSD, and is consistent with EPA guidance.

Hourly PM_{10} observations are taken from FRM filters spanning five monitors in three maintenance areas: Salt Lake County, Utah County, and the city of Ogden.

In Table IX.A.11[~~10~~]. 5, baseline design values are given for Ogden, Hawthorne, Magna, Lindon, and North Provo. These values were calculated based on data collected during the 2011-2014 time period.

Table IX.A.11[~~10~~]. 5 Baseline design values listed for each monitor.

Site	Maintenance Area	2011-2014 BDV
Ogden	Ogden City	88.2 μg/m^3
Hawthorne	Salt Lake County	100.9 μg/m^3
Magna	Salt Lake County	70.5 μg/m^3
Lindon	Utah County	111.4 μg/m^3
North Provo	Utah County	124.4 μg/m^3

- **Relative Response Factors**

In making future-year predictions, the output from the CMAQ 4.7.1 model is not considered to be an absolute answer. Rather, the model is used in a relative sense. In doing so, a comparison is made using the predicted concentrations for both the year in question and a pre-selected base-year, which for this plan is 2011. This comparison results in a Relative Response Factor (RRF). RRFs are calculated as follows:

1) Modeled PM_{10} concentrations are calculated for each grid cell in the modeling domain over the 39-day wintertime 2009-2010 episode. Of particular interest are the nine grid cells (3x3 window) that are collocated with each monitor. The monitor, itself is located in the window's center cell.

2) For every simulated day, the maximum daily PM_{10} concentration for each of these nine-cell windows is identified.

3) For each monitor, the top 20% of these 39 values are averaged to formulate a modeled PM_{10} peak concentration value (PCV).

4) At each monitor, the RRF is calculated as the ratio between future-year PCV and base-year PCV: **RRF = FPCV / BPCV**

- **Future Design Values and Results**

Finally, for each monitor, the FDV is calculated by multiplying the baseline design value by the relative response factor: **FDV = RRF * BDV**. These FDV's are compared to the NAAQS in order to determine whether attainment is predicted at that location or not. The results for each of the monitors are shown below in Table IX.A.11[~~10~~]. 6.

Table IX.A.11[~~10~~]. 6 Baseline design values, relative response factors, and future design values for all monitors and future years. Units of design values are μg/m^3, while RRF's are dimensionless.

Monitor	2011 BDV	2019 RRF	2019 FDV	2024 RRF	2024 FDV	2028 RRF	2028 FDV	2030 RRF	2030 FDV
Ogden	88.2	1.05	92.6	1.04	91.7	1.04[~~02~~]	91.7[~~90.0~~]	1.05	92.6
Hawthorne	100.9	1.09	110.0	1.09	110.0	1.11[~~09~~]	112.0[~~110.0~~]	1.12	113.0
Magna	70.5	1.14	80.4	1.13	79.7	1.14[~~11~~]	80.4[~~78.3~~]	1.15	81.1
Lindon	111.4	1.16	129.2	1.12	124.8	1.14[~~11~~]	127.0[~~123.7~~]	1.16	129.2
North Provo	124.4	1.15	143.1	1.12	139.3	1.13[~~10~~]	140.6[~~136.8~~]	1.15	143.1

For all future-years and monitors, no FDV exceeds the NAAQS. Therefore continued attainment is demonstrated for all three maintenance areas.

(2) Attainment Inventory

The attainment inventory is discussed in EPA guidance (Calcagni) as another one of the core provisions that should be considered by states for inclusion in a maintenance plan.

According to Calcagni, the stated purpose of the attainment inventory is to establish the level of emissions during the time periods associated with monitoring data showing attainment.

In cases such as this, where a maintenance demonstration is founded on a modeling analysis that is used in a relative sense, the baseline inventory modeled as the basis for comparison with every projection year model run is best suited to act as the attainment inventory. For this analysis, a baseline inventory was compiled for the year 2011. This year also falls within the span of data representing current attainment of the PM_{10} NAAQS.

Calcagni speaks about the projection inventory as well, and notes that it should consider future growth, including population and industry, should be consistent with the base-year attainment inventory, and should document data inputs and assumptions. Any assumptions concerning emission rates must reflect permanent, enforceable measures.

Utah compiled projection inventories for use in the quantitative modeling demonstration. The years selected for projection included 2019, 2024, 2028, and 2030. The emissions contained in the inventories include sources located within a regional area called a modeling domain. The modeling domain encompasses all three areas within the state that were designated as nonattainment areas for PM_{10}: Salt Lake County, Utah County, and Ogden City, as well as a bordering region see Figure IX.A.11[~~10~~] 1.

Since this bordering region is so large (owing to its creation to assess a much larger region of $PM_{2.5}$ nonattainment), a "core area" within this domain was identified wherein a higher degree of accuracy would be important. Within this core area (which includes Weber, Davis, Salt Lake, and Utah Counties), SIP-specific inventories were prepared to include seasonal adjustments and forecasting to represent each of the projection years. In the bordering regions away from this core, the 2011 National Emissions Inventory was downloaded from EPA and inserted to the analysis. It remained unchanged throughout the analysis period.

There are four general categories of sources included in these inventories: large stationary sources, smaller area sources, on-road mobile sources, and off-road mobile sources.

For each of these source categories, the pollutants that were inventoried included: particulate matter with an aerodynamic diameter of ten microns or less (PM_{10}), sulfur dioxide (SO_2), oxides of nitrogen (NO_X), volatile organic compounds (VOC), and ammonia. SO_2 and NO_X are specifically defined as PM_{10} precursors, that is, compounds that, after being emitted to the atmosphere, undergo chemical or physical change to become PM_{10}. Any PM_{10} that is created in this way is referred to as secondary aerosol. The CMAQ model also considers ammonia and VOC to be contributing factors in the formation of secondary aerosol.

The unit of measure for point and area sources is the traditional tons per year, but the CMAQ model includes a pre-processor that converts these emission rates to hourly increments throughout each day for each episode. Mobile source emissions are reported in terms of tons per day, and are also pre-processed by the model.

The basis for the point source and area inventories, for the base-year attainment inventory as well as all future-year projection inventories, was the 2011 tri-annual inventory of actual emissions that had already been compiled by the Division of Air Quality.

Area sources, off-road mobile sources, and generally also the large point sources were projected forward from 2011, using population and economic forecasts from the Governor's Office of Management and Budget.

Mobile source emissions were calculated for each year using MOVES2010 in conjunction with the appropriate estimates for vehicle miles traveled (VMT). VMT estimates for the urban counties were based on a travel demand model that is only run periodically for specific projection years. VMT for intervening years were estimated by interpolation.

Since this SIP subsection takes the form of a maintenance plan, it must demonstrate that the area will continue to attain the PM_{10} NAAQS throughout a period of ten years from the date of EPA approval. It is also necessary to "spot check" this ten-year interval. Hence, projection inventories were prepared for the following years: 2019, 2024, 2028, (the ten-year mark from anticipated EPA approval), and 2030. 2011 was established as the baseline period.

The following tables are provided to summarize these inventories. As described, they represent point, area, on-road mobile, and off-road mobile sources in the modeling domain. They include PM_{10}, SO_2, NO_X, VOC, and ammonia.

Table IX.A.11[~~10~~]. 7 shows the baseline emissions for each of the areas within the modeling domain. Table IX.A.11[~~10~~]. 8 is specific to this nonattainment area, and shows the emissions from the baseline through the projection years.

Table IX.A.11[~~10~~]. 7 Baseline Emissions throughout the Modeling Domain

2011 Baseline	NA-Area	Source Category	PM10	SO2	NOx	VOC	NH3
2011 Baseline Sum of Emissions (tpd)	Ogden City NA-Area	Area Sources	0.85	0.08	2.12	5.67	0.86
		NonRoad	0.90	0.00	1.32	0.91	0.00
		Point Source	0.00	0.00	0.00	0.00	0.00
		Mobile Sources	2.09	0.05	12.18	8.58	0.22
		Provo NA Total	**3.84**	**0.13**	**15.62**	**15.16**	**1.08**
	Salt Lake County NA-Area	Area Sources	~~4.61~~	~~0.05~~	~~0.73~~	~~32.62~~	~~1.53~~
		NonRoad	7.12	0.32	11.71	6.38	0.00
		Point Source	4.04	8.90	15.56	2.97	0.20
		Mobile Sources	10.95	0.28	57.96	35.35	1.14
		Salt Lake City NA Total	**~~26.72~~**	**~~9.55~~**	**~~85.96~~**	**~~77.32~~**	**~~2.87~~**
	Utah County NA-Area	Area Sources	~~2.19~~	~~0.02~~	~~0.22~~	~~1.16~~	~~0.83~~
		NonRoad	3.53	0.02	4.24	2.31	0.00
		Point Source	0.28	0.29	1.03	0.18	0.18
		Mobile Sources	4.90	0.13	24.64	11.89	0.49
		Surrounding Areas Total	**~~10.90~~**	**~~0.46~~**	**~~30.13~~**	**~~15.54~~**	**~~1.50~~**
	Surrounding Areas	Area Sources	~~537.49~~	~~13.60~~	~~228.31~~	~~629.52~~	~~331.22~~
		NonRoad	34.53	0.10	60.77	72.57	0.01
		Point Source	17.64	283.15	538.86	63.96	6.08
		Mobile Sources	22.80	193.52	434.92	6.47	1.67
		Surrounding Areas Total	**~~612.46~~**	**~~490.37~~**	**~~1262.86~~**	**~~772.52~~**	**~~338.98~~**
		2011 Total	**653.92**	**500.51**	**1394.57**	**880.54**	**344.43**

2011 Baseline	NA-Area	Source Category	PM10	SO2	NOx	VOC	NH3
2011 Baseline Sum of Emissions (tpd)	Ogden City NA-Area	Area Sources	0.85	0.08	2.12	5.67	0.86
		NonRoad Sources	0.90	0.00	1.32	0.91	0.00
		Point Sources	0.00	0.00	0.00	0.00	0.00
		Mobile Sources	2.09	0.05	12.18	8.58	0.22
		Ogden City NA Total	**3.84**	**0.13**	**15.62**	**15.16**	**1.08**
	Salt Lake County NA-Area	Area Sources	5.50	0.37	9.14	30.35	3.82
		NonRoad Sources	7.12	0.32	11.71	6.38	0.00
		Point Sources	4.04	8.90	15.56	2.97	0.20
		Mobile Sources	10.95	0.28	57.96	35.35	1.14
		Salt Lake County NA Total	**27.61**	**9.87**	**94.37**	**75.05**	**5.16**
	Utah County NA-Area	Area Sources	3.90	0.28	5.61	13.02	6.62
		NonRoad Sources	3.53	0.02	4.24	2.31	0.00
		Point Sources	0.28	0.29	1.03	0.18	0.18
		Mobile Sources	4.90	0.13	24.64	11.89	0.49
		Utah County NA Total	**12.61**	**0.72**	**35.52**	**27.40**	**7.29**
	Surrounding Areas	Area Sources	534.89	13.02	214.51	619.93	323.14
		NonRoad Sources	34.53	0.10	60.77	72.57	0.01
		Point Sources	17.64	283.15	538.86	63.96	6.08
		Mobile Sources	22.80	193.52	434.92	6.47	1.67
		Surrounding Areas Total	**609.86**	**489.79**	**1,249.06**	**762.93**	**330.90**
		2011 Total	**653.92**	**500.51**	**1,394.57**	**880.54**	**344.43**

Table IX.A.11[~~10~~]. 8 Salt Lake County Nonattainment Area; Actual Emissions for 2011 and Emission Projections for 2019, 2024, 2028, and 2030.

Year	NA-Area	Source Category	PM10	SO2	NOx	VOC	NH3
2011 Baseline	**Salt Lake County NA-Area**	Area Sources	~~4.61~~	~~0.05~~	~~0.73~~	~~32.62~~	~~1.53~~
		NonRoad	7.12	0.32	11.71	6.38	0.00
		Point Source	4.04	8.90	15.56	2.97	0.20
		Mobile Sources	10.95	0.28	57.96	35.35	1.14
		2011 Total	~~**26.72**~~	~~**9.55**~~	~~**85.96**~~	~~**77.32**~~	~~**2.87**~~
2019	**Salt Lake County NA-Area**	Area Sources	~~4.61~~	~~0.05~~	~~0.73~~	~~32.62~~	~~1.53~~
		NonRoad	8.28	0.36	9.11	5.94	0.01
		Point Source	11.29	7.72	22.17	3.77	0.26
		Mobile Sources	10.88	0.31	25.79	21.16	0.89
		2019 Total	~~**35.06**~~	~~**8.44**~~	~~**57.80**~~	~~**63.49**~~	~~**2.69**~~
2024	**Salt Lake County NA-Area**	Area Sources	~~4.61~~	~~0.05~~	~~0.73~~	~~32.62~~	~~1.53~~
		NonRoad	8.83	0.40	8.48	6.22	0.01
		Point Source	11.52	8.16	22.36	3.86	0.29
		Mobile Sources	11.28	0.29	17.16	16.63	0.89
		2024 Total	~~**36.24**~~	~~**8.90**~~	~~**48.73**~~	~~**59.33**~~	~~**2.72**~~
2028	**Salt Lake County NA-Area**	Area Sources	~~4.61~~	~~0.05~~	~~0.73~~	~~32.62~~	~~1.53~~
		NonRoad	9.27	0.44	8.43	6.54	0.01
		Point Source	11.72	8.57	~~0.00~~	3.95	0.31
		Mobile Sources	11.82	0.28	13.88	13.94	0.91
		2028 Total	~~**37.42**~~	~~**9.34**~~	~~**23.04**~~	~~**57.05**~~	~~**2.76**~~
2030	**Salt Lake County NA-Area**	Area Sources	~~4.61~~	~~0.05~~	~~0.73~~	~~32.62~~	~~1.53~~
		NonRoad	9.52	0.46	8.50	6.72	0.01
		Point Source	11.83	8.82	22.68	4.00	0.32
		Mobile Sources	12.07	0.28	12.59	13.34	0.93
		2030 Total	~~**38.03**~~	~~**9.61**~~	~~**44.50**~~	~~**56.68**~~	~~**2.79**~~

Year	NA-Area	Source Category	PM10	SO2	NOx	VOC	NH3
2011 Baseline	**Salt Lake County NA-Area**	Area Sources	5.50	0.37	9.14	30.35	3.82
		NonRoad	7.12	0.32	11.71	6.38	0.00
		Point Sources	4.04	8.90	15.56	2.97	0.20
		Mobile Sources	10.95	0.28	57.96	35.35	1.14
		2011 Total	**27.61**	**9.87**	**94.37**	**75.05**	**5.16**
2019	**Salt Lake County NA-Area**	Area Sources	4.88	0.35	5.84	22.06	4.18
		NonRoad	8.28	0.36	9.11	5.94	0.01
		Point Sources	11.29	7.72	22.17	3.77	0.26
		Mobile Sources	10.88	0.31	25.79	21.16	0.89
		2019 Total	**35.33**	**8.74**	**62.91**	**52.93**	**5.34**
2024	**Salt Lake County NA-Area**	Area Sources	5.03	0.51	5.41	22.83	4.48
		NonRoad	8.83	0.40	8.48	6.22	0.01
		Point Sources	11.52	8.16	22.36	3.86	0.29
		Mobile Sources	11.28	0.29	17.16	16.63	0.89
		2024 Total	**36.66**	**9.36**	**53.41**	**49.54**	**5.67**
2028	**Salt Lake County NA-Area**	Area Sources	5.25	0.43	5.58	23.80	4.67
		NonRoad	9.27	0.44	8.43	6.54	0.01
		Point Sources	11.72	8.57	22.55	3.95	0.31
		Mobile Sources	11.82	0.28	13.88	13.94	0.91
		2028 Total	**38.06**	**9.72**	**50.44**	**48.23**	**5.90**
2030	**Salt Lake County NA-Area**	Area Sources	5.36	0.34	5.63	24.30	4.76
		NonRoad	9.52	0.46	8.50	6.72	0.01
		Point Sources	11.83	8.82	22.68	4.00	0.32
		Mobile Sources	12.07	0.28	12.59	13.34	0.93
		2030 Total	**38.78**	**9.90**	**49.40**	**48.36**	**6.02**

More detail concerning any element of the inventory can be found at the appropriate section of the Technical Support Document (TSD). More detail about the general construction of the inventory may be found in the Inventory Preparation Plan.

(3) Emissions Limitations

As discussed above, the larger sources within the nonattainment areas were individually inventoried and modeled in the analysis.

A subset of these "large" sources was subsequently identified for the purpose of establishing emission limitations as part of the Utah SIP. This subset includes any source located within any of the three current nonattainment areas for PM_{10}: Salt Lake County, Utah County, or Ogden City whose actual emissions of PM_{10}, SO_2, or NOx exceeded 100 tons in 2011, or who had the potential to emit 100 tpy of any of these pollutants. A source might also be included in the subset if it was currently regulated for PM_{10} under section IX, Part H of the Utah SIP. There were several sources in Davis County that were close enough to the border so as to have originally been included in the original PM_{10} SIP.

As discussed before, the emission limits for these sources had already been reflected in the projected emissions inventories used in the modeling analysis. Only those limits for which credit is being taken in the SIP have been incorporated specifically into the SIP. Many of these limits appear in state issued Approval Orders or Title V Operating Permits. Such regulatory documents typically include many emission limits and operating restrictions. However, the limits found in the SIP cannot be changed unless the State provides, and EPA approves, a SIP revision.

These limits are incorporated in the Utah SIP at Section IX, Part H (formerly Sections 1 and 2 of Appendix A to Section IX, Part A), and as such are federally enforceable.

These conditions support a demonstration of maintenance through 2030.

(4) Emission Reduction Credits

Under Utah's new source review rules in R307-403-8, banking of emission reduction credits (ERCs) is permitted to the fullest extent allowed by applicable Federal Law as identified in 40 CFR 51, Appendix S, among other documents. Under Appendix S, Section IV.C.5, a permitting authority may allow banked ERCs to be used under the preconstruction review program (R307-403) as long as the banked ERCs are identified and accounted for in the SIP control strategy.

Existing Emission Reduction Credits, for PM_{10}, SO_2, and NOx, were included in the modeled demonstration of maintenance outlined in Subsection IX.A.11[~~10~~].c(1).

The subsequent crediting of any emission reduction of PM_{10}, or precursors thereto, whether pre-existing or established subsequent to the approval of this SIP revision, remains permissible. In general, credits must be in excess and must be established by actual, verifiable, and enforceable reductions in emissions. Additionally, these ERCs cannot be used to offset major new sources or major modifications at existing sources in $PM_{2.5}$ nonattainment areas.

Once Salt Lake County is redesignated to attainment for PM_{10}, permitting new PM_{10} sources or major modifications to existing PM_{10} sources will be conducted under the rules of the Prevention of Significant Deterioration program.

(5) Additional Controls for Future Years

Since the emission limitations discussed in subsection IX.A.11[~~10~~].c.(3) are federally enforceable and, as demonstrated in IX.A.11[~~10~~].c(1) above, are sufficient to ensure continued attainment of the PM_{10} NAAQS, there is no need to require any additional control measures to maintain the PM_{10} NAAQS.

(6) Mobile Source Budget for Purposes of Conformity

The transportation conformity provisions of section 176(c)(2)(A) of the Clean Air Act (CAA) require regional transportation plans and programs to show that "…emissions expected from implementation of plans and programs are consistent with estimates of emissions from motor vehicles and necessary emissions reductions contained in the applicable implementation plan…" EPA's transportation conformity regulation (40 CFR 93, Subpart A, last amended at 77 FR 14979, March 14 2012) also requires that motor vehicle emission budgets must be established for the last year of the maintenance plan, and may be established for any years deemed appropriate (see 40 CFR 93.118((b)(2)(i)). If the maintenance plan does not establish motor vehicle emissions budgets for any years other than the last year of the maintenance plan, the conformity regulation requires that a "demonstration of consistency with the motor vehicle emissions budget(s) must be accompanied by a qualitative finding that there are not factors which would cause or contribute to a new violation or exacerbate an existing violation in the years before the last year of the maintenance plan." The normal interagency consultation process required by the regulation (40 CFR 93.105) shall determine what must be considered in order to make such a finding.

Thus, for a Metropolitan Planning Organization's (MPO's) Regional Transportation Plan (RTP), analysis years that are after the last year of the maintenance plan (in this case 2030), a conformity determination must show that emissions are less than or equal to the maintenance plan's motor vehicle emissions budget(s) for the last year of the implementation plan.

EPA's MOVES2014 was used to calculate mobile source emissions, and road dust projections were calculated using the January 2011 update to AP-42 Method for Estimating Re-Entrained Road Dust from Paved Roads (Chapter 13, released 76 FR 6329 February 4, 2011).

[~~Utah has determined that mobile sources are not significant contributors of SO_2 for this maintenance plan. As such, this maintenance plan does not establish a motor vehicle emissions budget for SO_2.~~]

(a) Salt Lake County Mobile Source PM10 Emissions Budgets

In this maintenance plan, Utah is establishing transportation conformity motor vehicle emission budgets (MVEB) for PM_{10} (direct) and NOx for 2030.

(i) Direct PM10 Emissions Budget

Direct (or "primary") PM_{10} refers to PM_{10} that is not formed via atmospheric chemistry. Rather, direct PM_{10} is emitted straight from a mobile or stationary source. With regard to the emission budget presented herein, direct PM_{10} includes road dust, brake wear, and tire wear as well as PM_{10} from exhaust.

As presented in the Technical Support Document for on-road mobile sources, the estimated on-road mobile source emissions for Salt Lake County, in 2030**,** of direct sources of PM_{10} (road dust, brake wear, tire wear, and exhaust particles) were 12.07 tons per winter-weekday. These mobile source PM_{10} emissions were included in the maintenance demonstration in Subsection IX.A.11[~~10~~].c.(1) which estimates a maximum PM_{10} concentration of 113.0 µg/m^3 in 2030 within the Salt Lake County portion of the modeling domain. The above PM_{10} mobile source emission figure of 12.07 tons per day (tpd) would traditionally be considered as the MVEB for the maintenance plan. However, and as discussed below, the modeled concentration is 37.0 µg/m^3 below the NAAQS of 150 µg/m^3, and indicates the potential for PM_{10} emissions to be considered [~~represents potential PM_{10} emissions that may be considered~~] for allocation to the PM_{10} MVEB.

EPA's conformity regulation (40 CFR 93.124(a)) allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement. These additional emissions that can be allocated to the applicable MVEB are considered the "safety margin." As defined in 40 CFR 93.101, safety margin represents the amount of emissions by which the total projected emissions from all sources of a given pollutant are less than the total emissions that would satisfy the applicable requirement for demonstrating maintenance. The implementation plan can then allocate some or all of this "safety margin" to the applicable MVEBs for transportation conformity purposes.

The safety margin for the Salt Lake County portion of the domain equates to 37.0 µg/m^3.

To evaluate the portion of safety margin that could be allocated to the PM_{10} MVEB, modeling was re-run for 2030 with additional emissions attributed to the on-road mobile sources.

Using the same emission projections for point and area and non-road mobile sources, the SMOKE 3.6 emissions model was re-run using 24.00 tons of PM_{10} per winter-weekday for mobile sources (and 21.00 tons/winter-weekday of NO_X). The revised maintenance demonstration for 2030 still shows maintenance of the PM_{10} standard.

It estimates a maximum PM_{10} concentration of 120.1 µg/m^3 in 2030 within the Salt Lake County portion of the modeling domain. This value is 29.9 µg/m^3 below the NAAQ Standard of 150 µg/m^3, but 7.1 µg/m^3 higher than the previous value.

This shows that the safety margin is at least 11.93 tons/day of PM_{10} (24.00 tons/day minus 12.07 tons/day) and 8.41 tons/day of NO_X (21.00 tons/day minus 12.59 tons/day). This maintenance plan allocates this portion of the safety margin to the mobile source budgets for Salt Lake County, and thereby sets the direct PM_{10} MVEB for 2030 at 24.00 tons/winter-weekday.

(ii) NO_X Emissions Budget

Through atmospheric chemistry, NO_X emissions can substantially contribute to secondary PM_{10} formation. For this reason, NOx is considered a PM10 precursor.

As presented in the Technical Support Document for on-road mobile sources, the estimated on-road mobile source NO_X emissions for Salt Lake County in 2030 were 12.59 tons per winter-weekday. These mobile source PM_{10} emissions were included in the maintenance demonstration in Subsection IX.A.11[~~10~~].c.(1) which estimates a maximum PM_{10} concentration of 113.0 µg/m^3 in 2030 within the Salt Lake County portion of the modeling domain. The above NOx mobile source emission figure of 12.59 tons per day (tpd) would traditionally be considered as the MVEB for the maintenance plan. However, and as discussed below, the modeled concentration is 37.0 µg/m^3 below the NAAQS of 150 µg/m^3, and indicates the potential for NOx emissions to be considered [~~represents potential NOx emissions that may be considered~~] for allocation to the NOx MVEB.

EPA's conformity regulation (40 CFR 93.124(a)) allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement. These additional emissions that can be allocated to the applicable MVEB are considered the "safety margin." As defined in 40 CFR 93.101, safety margin represents the amount of emissions by which the total projected emissions from all sources of a given pollutant are less than the total emissions that would satisfy the applicable requirement for demonstrating maintenance. The implementation plan can then allocate some or all of this "safety margin" to the applicable MVEBs for transportation conformity purposes.

The safety margin for the Salt Lake County portion of the domain equates to 37.0 µg/m^3.

To evaluate the portion of safety margin that could be allocated to the PM_{10} MVEB, modeling was re-run for 2030 with additional emissions attributed to the on-road mobile sources.

Using the same emission projections for point and area and non-road mobile sources, the SMOKE 3.6 emissions model was re-run using 21.00 tons of NO_X per winter-weekday for on-road mobile sources (and 24.00 tons/winter-weekday of PM_{10}). The revised maintenance demonstration for 2030 still shows maintenance of the PM_{10} standard.

It estimates a maximum PM_{10} concentration of 120.1 µg/m^3 in 2030 within the Salt Lake County portion of the modeling domain. This value is 29.9 µg/m^3 below the NAAQ Standard of 150 µg/m^3, but 7.1 µg/m^3 higher than the previous value.

This shows that the safety margin is at least 8.41 tons/day of NO_X (21.00 tons/day minus 12.59 tons/day) and 11.93 tons/day of PM_{10} (24.00 tons/day minus 12.07 tons/day). This maintenance plan allocates this portion of the safety margin to the mobile source budgets for Salt Lake County, and thereby sets the NO_X MVEB for 2030 at 21.00 tons/winter-weekday

(b) Net Effect to Maintenance Demonstration

Using the procedure described above, some of the identified safety margin indicated earlier in Subsection IX.A.11[~~10~~].c(6) has been allocated to the mobile vehicle emissions budgets. The results of this modification are presented below.

(i) Inventory: The emissions inventory was adjusted as shown below:

in 2030: PM_{10} was adjusted by adding 11.93 ton/day (tpd) of safety margin to 12.07 tpd inventory for a total of 24.00 tpd, and

NO_X was adjusted by adding 8.41 tpd of safety margin to 12.59 tpd inventory for a total of 21.00 tpd,

(ii) Modeling:

The effect on the modeling results throughout the domain is summarized in the following Table IX.A.11[~~10~~]. 9 (which shows predicted concentrations in µg/m^3). It demonstrates that with the allocation of the safety margin, the NAAQS is still maintained through 2030 in all areas.

Table IX.A.11[~~10~~]. 9 Modeling of Attainment in 2030, Including the Portion of the Safety Margin Allocated to Motor Vehicles

Air Quality Monitor	Predicted Concentrations in 2030 µg/m3	
	A	B
Hawthorne	113.0	120.1
Magna	81.1	82.5

Notes: Column A shows concentrations presented previously as part of the modeled attainment test. Column B shows concentrations resulting from allocation of a portion of the safety margin.

(7) Nonattainment Requirements Applicable Pending Plan Approval

CAA 175A(c) - *Until such plan revision is approved and an area is redesignated as attainment, the requirements of CAA Part D, Plan Requirements for Nonattainment Areas, shall remain in force and effect.* The Act requires the continued implementation of the nonattainment area control strategy unless such measures are shown to be unnecessary for maintenance or are replaced with measures that achieve equivalent reductions. Utah will continue to implement the emissions limitations and measures from the PM_{10} SIP.

(8) Revise in Eight Years

CAA 175A(b) - *Eight years after redesignation, the State must submit an additional plan revision which shows maintenance of the applicable NAAQS for an additional 10 years.* Utah commits to submit a revised maintenance plan eight years after EPA takes final action redesignating the Salt Lake County area to attainment, as required by the Act.

(9) Verification of Continued Maintenance

Implicit in the requirements outlined above is the need for the State to determine whether the area is in fact maintaining the standard it has achieved. There are two complementary ways to measure this: 1) by monitoring the ambient air for PM_{10}, and 2) by inventorying emissions of PM_{10} and its precursors from various sources.

The State will continue to maintain an ambient monitoring network for PM_{10} in accordance with 40 CFR Part 58 and the Utah SIP. The State anticipates that the EPA will continue to review the ambient monitoring network for PM_{10} each year, and any necessary modifications to the network will be implemented.

Additionally, the State will track and document measured mobile source parameters (e.g., vehicle miles traveled, congestion, fleet mix, etc.) and new and modified stationary source permits. If these and the resulting emissions change significantly over time, the State will perform appropriate studies to determine: 1) whether additional and/or re-sited monitors are necessary, and 2) whether mobile and stationary source emission projections are on target.

The State will also continue to collect actual emissions inventory data from all sources of PM_{10}, SO_2, and NO_X in excess of 25 tons (in aggregate) per year, as required by R307-150.

(10) Contingency Measures

CAA 175A(d) - Each maintenance plan shall contain contingency measures to assure that the State will promptly correct any violation of the standard which occurs after the redesignation of the area to attainment. Such provisions shall include a requirement that the State will implement all control measures which were contained in the SIP prior to redesignation.

Utah has implemented all measures contained in the nonattainment plan, however for the purposes of this maintenance plan the list of stationary sources included in SIP Section IX. Part H. was updated. Some of the sources identified in the nonattainment SIP are no longer operational or no longer rise to the emission thresholds established for such inclusion. In such instances, the emission limits belonging specifically to these sources were not carried forward. Where such a source is still operational, the prior SIP limits from the nonattainment plan are identified below as potential contingency measures. Some of the specific limits within may no longer apply and would need to be reevaluated at that time.

This Contingency Plan for Salt Lake County supersedes Subsection IX.A.8, Contingency Measures, which is part of the original PM_{10} SIP.

The contingency plan must also ensure that the contingency measures are adopted expeditiously once triggered. The primary elements of the contingency plan are: 1) the list of potential contingency measures, 2) the tracking and triggering mechanisms to determine when contingency measures are needed, and 3) a description of the process for recommending and implementing the contingency measures.

(a) Tracking

The tracking plan for the Salt Lake County, Utah County, and Ogden City areas consists of monitoring and analyzing PM_{10} concentrations. In accordance with 40 CFR 58, the State will continue to operate and maintain an adequate PM_{10} monitoring network in Salt Lake County, Utah County, and Ogden City.

(b) Triggering

Triggering of the contingency plan does not automatically require a revision to the SIP, nor does it necessarily mean the area will be redesignated once again to nonattainment. Instead, the State will normally have an appropriate timeframe to correct the potential violation with implementation of one or more adopted contingency measures. In the event that violations continue to occur, additional contingency measures will be adopted until the violations are corrected.

Upon notification of a potential violation of the PM_{10} NAAQS, the State will develop appropriate contingency measures intended to prevent or correct a violation of the PM_{10} standard. Information about historical exceedances of the standard, the meteorological conditions related to the recent exceedances, and the most recent estimates of growth and emissions will be reviewed. The possibility that an exceptional event occurred will also be evaluated.

Upon monitoring a potential violation of the PM_{10} NAAQS, including exceedances flagged as exceptional events but not concurred with by EPA, the State will take the following actions.

- The State will identify the source(s) of PM_{10} causing the potential violation, and report the situation to EPA Region VIII within four months of the potential violation.

- The State will identify a means of corrective action within six months after a potential violation. The maintenance plan contingency measures to be considered and selected will be chosen from the following list or any other emission control measures deemed appropriate based on a consideration of cost-effectiveness, emission reduction potential, economic and social considerations, or other factors that the State deems appropriate:

  - Re-evaluate the thresholds at which a red or yellow burn day is triggered, as established in R307-302;

  - Further controls on stationary sources; to include the [~~prior SIP~~] controls previously approved into PM_{10} SIP by EPA (effective August 8, 1994) at the following sources listed below:

Prior SIP Source Controls	**Reference to Prior SIP**
Crysen Refining (now Silver Eagle)	IX.H.2.b.L
Hercules (now ATK/Bacchus)	IX.H.2.b.S
Interstate Brick	IX.H.2.b.U
Kennecott / Barney's Canyon	IX.H.2.b.AA
LDS Welfare Square	IX.H.2.b.CC
LDS Hospital	IX.H.2.b.DD
Mountain Bell	IX.H.2.b.HH
Mountain Fuel, 100 S. 1078 W. (now Questar)	IX.H.2.b.II
Murray City Power	IX.H.2.b.KK
Utah Metal Works	IX.H.2.b.ZZ
UP&L (now PacifiCorp) 40N. 100W.	IX.H.2.b.AAA
V.A. Hospital	IX.H.2.b.CCC

The State will then hold a public hearing to consider the contingency measures identified to address the potential violation. The State will require implementation of such corrective action no later than one year after a violation is confirmed. Any contingency measures adopted and implemented will become part of the next revised maintenance plan submitted to the EPA for approval.

It is also possible that contingency measures may be pre-implemented, where no violation of the 2006 PM_{10} NAAQS has yet occurred.

Comments and Responses: PM10 Maintenance Plan

Comments and Responses: PM10 Maintenance Plan

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General Comments

EPA's Comments

G1. Comment: Section 4.d) of the TSD shows, in Table 4.d.1, the monitored design values for each of the monitoring locations in the modeling analysis. These values are based on all available data in AQS. If any PM10 data from 2011-2014 are invalid, these baseline design values and therefore any future design values will need to be recalculated. (EPA; Enclosure 5, 1.e)

UDAQ Response: As noted by the commenter, the PM10 data underlying these maintenance plans was obtained from EPA's AQS database. UDAQ cannot now determine what, if any, data EPA may invalidate at some future point in time. A more appropriate time to consider such an evaluation would seemingly be whenever EPA reviews and takes action on Utah's SIP submittals.

G2. Comment: Emission Inventory Tables 7 and 8 of the Salt Lake County and Utah County plans (pages 41 and 40 respectively) show values that do not agree with the tables in the modeling TSD. This should be explained or corrected. See also the comment from Enclosure 5, 1.d. [Comment T2.] (EPA; Enclosure 1, 1.q)

UDAQ Response: The tables in the PM10 maintenance plan reflect a reporting error that was discovered shortly after submitting the plans for review. For Salt Lake County and Utah County maintenance plan tables, notice how "area" source totals are repeated year-to-year for each county. This demonstrates a systemic reporting error.

Specifically, a bug was found in a script that extracts emissions totals from SMOKE. This bug was fixed and the resulting emission totals were checked against SMOKE reports for accuracy. The tables referenced in the PM10 maintenance plans will be corrected prior to final submission.

G3. Comment: For Salt Lake County, EPA observed that there are inconsistencies between the on-road mobile source NOx and PM_{10} emissions for 2019 and 2024 when comparing the inventories prepared for this SIP revision to those used to demonstrate transportation conformity for 2019 and 2024.

For Utah County, EPA observed similar inconsistencies when comparing the 2019 and 2030 SIP inventories with transportation conformity analyses for 2020 and 2030.

EPA recommends that any inconsistencies be evaluated and documented in the TSD. (EPA; Enclosure 4, 2.a & 2.b)

UDAQ Response: The Wasatch Front Regional Council (WFRC) submitted SIP related mobile source emissions inventories for 2019 and 2024 NOx and PM_{10} that are higher than what were utilized to demonstrate transportation conformity for 2020 and 2024.

The Mountainland Association of Governments (MAG) submitted SIP related mobile source emissions inventories for 2019 and 2030 NOx and PM_{10} that are higher than what were utilized to demonstrate transportation conformity for 2020 and 2030.

Federal rule 40 CFR 93.124 (a) indicates that SIP and conformity inventories do not need to match. Discrepancies are allowed as long as the inventories produced for the SIP are quantified and do not cause or contribute to any new air quality violations. Both MPOs provided conservative mobile source emissions inventory estimates utilizing the latest planning assumptions at the time the SIP was developed and following FHWA guidance. Furthermore this practice is commonly used by states and planning entities for SIP inventory development. The inputs utilized in the modeling effort are discussed within the PM_{10} TSD and no further review is necessary.

The Utah Division of Air Quality (UDAQ) demonstrated attainment of the PM_{10} standard utilizing conservative mobile source emissions budgets submitted by each MPO within the constraints of 40 CFR 93.124(a). EPA's conformity regulation allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement.

40 CFR 93.124

> **(a)** In interpreting an applicable implementation plan (or implementation plan submission) with respect to its motor vehicle emissions budget(s), the MPO and DOT may not infer additions to the budget(s) that are not explicitly intended by the implementation plan (or submission). Unless the implementation plan explicitly quantifies the amount by which motor vehicle emissions could be higher while still allowing a demonstration of compliance with the milestone, attainment, or maintenance requirement and explicitly states an intent that some or all of this additional amount should be available to the MPO and DOT in the emissions budget for conformity purposes, the MPO may not interpret the budget to be higher than the implementation plan's estimate of future emissions. This applies in particular to applicable implementation plans (or submissions) which demonstrate that after implementation of control measures in the implementation plan:
>
> **(1)** Emissions from all sources will be less than the total emissions that would be consistent with a required demonstration of an emissions reduction milestone;
>
> **(2)** Emissions from all sources will result in achieving attainment prior to the attainment deadline and/or ambient concentrations in the attainment deadline year will be lower than needed to demonstrate attainment; or
>
> **(3)** Emissions will be lower than needed to provide for continued maintenance.

[62 FR 43801. Aug. 15, 1997, as amended at 69 FR 40081, July 1, 2004]

The Federal Highway Administration (FHWA) has also weighed in on the ability of any MPO to produce SIP mobile source emissions inventories that do not match exactly what has been constructed within the statutory confines of transportation conformity.

> "The allocation of emissions reductions and control strategies results in an emission reduction target for all sources. For on-road mobile sources, this target can be translated into an area's motor vehicle emissions budget (MVEB), which identifies the allowable on-road emissions levels to attain the air quality standards. These budgets are, in effect, a cap on emissions and represent the "holding capacity" of the area. Although these budgets are based on the emissions inventory projections, they may not be identical."

(http://www.fhwa.dot.gov/environment/air_quality/publications/air_quality_planning/aqplan09.cfm)

The application of the conformity rule also allows for SIP and conformity inventories not to match. 40 CFR 93.118 plainly states conformity can be demonstrated when "the pollutants or pollutant precursors described in paragraph (c) of this section <u>are less than</u> or equal to the motor vehicle emissions budget(s) established in the applicable implementation plan or implementation plan submission." (emphasis added) Clearly 40 CFR 93.124(a) was established to allow for a situation in which conservative mobile source emissions estimates were used in the SIP budgetary process.

Environmental research organization, Resources for the Future, published a report discussing how to solve SIP and transportation conformity interactions. The report titled <u>Exhausting Options: Assessing SIP-Conformity Interactions</u> discusses on page 34 how safety margins can be utilized within the SIP.

> "The One way of avoiding conformity problems is to build a safety margin into the mobile source emissions reductions in the SIP, so that unexpected increases in emissions can be handled without violating the motor vehicle emissions budget. Some MPOs already use a safety margin applied to the total budget. An aggregate safety margin could also be available to the mobile sources, but only after a SIP revision. Thus it would require more time and would not be under the control of the MPO. EPA and some state air quality officials observed that safety margins are a luxury for areas with serious emissions problems: if meeting the total emissions reduction target is difficult, there will be strong pressures on the SIP process to allocate all available emissions and not allow for safety margins." (http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-RPT-exhaustopt.pdf)

UDAQ demonstrated attainment of the PM_{10} standard utilizing a conservative mobile source emissions budget within the constraints of 40 CFR 93.124(a). UDAQ worked with each MPO to design a safety margin, for the year of 2030, in the respective portions of the PM_{10} modeling domain. The result of using a conservative inventory approach for 2030 produced, for Salt Lake County, a safety margin of 37.0 µg/m. In Utah County, the resulting safety margin is 6.9 µg/m.

This is a specific example where the defined budget within the SIP utilized a conservative inventory approach to estimating mobile source emissions that will not cause or contribute to any new air quality violations. The inputs utilized in the modeling effort are discussed within the PM_{10} TSD and no further review is necessary.

G4. Comment: The proposed plan for Salt Lake County includes (on pp. 48) a list of candidate contingency measures, and includes the existing SIP conditions for a number of sources that are no longer specifically regulated by the plan. The contingency measure section of the proposed Utah County plan includes no such list, even though the TSD (in section 5.c.v) lists two such sources; General Refractories (A.P. Green Inc. / Utah Refractories Corp.) and Heckett (Harsco Metals America). These two sources should be included in the Utah County contingency measure section, or an explanation should be provided. (EPA; Enclosure 1, 1.s)

UDAQ Response: The list of sources to be carried forward into the contingency measure portion of each plan is the subset of (minor) sources being removed from source-specific SIP regulation that is still operational. Many of the sources from the 1994 SIP were already removed from source-specific SIP regulation when the Utah County PM10 SIP was revised in 2003. Geneva Steel is the only (non Sand & Gravel) source from the 2003 SIP that will not be retained. Since Geneva Steel is no longer operational, it will not be necessary to have its current SIP regulations available for consideration should the contingency measures become necessary.

Western Resource Advocates Comment

G5. Comment: Once EPA has approved a SIP, A State cannot unilaterally change the federally enforceable version of that SIP. Yet, the Director has claimed the authority unilaterally to modify specific provisions that apply to stationary sources in the context of the existing PM10 SIP, and has done so by amending various Approval Orders. The proposed SIP actions must include an explicit denunciation of this approach and an explicit procedure for modifying a federally approved SIP. The SIP actions must ratify that until such time as EPA has approved any SIP changes, the original EPA-approved provisions are enforceable as state and federal law. (Western Resource Advocates, comment II)

UDAQ Response: UDAQ agrees with the commenter that a state cannot unilaterally change the federally enforceable version of that SIP.

Concerning, however, the claim regarding the Director's claimed authority and amended Approval Orders, the following must be noted. The federally approved PM10 SIPs for Salt Lake and Utah Counties included provisions in federally approved R307-1.3.2. It allowed that "Specific limitations for installations within a source may be adjusted by order of the Board provided the adjustment does not adversely affect achieving the applicable NAAQS."

When UDAQ first (in 2005) prepared maintenance plans for its PM10 nonattainment areas, this rule was removed by agreement with EPA. Since Utah withdrew, and EPA never acted upon the 2005 SIP revision, the provisions of R307-1.3.2 remain part of the federally approved SIP. Nevertheless, the Air Quality Board no longer has this authority under State law.

The proposed SIP revision need not explicitly denounce this approach, and ironically the federally approved SIP will still contain this provision until such time as EPA replaces it.

G6. Comment: The maintenance plans for Salt Lake and Utah Counties include (on pp. 3) an excerpt from a guidance memorandum, issued by EPA's Office of Air Quality Planning and Standards, concerning requests to extend an attainment date. Clarifying that the authority delegated to the Administrator for extending moderate area attainment dates is discretionary, it states [in part] that, "The EPA will expect the State to have adopted and substantially implemented control measures submitted to address the requirement for implementing RACM/RACT in the moderate nonattainment area, as this was the central control requirement applicable to such areas."

Because R307-403-5 represents RACM/RACT, failing to amend R307-403 generally and 405-3 specifically, to encompass PM10 maintenance areas rather than only nonattainment areas, leaves the proposed maintenance plans inadequate to ensure maintenance of the NAAQS. (Western Resource Advocates, comment IV)

UDAQ Response: UDAQ agrees with the commenter that, within the context of a nonattainment SIP, as recounted in the background sections of these proposed maintenance plans, the implementation of RACM/RACT is not only required explicitly by CAA Section 172, but is vital to attaining the relevant NAAQS.

The role of RACM/RACT within the context of a maintenance plan, however, is somewhat implicit. Here, the Administrator may not re-designate the area back to attainment without finding that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan. Implied by that requirement is that RACM/RACT, as approved in the nonattainment SIP, was at least partly responsible for the attendant improvement in air quality. Explicitly however, RACM/RACT is not a required element of a maintenance plan.

None of this, however, concerns R307-403-5. The PM10 offset requirements detailed therein were in fact adopted by the State in the original PM10 SIPs, but they were neither included as part of RACM/RACT, nor approved by EPA in its review of same. Rather, the rule is discussed in section of the SIP dealing with maintenance of the NAAQS after such time as the standard had been achieved (see SIP Section IX.A.7.) It was introduced only as a hedge against growth. Furthermore, the rule was not explicitly relied upon by these proposed maintenance plans.

Going forward, the State will have to decide whether to retain the utility of this rule should these areas be re-designated to attainment. There is no requirement, one way or the other. The rule affects only minor source permitting. Utah is required, under 40 CFR Part 51, to have a minor source permitting program, but the content of such program is entirely left to the states. Utah's minor source permitting program already requires Best Available Control Technology, and has been quite valuable in mitigating air pollution. As a matter of opinion only, UDAQ continues to see utility in the application of R307-403-5 and may argue to retain it throughout PM10 maintenance areas. That will be a matter to be taken up with the Air Quality Board at some future point in time.

G.7 Comment A-F: The following comments concern Utah's fugitive dust rule at R307-309. (Western Resource Advocates, comment A-F)

<u>A – Enforceability:</u>

The commenter has stated that the fugitive dust rule R307-309 is not adequately enforceable because it lacks specific requirements that would be commonly associated with Title V sources.

UDAQ Response: First, we must recognize that R307-309 is intended to regulate a broad array of sources, from single home construction of 1/4 acre, to major mining sources. As such, it is a challenge to develop a rule that is not overly burdensome to small sources while assuring proper controls for major sources. It is for this reason that the rule is designed to provide RACT level air quality control across all sources while using the permitting process to specifically address major sources with provisions that are beyond those in R307-309.

UDAQ undertook a yearlong study in 2010 of the fugitive dust rule. A workgroup composed of engineers and scientists conducted a fugitive dust RACT analysis of R307-309 and of other western non-attainment air quality rules. That analysis included a review of past EPA comments on R307-309. The workgroup members concluded that a major revision was necessary. Subsequently, the Air Quality Board amended the rule in line with all of the workgroup recommendations. Today, all sources are required to apply best management practices (BMPs) derived by the workgroup for every conceivable type of fugitive dust sources. The BMPs are reflective of general engineering practices and our staff experience.

The commenter stated that certain requirements (referring to BMP's) are embedded within the dust plans which are not subject to EPA or public comment review and may be changed by UDAQ.

UDAQ Response: In fact, this is not the case, the past rule amendment included the BMP's directly within the rule (R307-309-6(4)). UDAQ cannot amend BMP's without going through rulemaking. EPA and the public had an opportunity to comment on the BMP's. UDAQ received no comments on the BMP's during that public comment period.

Nonetheless, UDAQ realizes that further work is necessary on R307-309. In fact, many of the issues raised by the commenter have been the subject of discussions with EPA. UDAQ has submitted a draft rule amendment proposal to EPA dealing with many of the items noted by the commenter.

Again, we point out that the rule is intended to cover sources of all sizes such that our proposed amendments are intend to be a reasonable compromise. For example, the commenter proposes that the rule be amended to require:

"The records must include a description of how a source proposes to comply with all applicable requirements, log sheets for hourly and daily emission and dust control, and schedules for compliance activities and submittal of progress reports."

This level of planning and recordkeeping is beyond a reasonable or realistic expectation for a construction project of a home or small structure on 1/4 acre. It is however reasonable to expect detailed recordkeeping for a Title V mining operation therefore; this type of recordkeeping requirement should be defined in an operating permit which would be subject to public comment review.

The commenter stated that additional requirements such as, site inspections, should be defined in the rule. Compliance and planning are programs outside the realm of area source rules.

UDAQ Response: These programs are managed under long term plans established by air agencies with concurrence by EPA.

B. Collection of Fees

The commenter stated that UDAQ should collect fees for the compliance monitoring of R307-309.

UDAQ Response: Again, R307-309 is an area source rule. UDAQ does not collect fees for any area source rules because area source rules apply to a broad population who are often times de minimis. The fee structure must be approved by the Legislature, who does not support agencies charging minor fees.

C. Fugitive Emissions

The commenter states that the rule is not sufficiently stringent regarding fugitive emissions, nor does it include monitoring for fugitive emissions.

UDAQ Response: Fugitive emissions of particles are not the same as fugitive emissions of VOC's and cannot be addressed in line with the commenters suggested requirements. Fugitive particulate emissions are generally characterized as intermittent short-term emissions. For example, the loading of a hopper with product may create a short-term fugitive emission that normally quickly disburses. UDAQ believes that the rule adequately addresses these intermittent sources.

D. RACM or RACT

The commenter stated that UDAQ should adopt a South Coast Air Quality District (SCAQMD) standard as RACT or RACM.

UDAQ Response: RACT is not defined by what other air districts promulgate, but rather by what is necessary for an air district to achieve an attainment demonstration by considering technological and economic feasibility (EPA OAQPS No. 1.2-103). With the exception of exceptional events, there have not been any exceedances in the PM_{10} nonattainment area. Therefore, there is no reason to explore fugitive dust standards beyond those in R307-309.

E. Wind Speed

The commenter stated that:

"R307-309-5(3) is inadequate to ensure maintenance of the NAAQS. For example, the rule exempts a source from the opacity requirements when wind speeds exceed 25 miles per hour if the source has implemented "at least one" of the relevant measures, including "pre-event watering" and "hourly watering."

UDAQ Response: R307-309-5(3) also requires that the source must "continue to implement" fugitive emission controls during the high wind period in order to be exempt from the opacity requirements. Sources are not exempt from all control measures under high wind conditions, just the reality that the very low opacity requirements in the rule cannot be met with engineering controls when wind speeds exceed 25 mph. The WRAP Fugitive Dust Handbook cites 25 mph as a limiting wind speed throughout the document because engineering controls diminish when wind speed exceeds 25 mph. In fact, the commenter acknowledges this fact by stating that, “moreover, in some instances, the mere cessation of dust producing activities will not guarantee that emissions will be adequately controlled..” during high wind conditions. Given the engineering limitations during high wind conditions, some level of fugitive dust is unavoidable during prolonged high wind conditions.

T**he commenter further stated that the conditions for the exemption is open ended and vague.**

UDAQ Response: We disagree with this position. The high wind opacity exemption requirement clearly states that engineering controls must be implemented and we offer standard engineering controls as optional control measures.

Comment F. Other Issues

The commenter stated: “The rule should address how emissions will be controlled during inactive operations (after work, weekends, holidays, etc.) and require that R307-309 apply and emissions be controlled and monitored at all times.”

UDAQ Response: R307-309 applies at all times. The opacity requirements are not limited to work hours.

The commenter stated: “As they are an important component of the proposed maintenance plan, fugitive dust plans must be subject to public notice and comment.”

UDAQ Response: The BMP’s in R307-309-6(4) were subject to public notice and comment. These BMP’s are the basis for the majority of the dust plans. The few sources that have complex operations beyond what is covered by the BMP’s are major sources that require an operating permit. The permit, inclusive of the dust plan, would be subject to public notice and review.

The commenter stated: “The use of the term “accepted” throughout the rule is vague and subject to abuse. E.g. see R307-309-6(2).”

UDAQ Response: The word accepted in the rule is one of the items in review included in the proposed amendment to the rule currently being discussed with EPA.

The commenter stated: “The rule should establish that a source must comply with mandated practices or plans until the source has formally notified the Director that all fugitive emissions and emission generating activities have permanently ceased.”

UDAQ Response: This area source rule applies to as many as thousands of sources in any given year. Most of those sources are short-term construction projects. The dust plan form asks sources to estimate the project completion date. Beyond that level of tracking would be impractical, as well as fruitless, for one of more than twenty area source rules.

Part H Comments and Responses

EPA Comments

H.1 Comment: IX.H.1.c is relied upon as the recordkeeping and reporting requirements for sources addressed in Subsections IX.H.2 and IX.H.3. While recordkeeping to determine compliance, as well as records retention, is addressed, periodic reporting is not. Periodic reporting should be provided to ensure compliance with emission limitations and other applicable provisions of the SIP. See 40 CFR 51.211 and CAA section 110(a)(2)(F)(ii). It is understood that R307-107 provides for self-reporting of excess emissions during periods of breakdown and malfunctions, but periodic reporting of emissions beyond the scope of breakdowns as well as other information that is necessary to determine compliance with other SIP provisions is not provided for in the draft SIP, and should be included.

UDAQ Response: The commenter refers to additional periodic reporting of emissions and emissions inventory requirements as outlined in a specific section of the CAA and in 40 CFR 51.211.

CAA section 110(a)(2)(F)(ii) requires:

> *(ii) periodic reports on the nature and amounts of emissions and emissions-related data from such sources.*

While 40 CFR 51.211 requires:

> *The plan must provide for legally enforceable procedures for requiring owners or operators of stationary sources to maintain records of and periodically report to the State —*
> *51.211(a)*
> *Information on the nature and amount of emissions from the stationary sources; and*
> *51.211(b)*
> *Other information as may be necessary to enable the State to determine whether the sources are in compliance with applicable portions of the control strategy.*

Both of these requirements are satisfied by R307-150 Emission Inventories. Each of the sources listed in Subsections IX.H.2 and IX.H.3 are included in the applicability requirements outlined in R307-150-3, and therefore are required to (at a minimum) submit "an inventory every third year … for all emissions units including fugitive emissions."

The rule goes on to require:

> *(a) The inventory shall include PM10, PM2.5, oxides of sulfur, oxides of nitrogen, carbon monoxide, volatile organic compounds, ammonia, other chargeable pollutants, and hazardous air pollutants not exempted in R307-150-8.*

> *(b) For each pollutant, the inventory shall include the rate and period of emissions,*

excess or breakdown emissions, startup and shut down emissions, the specific emissions unit which is the source of the air pollution, composition of air contaminant, type and efficiency of the air pollution control equipment, and other information necessary to quantify operation and emissions and to evaluate pollution control efficiency. The emissions of a pollutant shall be calculated using the source's actual operating hours, production rates, and types of materials processed, stored, or combusted during the inventoried time period.

(2) Sources identified in R307-150-3(3) shall submit an inventory for each year after 2002 in which the total amount of PM10, oxides of sulfur, oxides of nitrogen, carbon monoxide, or volatile organic compounds increases or decreases by 40 tons or more per year from the most recently submitted inventory. For each pollutant, the inventory shall meet the requirements of R307-150-6(1)(a) and (b).

Although the inventory rule is included in the Utah SIP generally, it has not been included as a part of the PM10 nonattainment/maintenance provisions specifically.

Finally, the reporting requirements under R307-415-6a(3)(c)(ii) specifically addresses the reporting of deviations including those from breakdown and other upset conditions.

Therefore, the following language will be included in IX.H.1.c as follows:

c. Recordkeeping and Reporting

i. Any information used to determine compliance shall be recorded for all periods when the source is in operation, and such records shall be kept for a minimum of five years. Any or all of these records shall be made available to the Director upon request, and shall include a period of two years ending with the date of the request.

ii. Each source shall comply with all applicable sections of R307-150 Emission Inventories.

iii. Each source shall submit a report of any deviation from the applicable requirements of this Subsection IX.H, including those attributable to upset conditions, the probable cause of such deviations, and any corrective actions or preventive measures taken. The report shall be submitted to the Director no later than 24-months following the deviation, or earlier if specified by an underlying applicable requirement. Deviations due to breakdowns shall be reported according to the breakdown provisions of R307-107.

H.2 Comment: IX.H.1.e.i.C reads "...If a method other than 201a is used, the portion of the front half of the catch considered PM10 shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director." The clause "other data acceptable to the Director" is a form of director's discretion and should be removed or amended to allow for additional EPA-approved information, outside of the fifth edition of AP-42. For general discussion of

director's discretion provisions, please see EPA's final rule, "Response to Petition for Rulemaking; Restatement and Update of EPA's SSM Policy Applicable to SIPs; Findings of Substantial Inadequacy; and SIP Calls To Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown and Malfunction" ("SSM SIP Call"), 80 FR 33840, 33927-29 (June 12, 2015). While the SSM SIP Call primarily addresses director discretion to modify emission limitations, it notes that director discretion to change other SIP requirements may be problematic. See id. at 33927 n.297.

UDAQ Response: The entirety of IX.H.1.e.i.C (rather than just the portion quoted by EPA), will be replaced with the following text.

<u>PM10:</u>
<u>The following methods shall be used to measure filterable particulate emissions: 40 CFR 51, Appendix M, Method 201 or 201A, or other EPA-approved testing method, as acceptable to the Director. If other approved testing methods are used which cannot measure the PM10 fraction of the filterable particulate emissions, all of the filterable particulate emissions shall be considered PM10.</u>

<u>The following methods shall be used to measure condensable particulate emissions: 40 CFR 51, Appendix M, Method 202, or other EPA-approved testing method, as acceptable to the Director.</u>

The concern over "Director's Discretion" has been removed with the application of this updated language. UDAQ has no desire to approve new testing methods.

H.3 Comment: IX.H.1.g.iv .A refers to natural gas curtailments, without defining the term. References to natural gas curtailments can be found in several instances throughout IX.H, with varying degrees of specificity. EPA recommends that natural gas curtailments be defined in IX.H.1 to provide consistency and enforceability in provisions using the term.

UDAQ Response: UDAQ will add the definition as requested to Subsection IX.H.1.b. That requirement will now read as follows:

<u>b. Definitions.</u>

<u>i. The definitions contained in R307-101-2, Definitions, apply to Section IX, Part H.</u>

<u>ii. Natural gas curtailment means a period of time during which the supply of natural gas to an affected facility is halted for reasons beyond the control of the facility. The act of entering into a contractual agreement with a supplier of natural gas established for curtailment purposes does not constitute a reason that is under the control of a facility for the</u>

purposes of this definition. An increase in the cost or unit price of natural gas does not constitute a period of natural gas curtailment.

H.4 Comment: IX.H.1.v.A states that "Beginning January 1, 2018, all hydrocarbon flares at petroleum refineries located in or affecting a designated PM10 nonattainment area within the State shall be subject to the flaring requirements of NSPS [...]." Applicability of this requirement should extend to maintenance areas. As drafted this provision would be inapplicable to the PM10 nonattainment area upon redesignation to attainment and could not be relied on to show maintenance of the PM10 NAAQS and non-interference with other NAAQS.

UDAQ Response: UDAQ agrees with this comment. This was an oversight. The language in question was inadvertently skipped during editing and should have read similarly to the other refinery general provisions – applying equally to PM10 nonattainment and PM10 maintenance areas alike. The requirement will be updated to read as follows:

A. Beginning January 1, 2018, all hydrocarbon flares at petroleum refineries located in or affecting a designated PM10 nonattainment area or maintenance area within the State shall be subject to the flaring requirements of NSPS Subpart Ja (40 CFR 60.100a–109a), if not already subject under the flare applicability provisions of Subpart Ja.

H.5 Comment: IX.H.1.v.B provides for the use of an "equivalent flare gas minimization process(es)," which is a form of director's discretion. If Utah wishes to retain this provision, EPA recommends that it be revised so that it is sufficiently specific, provides for sufficient public process and is sufficiently bounded, so that it is possible to anticipate at the time of the EPA's review of the provision how that provision will actually be applied and the potential adverse impacts thereof. See SSM SIP Call, 80 FR 33927.

UDAQ Response: UDAQ is removing IX.H.1.v.B. as a requirement. This requirement is not necessary for PM10 maintenance purposes, as it was written for the PM2.5 nonattainment area and only brought forward from SIP Section IX.H.11 for consistency.

H.6 Comment: IX.H.1.v.B also provides for an exemption from the flare gas recovery system during periods of SSM. As explained in the SSM SIP call, exemptions during periods of SSM are not consistent with the CAA requirement that emission limitations be continuous. EPA recommends that the exemptions be removed. For periods of startup and shutdown, Utah may be able to provide an alternative emission limitation, such as usage of a work practice standard. EPA's policy for acceptable alternative emission limitations for periods of startup and shutdown is explained in the SSM SIP Call at 80 FR 33913-14.

UDAQ Response: UDAQ is removing IX.H.1.v.B. as a requirement. This requirement is not necessary for PM10 maintenance purposes, as it was written for the PM2.5 nonattainment area and only brought forward from SIP Section IX.H.11 for consistency.

H.7 Comment: It is noted that an initial stack test date is not specified for many of the sources listed in Part H, including all of the refineries. This is particularly pertinent for those provisions that rely upon stack testing to determine emission factors (e.g. refinery FCC default emission factors). It is EPA's understanding that default emission factors may already be established through stack testing and the stack test emission factor may be updated between now and the approval of the SIP. As such, the state has omitted default emission factors in several instances. Furthermore, it is EPA's understanding that at a minimum, stack testing would be required within three years of approval of the SIP, as outlined under IX.H.1.e. It is EPA's recommendation that a schedule indicating whether an initial stack test has been performed, or when the first stack test should be performed, be provided. The stack testing provision from the University of Utah (IX.H.2.1.ii) provides a good example for this recommendation. In this provision, initial testing is indicated where it has occurred, and provides a date for when testing will need to be performed for units that have not already been tested.

UDAQ Response: For sources where initial testing has been performed, a notation has been made in the individual source specific listings of IX.H.2 and IX.H.3 indicating that an initial stack test has been performed. This notation reads as follows:

> Initial tests have been performed and the next test shall be performed within ** years of the last stack test.

Where ** represents the appropriate number of years based on the stack testing frequency specified by the individual source.

For new sources which have not been previously tested, or existing sources installing new equipment, a notation similar to the following will be inserted indicating that testing will take place no later than 3-years following issuance of the SIP.

> Initial stack testing to demonstrate compliance with the above limit(s) shall be performed no later than January 1, 2019/three (3) years following issuance of the SIP, and every ** years thereafter.

Again, where ** is the appropriate stack test frequency for each individual source.

General Refinery Comments

H.8 Comment: It is suggested that the source wide PM10 cap explicitly specify that the cap includes both filterable as well as condensable PM, as done with the Holly refinery (e.g. "filterable + condensable"). Doing so would explicitly specify that all PM10 emission limits include both filterable and condensable PM.

UDAQ Response: UDAQ agrees with this comment. However, since all PM10 emission limits found in IX.H.2 and IX.H.3 include both filterable and condensable PM, UDAQ will apply this comment to the general requirements of IX.H.1 so that it affects all listed sources (as opposed to just the four refineries). Therefore, IX.H.1.d will be updated as follows:

d. Emission Limitations.

i. All emission limitations listed in Subsections IX.H.2 and IX.H.3 apply at all times, unless otherwise specified in the source specific conditions listed in IX.H.2 and IX.H.3.

ii. All emission limitations of PM10 listed in Subsections IX.H.2 and IX.H.3 include both filterable and condensable PM, unless otherwise specified in the source specific conditions listed in IX.H.2 and IX.H.3.

And the specific mention of "filterable+condensable" found in the requirements for the Holly Refinery under IX.H.2.f will be removed, as it is now redundant.

H.9 Comment: Throughout the source specific refinery portions, there are repeated references to the mass flow and molar flow of the flue gas. It is unclear how these flow values are measured. In order to ensure emission limitations that rely on these values are enforceable, specific provisions regarding metering should be included for determining flue gas flow.

UDAQ Response: UDAQ agrees with this comment. In each case where either of the terms "mass flow" or "molar flow" have been used, these are incorrect. The appropriate terminology is "flow rate." For context, the terms were used in reference to determining the emission rate of SO2 from the sulfur recovery units at each refinery. In each case, the text of the condition read essentially as follows:

The emission rate shall be determined by multiplying the sulfur dioxide concentration in the flue gas by the mass flow of the flue gas.

The concentration of SO_2 is determined on a lb of SO_2/ft^3 of exhaust gas basis (standard units of concentration). To determine a rate of SO_2 emission in terms of mass per unit time (such as lb of SO_2/hour) the concentration should be multiplied by the gas flow rate, which would be given in terms of volume per unit time (such as ft^3/hour). Both "mass flow" and "molar flow" would be incorrect for this application.

Therefore, in each instance where these terms have been used, they will be replaced with the simplified term "flow rate."

H.10 Comment: Omission of the phrase "fuel oil parameters (density and wt. %S, recorded each day any fuel oil is burned)," occurs in several of the refineries' source

wide SO2 caps. The full phrase can be found in IX.H.2.f.iii.B, which reads "Results shall be tabulated for each day, and records shall be kept which include CEM readings for H2S (averaged for each one-hour period), all meter reading (in the appropriate units), fuel oil parameters (density and wt%S for each day any fuel oil is burned), and the calculated emissions." EPA recommends including fuel oil parameters in the recordkeeping provisions for compliance with the source-wide SO2 cap.

UDAQ Response: UDAQ agrees with this comment, and the suggested language has been included.

H.11 Comment: PacifiCorp Energy, Gadsby Power Plant: The averaging time should be specified when relying upon CEM data. Averaging time is specified at the PacifiCorp Lakeside Plant, and it is recommended that the Gadsby Power Plant be structured in a similar fashion.

UDAQ Response: This comment refers to conditions IX.H.2.j.i.A, IX.H.2.j.ii.A and IX.H.2.j.iii.A.I & II. These conditions were originally included in the 1991 version of the PM10 SIP, and (as currently written) are unchanged from that document. At that time no averaging period was specified, because compliance was demonstrated via stack test. As outlined in 40 CFR 60.8, most stack tests (unless otherwise specified in an individual NSPS or NESHAP) were based on three 1-hour test runs. Therefore, basing the existing NOx limits on a three-hour block average basis would be appropriate. This has been brought forward into the source's current Title V permit which includes monitoring language which reads "based on the arithmetic average of three contiguous one-hour periods" as a logical continuation of this thought process.

Thus, the updated limitation in each case will now read as follows:

> Emissions of NOx shall be no greater than ** lbs/hr on a three (3) hour block average basis.

Where ** is the appropriate value for units #1-3.

H.12 Comment: The use of a 30-day rolling average found in IX.H.2.j.v has not been justified as adequate for the protection of a 24-hour standard. The emission limit should be revised to be protective of the 24-hour standard, or justification provided as to why a 30-day rolling average is adequate.

UDAQ Response: Condition IX.H.2.j.v.A. will be removed. It is not required as demonstration of compliance with the 24-hour standard is accomplished with the 600 lb/day limit listed in condition IX.H.2.j.v.B (which will subsequently be renumbered to IX.H.2.j.v.A.).

H.13 Comment: In IX.H.2.j.iv, it is unclear how unit load or output is determined.

EPA recommends that provisions specifying a metering device be added to this section, along with adequate recordkeeping to ensure enforceability.

UDAQ Response: The comment actually refers to condition IX.H.2.j.vi, as both subparagraphs B and C of the *Turbine Startup / Shutdown Emission Minimization Plan* contain references to unit output or unit load. As requested, a new condition IX.H.2.j.vi.F will be added to include installation and operation of an electrical output metering device as follows:

F. Turbine output (turbine load) shall be monitored and recorded on an hourly basis with an electrical meter.

H.14 Comment: Tesoro Refining & Marketing Company: In IX.H.2.k.i.C, emissions from the SRU/TGTU/TGI are to be included in the compliance calculation for the source wide PM10 cap. However, no calculation methodology is provided for. If the inclusion of the SRU/TGTU/TGI in the PM10 cap is in error, reference to it should be removed; otherwise an emission factor and calculation methodology should be provided.

UDAQ Response: As with comment 2.c. above, UDAQ will verify each sub-entity that contributes to a specific source-wide pollutant cap and verify it for inclusion. Entities that are not currently listed that should be included will be added. This applies for all four refineries (Big West Oil, Chevron, Holly and Tesoro). A complete listing of changes made can be found below:

Big West Oil changes:
Added the language for combination fuels missing from the PM10 section but otherwise found under both NOx and SO2.

Under PM10, changed one line to read "from these units" rather than "for the boilers and furnaces". This allowed the inclusion of the SRU incinerator in the general statement.

Multiple places, corrected "FCC Catalyst Regenerator", "Catalyst Regenerator", or "Catalyst Regeneration System" (or similar) to just read as "FCC". All of these represent the same emission unit and the same emission point/stack .

Removed incorrect equation for plant gas calculation of emission factor under NOx Cap. Replaced with simpler reference to "use of a CEM as outlined in IX.H.1.f." (see reference to mass flow rate comment above for more details)

Removed incorrect equation for plant gas calculation of emission factor under SO2 Cap. Replaced with simpler reference to "use of a CEM as outlined in IX.H.1.f." (see reference to mass flow rate comment above for more details)

Chevron changes:
Under PM10, removed reference to SRU in the summation of emissions for the PM10 Cap. The SRU incinerator is fired on a combination of plant gas and natural gas, and uses the

emission factors for those fuels for PM10 emission calculations as outlined in combination fuels under IX.H.2.d.i.C. (see below)

Added the language for combination fuels missing from the PM10 section but otherwise found under NOx and SO2.

Under NOx calculations, changed "FCCU" to "FCC" for consistency.

Under SO2 removed "Regenerator" from the FCC reference, again for consistency purposes.

Removed incorrect equation for plant gas calculation of emission factor under SO2 Cap. Replaced with simpler reference to "use of a CEM as outlined in IX.H.1.f." (see reference to mass flow rate comment above for more details)

Holly changes:
Under PM10 calculations final paragraph, removed the reference to fuel oil parameters. These are not required for this particular calculation as only the total amount consumed is required.

Removed incorrect equation for plant gas calculation of emission factor under SO2 Cap. Replaced with simpler reference to "use of a CEM as outlined in IX.H.1.f." (see reference to mass flow rate comment above for more details)

Tesoro changes:
Minor typographical change to remove the "s" from FCC Wet Scrubber under PM10. Tesoro is only installing a single wet scrubber.
Added the language for combination fuels missing from the PM10 section but otherwise found under SO2.

Removed the reference to the SRU/TGTU/TGI from the PM10 Cap calculations. The SRUTGTU/TGI is fired on a combination of plant gas and natural gas, and uses those emission factors for PM10 Cap calculations as outlined under IX.H.2.k.i.A.

Under SO2 setting of emission factors, corrected the plant gas emission factor "direct measurement" to remove reference to the incorrect equation relying on molar/mass flows.

H.15 Comment: West Valley Power Holding, LLC, West Valley Power Plant: The use of a 30-day rolling average found in IX.H.2.j.v has not been justified as adequate for the protection of a 24-hour standard. The emission limit should be revised to be protective of the 24-hour standard, or justification provided as to why a 30-day rolling average is adequate.

UDAQ Response: UDAQ agrees with this comment. Both conditions IX.H.2.m.i and IX.H.3.m.ii will be removed. They will be replaced with a single plant wide cap on NOx emissions that will limit total emissions over a 24-hour period. The new cap will be defined to cover

m. West Valley Power Holdings, LLC.: West Valley Power Plant.

i. Total emissions of NOx from all five (5) turbines combined shall be no greater than 1050 lb of NOx on a daily basis. For purposes of this subpart, a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

ii. Total emissions of NOx from all five (5) turbines shall include the sum of all periods in the day including periods of startup, shutdown, and maintenance.

iii. The NOx emission rate (lb/hr) shall be determined by CEM. The CEM shall operate as outlined in IX.H.1.f.

H.16 Comment: Kennecott Utah Copper (KUC), Mine: IX.H.2.g.i.A provides for a system equivalent to a GPS for recording daily track haul mileage, but does not specify how such equivalency is to be determined. For purposes of enforceability, EPA recommends that an equivalent tracking system be clearly defined.

UDAQ Response: Currently KUC uses a Global Positioning System that tracks haul trucks and records the miles traveled by the hauls trucks on real time. An equivalent system would have to record the trucks and the mileage on real time.

The modified limit is listed below:

> KUC shall keep records of daily total mileage for all periods when the mine is in operation. KUC shall track haul truck miles with a Global Positioning System or equivalent. The system shall use real time tracking to determine daily mileage.

H.17 Comment: IX.H.2.g.i.C.II requires the use of "ore conveyors as the primary means for transport of crushed ore," but does not define a method for determining "primary means." To make the provision enforceable, EPA recommends that "primary" be clearly defined (for example, numerically), and a corresponding recordkeeping provision be included within this provision.

UDAQ Response: KUC uses conveyors as a primary means of crushed ore transport from the mine to the Copperton Concentrator. The use of the conveyor as a primary means of transport reduces both fugitive dust and tailpipe emissions to the atmosphere. The ore conveyer is, by default, the primary means to transport ore to the concentrator, because the use of haul trucks for this operation would quickly put KUC over the daily mileage limit. This condition was not included in the 1994 PM_{10} State Implementation Plan but originated in the 2011 AO for the Bingham Canyon Mine so back sliding is not at issue.

The limit was not modified but is defined above and is listed below:

A. To minimize emissions at the mine, the owner/operator shall:

I. Control emissions from the in-pit crusher with a baghouse.

II. Use ore conveyors as the primary means for transport of crushed ore from the mine to the concentrator.

H.18 Comment: IX.H.2.g.D requires the use of watering on active haul roads "as weather and operational conditions warrant." This provision does not specify what weather and operational conditions would warrant watering of haul roads, and EPA recommends that these conditions be clearly defined. If watering is to be applied except when conditions would prevent or obviate the need for watering, it is recommended that this provision be reworded to capture these conditions (e.g. except during precipitation or freezing weather conditions) along with means (such as specific weather reports) to determine whether these conditions exist.

KUC has implemented a comprehensive fugitive dust control plan to minimize emissions from active haul roads. Specifically, Best Available Control Technologies are implemented which include application of commercial dust suppressants at least twice per year, road base and watering. While the use of watering to the active haul roads is essential to dust mitigation, its application is primarily managed based on weather and operational conditions and conditions "on the ground". This is necessary for the safety of haul truck drivers and other vehicles operating on these roads. KUC has numerous large water trucks that operate continuously and apply water on these roads. Additional trucks are dispatched during dry days as necessary. KUC uses "ground conditions" to determine the frequency of watering in addition to ambient conditions and weather reports. A weather report may be used as a guideline but the actual road conditions determine the frequency of the watering schedule. This allows for effective management of dust from the active haul roads.

The modified limit is listed below:

A. To minimize fugitive dust on roads at the mine, the owner/operator shall perform the following measures:

I. Apply water to all active haul roads as weather and operational conditions warrant **except during precipitation or freezing weather conditions**, and shall apply a chemical dust suppressant to active haul roads located outside of the pit influence boundary no less than twice per year.

II. Water and chemical dust suppressant shall be applied as weather and operational conditions warrant **except during precipitation or freezing weather conditions** on unpaved access roads that receive haul truck traffic and light vehicle traffic.

H.19 Comment: IX.H.2.g.D.II appears to restate the provisions of IX.H.2.g.D.I, but refers to "unpaved access roads" instead of "active haul roads." If these two roads are the same, it is recommended that IX.H.2.g.D.II be consolidated into D.1. lf these road types are distinct from each other, then EPA recommends that these road types be clearly defined.

UDAQ Response: Active unpaved access roads and active unpaved haul roads are operationally different. A haul road is used primarily to haul ore to the crusher and waste material out of the pit by haul trucks that are at least 240 tons. These roads are more heavily used than the access roads. They require more maintenance than an access road. Dust mitigation activities are planned independently and implemented based on the requirements of the specified conditions for either the production haul roads or the other plant access roads. An access road normally receives less vehicle traffic in weight and quantity than a haul road. Therefore, an access road requires less water and chemical dust suppressant. It is important that these roads remain separate.

KUC has implemented a comprehensive fugitive dust control plan to minimize emissions from active haul roads, including implementation of Best Available Control Technology. Implementation of BACT controls includes application of road base and watering. While the use of watering to the unpaved access roads is essential to dust mitigation, its application is primarily managed based on weather and operational conditions and conditions “on the ground”. This is necessary for the safety of vehicles operating on these roads. KUC has numerous water trucks that operate at regular frequency and apply water on these roads. Additional trucks are dispatched during dry days as necessary. KUC uses “ground conditions” to determine the frequency of watering in addition to ambient conditions and weather reports. This allows for effective management of dust from the unpaved access roads.

The limit was not modified but is defined above and is listed below:

D. To minimize fugitive dust on roads at the mine, the owner/operator shall perform the following measures:

I. Apply water to all active haul roads as weather and operational conditions warrant **except during precipitation or freezing weather conditions**, and shall apply a chemical dust suppressant to active haul roads located outside of the pit influence boundary no less than twice per year.

II. Water and chemical dust suppressant shall be applied as weather and operational conditions warrant **except during precipitation or freezing weather conditions** on unpaved access roads that receive haul truck traffic and light vehicle traffic.

H.20 Comment: IX.H.2.g.i.E refers to the 1994 federally approved Fugitive Emissions and Fugitive Dust Rule. While we recognize that the 1994 rule is the current federally approved rule, the federally approved rule may be updated in the future. We suggest

that this provision refer to the most recent federally approved rule, as well as specifying where this rule may be found.

UDAQ Response: This has been changed to the most recent federally approved Fugitive Emissions and Fugitive Dust Rule.

The modified limit is listed below:

KUC is subject to the requirements in the most recent federally approved Fugitive Emissions and Fugitive Dust rules.

H.21 Comment: Kennecott Utah Copper (KUC): Copperton Concentrator: EPA notes that the Copperton Concentrator is no longer included in the draft SIP, but was included as part of the original SIP. Based on the TSD, the Concentrator's potentials to emit (PTEs) for the relevant pollutants are small (i.e. PM10: 25.3 tons per year (tpy), S02: 0.10 tpy; NOx: 10.66 tpy). Despite the relatively small PTEs, the Concentrator was included as part of the old SIP, and the current PTEs are due to control technologies employed at the Concentrator (e.g. baghouse filters). As such, it is recommended that the Concentrator be brought back into the new SIP, with requirements that account for control technologies being employed. Otherwise, the Concentrator's PTEs should not assume the use of control technologies, and should be accurately reflected as such in the TSD and the 110(1) demonstration.

UDAQ Response:40 CFR Part 60 Subpart LL (Standards of Performance for Metallic Mineral Processing Plants) limits all stack emissions to 0.05 grams of particulate matter per dry standard cubic meter The PM_{10} portion of this limit is less than 0.05 grams per dry standard cubic meter. The opacity limit for all stacks is 7% except when a scrubber is being used and the opacity for fugitive emissions is 10%.

Subpart LL requires KUC, on a weekly basis, to monitor the change in pressure of the gas stream through the scrubber and the scrubbing liquid flow rate of the scrubber. KUC is required to submit semiannual reports to the Administrator of occurrences when the measurements of the scrubber pressure loss (or gain) or liquid flow rate differ by more than ±30 percent from the average obtained during the most recent performance test. KUC is also required to calibrate the monitoring devices on an annual basis in accordance with manufacturer's instructions. These requirements are the same or more stringent than the 1994 SIP requirements.

No changes were made to Part H as a result of this comment. The TSD will include a discussion that documents no backsliding as a result of the concentrator operation.

H.22 Comment: Kennecott Utah Copper (KUC), Power Plant and Tailing Impoundment: For clarification purposes, EPA suggests that IX.H.2.h.i.A state that Boilers #1,#2, and #3 "cease operations permanently" upon commencing operation of Unit #5.

UDAQ Response: The requirement to cease operations has been included when Unit #5 starts operation.

The modified limit is listed below:

A. Boilers #1, #2, and #3 shall cease operations permanently upon commencing operations of Unit #5 (combined-cycle, natural gas-fired combustion turbine).

H.23 Comment: EPA notes that an alternative emission limit, in the form of a work practice standard, is employed for NOx during startup/shutdown events. A discussion on how this alternative was selected should be discussed in the accompanying TSD. EPA's policy for acceptable alternative emission limitations for periods of startup and shutdown is explained in the SSM SIP Call at 80 FR 33913-14. Consistent with this, a discussion should be provided in the TSD evaluating the potential for worst-case emissions that could occur during startup and shutdown based on alternative emission limits (80 FR 33914). Additionally, the startup/shutdown limitations refer to the use of "manufacturer data," without specifying what this data may be. It is suggested that "manufacturer data" be further defined.

UDAQ Response: SIP condition IX.H.2.h.i.B limits NOx emissions from startup and shutdown at 395 lb/event and the number of startup and shutdown events to 690 per calendar year. Both the emissions and number of events have been established based on expected operation of Unit # 5. The combined cycle unit is currently under construction and the limitations have been established using best available information. Because no operational data is available at this time for Unit 5, emissions limitations have been established based on manufacturer data.

40 CFR Part 60 Subpart KKKK states the following for a source to comply with during startup, shutdown of a turbine:

You must operate and maintain the stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction. [Origin: 40 CFR 60 Subpart KKKK]. [40 CFR 60.4333(a)]

The modified limits are listed below:

B. Boilers #1, #2, and #3 shall cease operations permanently upon commencing operations of Unit #5 (combined-cycle, natural gas-fired combustion turbine).

C. Unit #5 shall not exceed the following emission rates to the atmosphere:

Pollutant	lb/hr	lb/event	ppmdv ($15\% \ O_2$ dry)
I. PM_{10} with duct firing:			
Filterable + condensable	18.8		
II. NO_x:			2.0
Startup/shutdown		395	

III. Startup / Shutdown Limitations:

1. The total number of startups and shutdowns together shall not exceed 690 per calendar year.

2. The NO_x emissions shall not exceed 395 lbs from each startup/shutdown event, which shall be determined using manufacturer data.

3. Definitions:

   (i) Startup cycle ends when the unit achieves half of the design electrical generation capacity.

   (ii) Shutdown cycle begins with the initiation of turbine shutdown sequence and ends when fuel flow to the gas turbine is discontinued.

H.24 Comment: EPA notes that emission rates and concentrations are not specified for condensables in IX.H.2.h.E, but are provided for in previous sections. EPA recommends that condensables be accounted for in the limits under IX.H.2.h.E.

UDAQ Response: Condensables have been added to the limits in XI.H.2.h.E.

H.25 Comment: EPA notes that the allowed sulfur content of fuel burned in IX.H.2.h.F (0.66 lb sulfur per MMBTU) is greater than is allowed in the current approved SIP (0.52 lb sulfur per MMBTU). A discussion pertaining to this relaxation should be provided for in the TSD, and should be accounted for in the calculated allowable emissions attributable from requirements in the SIP, in the 110(1) demonstration.

The sulfur limit in the 1994 PM10 SIP was actually two limits. The limits in 1994 SIP Condition 2.b.Z.6 are as follows:

- The sulfur content of any fuel burned shall not exceed 0.52 lb of sulfur per million Btu (annual running average), nor shall any one test exceed 0.66 lb of sulfur per million Btu.

- The first limit was an annual limit and the PM_{10} annual standard was revoked in 2007. The primary and secondary standard for PM_{10} is now a 24-hour standard. To protect the 24-hour standard, the limit for coal sulfur content in the coal (content per test) was carried forward into the PM_{10} Maintenance Plan. The annual limit does not protect the PM_{10} 24-hour standard.

The modified limit is listed below:

F. The sulfur content of any fuel burned shall not exceed 0.66 lb of sulfur per million BTU per test.

I. Coal increments will be collected using ASTM 2234, Type I conditions A, B, or C and systematic spacing.

II. Percent sulfur content and gross calorific value of the coal on a dry basis will be determined for each gross sample using ASTM D methods 2013, 3177, 3173, and 2015.

III. KUC shall measure at least 95% of the required increments in any one month that coal is burned in Units #1, #2, #3 or #4.

H.26 Comment: IX.H.2.h.ii.A.I reads "Wind erosion potential is the area that is not wet, frozen, vegetated, crusted, or treated and has the potential for wind erosion." EPA suggests that this provision be reworded, to define "areas with wind erosion potential" vs "wind erosion potential." Additionally, EPA recommends that the conditions, such as "crusted or treated," be clearly defined and appropriate methods for determining whether the conditions exist be provided so that provisions relying on this definition are enforceable.

A crusted surface is when a surface has had precipitation (rainfall) and has a hard film or is crusted over.

- Treated means to treat with chemical dust suppressant.
- The control of windblown dust from being crusted is reviewed in AP-42 Section 13.2.5-9
- "Of greater concern is the likelihood of over prediction of wind erosion emissions in the case of surfaces disturbed infrequently in comparison to the rate of crust formation." Section 13.2.5-9.
- And
- Iron and Steel Plant Open Source Fugitive Emission Control Evaluation report. This report was prepared for EPA Research Triangle Park. In section 4 page XIV of the Summary and Conclusions it states “Also, crusts on piles and exposed surfaces are very effective inhibitors of wind erosion as long as the crust remains unbroken”. This document has more discussion on crusts.

The limit was not modified and is listed below:

A. No more than 50 contiguous acres or more than 5% of the total tailings area shall be permitted to have the potential for wind erosion.

I. Wind erosion potential is the area that is not wet, frozen, vegetated, crusted, or treated and has the potential for wind erosion.

H.27 Comment: EPA recommends that IX.H.2.h.ii.A.II be reworded to "calculate areas with wind erosion potential" as opposed to "used to determine wind erosion potential."

UDAQ Response: The limit has been reworded to include calculate areas.

The modified limit is listed below:

KUC shall conduct wind erosion potential grid inspections monthly between February 15 and November 15. The results of the inspections shall be used to calculate areas with wind erosion potential.

H.28 Comment: IX.H.2.h.ii.A.III requires the development and implementation of a corrective action plan, following verbal notification, followed by a meeting to discuss corrective action plan and implementation schedule. EPA notes that this provision was carried forward from the current approved SIP, but that the provision is convoluted and does not necessarily require corrective actions to be undertaken. EPA recommends that this provision require that immediate action to eliminate the exceedance of areas with wind erosion potential be undertaken as soon as an acreage exceedance has been calculated.

UDAQ Response: UDAQ has revised this condition as "If KUC or the Director of Utah Division of Air Quality (Director) determines that the percentage of wind erosion potential is exceeded, KUC shall meet with the Director, to discuss additional or modified fugitive dust controls/operational practices, and an implementation schedule for such, within five working days following verbal notification by either party."

The modified limit is listed below:

III. If KUC or the Director of Utah Division of Air Quality (Director) determines that the percentage of wind erosion potential is exceeded, KUC shall meet with the Director, to discuss additional or modified fugitive dust controls/operational practices, and an implementation schedule for such, within five working days following verbal notification by either party.

H.29 Comment: IX.H.2.h.ii.B triggers certain actions by KUC, when KUC's weather forecast is for a wind event. However, this provision does not require that KUC make

weather forecasts. EPA recommends that this provision be revised to require weather forecasts to be made daily, and should identify the location of the weather station. Additionally, the measures triggered for wind events requires the "surveillance and coordination of appropriate measures." It is unclear what would constitute an "appropriate measure," and EPA recommends defining these measures.

UDAQ Response: A KUC Weather Forecast includes a review of short range and long range weather forecasts. Using the KUC Tailings Impoundment station along with other monitoring data in the area, a specific forecast is issued for the Tailings site. If the analysis forecasts a high wind event (a wind event is defined as wind gusts exceeding 25 mph for more than one hour), the KUC weather forecasts are sent to the Utah Division of Air Quality for necessary surveillance and coordination.

The tailings specific conditions in IX.H.2.h.ii.A &B are comprehensive of tailings operations, are effective in minimizing emission and are applicable at all times. Dust minimization requirements are applicable regardless of wind forecast and are required at all operational areas of the site. The conditions also require additional notification to UDAQ and coordination prior to a wind event.

The modified limit is listed below:

A. If between February 15 and November 15 KUC's daily weather forecast using local met stations is for a wind event (a wind event is defined as wind gusts exceeding 25 mph for more than one hour) the procedures listed below shall be followed within 48 hours of issuance of the forecast. KUC shall:

I. Alert the Utah Division of Air Quality promptly.

II. Continue surveillance and coordination of appropriate measures.

H.30 Comment: IX.H.2.h.ii.C refers to the 1994 federally approved Fugitive Emissions and Fugitive Dust Rule. While we recognize that the 1994 rule is the current federally approved rule, the federally approved rule may be updated in the future. We suggest that this provision refer to the most recent federally approved rule, as well as specifying where this rule may be found.

UDAQ Response: KUC is subject to the requirements in the most recent federally approved Fugitive Emissions and Fugitive Dust rules.

The modified limit is listed below:

A. KUC is subject to the requirements in the most recent federally approved Fugitive Emissions and Fugitive Dust rules.

H.31 Comment: EPA notes that stack testing at the KUC Power Plant shall be

performed once every three years for Units 1, 2 , 3, 4 and 5. Given the length of time between stack tests, EPA recommends including a provision for additional monitoring (e.g. use of a portable exhaust gas analyzer), to ensure that the NOx emission assumptions remain valid.

UDAQ Response:

The modified limits are listed below:

D. Upon commencement of operation of Unit #5*, stack testing to demonstrate compliance with the emission limitations in IX.H.2.h.i.B shall be performed as follows for the following air contaminants

* Initial compliance testing for the natural gas turbine and duct burner is required. The initial test date shall be performed within 60 days after achieving the maximum heat input capacity production rate at which the affected facility will be operated and in no case later than 180 days after the initial startup of a new emission source.

The limited use of natural gas during maintenance firings and break-in firings does not constitute operation and does not require stack testing.

Pollutant	Test Frequency
I. PM_{10}	every year*
II. NO_x	every year*

~~*An EPA approved test method must be performed at least once every three years. Additional compliance tests must be performed at least once every year using either an EPA approved test method or perform annual portable analyzer testing. If portable analyzer testing is employed, the portable analyzer test must be subsequent to the initial EPA approved test method. A correlation must be established during the initial EPA approved tests to calibrate the portable testing analyzer to the initial EPA approved test. The portable analyzer must be calibrated as per the manufacturer's specification prior to each test. Notification of each annual portable test must be provided.~~

E. The following requirements are applicable to Units #1, #2, #3, and #4 during the period November 1 to February 28/29 inclusive:

I. During the period from November 1, to the last day in February inclusive, only natural gas shall only be used as a fuel, unless the supplier or transporter of natural gas imposes a curtailment. The power plant may then burn coal, only for the duration of the curtailment plus sufficient time to empty the coal bins following the curtailment. The Director shall be notified of the curtailment within 48 hours of when it begins and within 48 hours of when it ends.

II. When burning natural gas the emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:

Pollutant	grains/dscf	ppmdv (3% O_2)
68^{o}F, 29.92 in. Hg		
1. PM_{10} Units #1, #2, #3 and #4		
filterable	0.004	
filterable + condensable	0.03	
2. NOx: Units #1, #2 and #3 (each)		336
3. NO_x Unit #4		336
(Unit 4 after January 1, 2018)		60

III. When using coal as a fuel during a curtailment of the natural gas supply, emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:

Pollutant	grains/dscf	ppmdv (3% O_2)
68^{o}F, 29.92 in Hg		
1. Units #1, #2 and #3		
(i) PM_{10}		
filterable	0.029	
filterable + condensable	0.29	

(ii) NO_x Units 1, 2 & 3 426.5

2. Unit #4

(i) PM_{10}

filterable	0.029
filterable + condensable	0.29

(ii) NO_x 384

IV. If the units operated during the months specified above, stack testing to show compliance with the emission limitations in H.2.h.i.D.II and III shall be performed as follows for the following air contaminants:

	Pollutant	Test Frequency	Initial Test
1.	PM_{10}	every year*	#
2.	NO_x	every year*	#

Initial compliance testing is required for Unit #4 after low NO_x burner installation. The initial test date shall be performed within 60 days after achieving the maximum heat input capacity production rate at which the affected facility will be operated and in no case later than 180 days after the initial startup of a new emission source.

The limited use of natural gas during maintenance firings and break-in firings does not constitute operation and does not require stack testing.

~~*An EPA approved test method must be performed at least once every three years. Additional compliance tests must be performed at least once every year using either an EPA approved test method or perform annual portable analyzer testing. If portable analyzer testing is employed, the portable analyzer test must be subsequent to the initial EPA approved test method. A correlation must be established during the initial EPA approved tests to calibrate the portable testing analyzer to the initial EPA approved test. The portable analyzer must be calibrated as per the manufacturer's specification prior to each test. Notification of each annual portable test must be provided.~~

Kennecott Utah Copper (KUC): Smelter and Refinery

H.32 Comment: EPA notes that the PM10 emission limits for the smelter main stack are expressed as daily averages, but compliance is determined by a stack test every year. It is not clear how the stack test will produce a daily average. EPA recommends that the calculation methodology for determining a daily average be specified.

UDAQ Response: The daily averaging period for the Main Stack limits has been removed. This test is for a one hour average using an EPA approved method test. The limit was incorrectly labeled. It is now listed as other sources are listed with an hour limit that has an annual test requirement.

The modified limit is listed below:

A. Emissions to the atmosphere from the indicated emission points shall not exceed the following rates and concentrations:

I. Main Stack (Stack No. 11)

1. PM10
   a. 89.5 lbs/hr (filterable~~, daily average~~)
   b. 439 lbs/hr (filterable + condensable, ~~daily average~~)

2. SO_2
   a. 552 lbs/hr (3 hr. rolling average)
   b. 422 lbs/hr (daily average)

3. NO_x
   a. 154 lbs/hr (daily average)

H.33 Comment: The Holman boiler's averaging time is 30 days, which has not been justified as protective of a 24-hour standard. The averaging time for the Holman boiler should be revised to be protective of the 24-hour standard, or justification provided as to why an averaging time of 30 days is adequate.

UDAQ Response: To protect the daily standard for PM_{10}, a NO_x daily average limit was added for the Holman Boiler.

H.34 Comment: IX.H.2.i.B requires the Holman Boiler to utilize either a CEM or an alternate method applicable under new source performance standards (NSPS). EPA suggests specifying which NSPS standard is applicable to the Holman Boiler so that the alternate method may be identified.

UDAQ Response: The limit for the Holman boiler was changed from 9.34 lbs/hr based on a 30-day average to 14.0 lbs/hr based on a calendar day average. Testing is now by a CEM and stack testing once every year.

This will increase annual emissions from 40.9 TPY to 83.2 TPY.

The modified limits is listed below:

II. Holman Boiler

1. NOx
   a. 14.0 ~~9.34~~ lbs/hr, calendar day average ~~30-day average~~
   ~~b. 0.05 lbs/MMBTU, 30-day average~~

B. Stack testing to show compliance with the emissions limitations of Condition (A) above shall be performed as specified below:

Emission Point		Pollutant	Test Frequency
I.	Main Stack (Stack No. 11)	PM10	every year
		SO2	CEM
		NOx	CEM
II.	Holman Boiler	NOx	every year

H.35 Comment: IX.H.2.i.ii.C and IX.H.2.i.iii.C require standard operating procedures to be followed during startup and shutdown operations. This is not an enforceable provision without details on what standard operating procedures entail. EPA recommends including language to make this provision enforceable.

UDAQ Response: The requirements in IX.H.2.i.ii.C and IX.H.2.i.iii.C are for turbines at the refinery and the MAP. 40 CFR Part 60 Subpart KKKK (Standards of Performance for Stationary Combustion Turbines) states the following for a source to comply with during startup, shutdown of a turbine:

You must operate and maintain the stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.

The limits for the turbines at the refinery and MAP have been changed to comply with the Subpart KKKK.

The modified limit is listed below:

C. KUC must operate and maintain the stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.

H.36 Comment: EPA notes that stack testing for the KUC Refinery's two tankhouse boilers shall be performed once every three years. Given the length of time between stack tests, EPA recommends including a provision for additional periodic monitoring (e.g. use of a portable exhaust gas analyzer), to ensure that emission assumptions remain valid.

UDAQ Response: The tank house boilers are operated as a backup to the Combined Heat and Power unit at the Refinery. The boilers provide steam to the refinery processes during the CHP downtime. These boilers are required to perform a stack test if they have operated for at least 300 hours during a 3 year period. Based on this, the requirement has been changed to reflect this and a test is only required if the boilers operate more than 300 hours in a three year period. Maintenance of a boiler usually requires that they be started up periodically. Operation of a boiler during maintenance firings will not cause an exceedance of a 24-hour standard. Since the operation of the boilers is very limited, the proposed testing frequency is more than adequate.

The modified limit is listed below:

B. Stack testing to show compliance with the above emission limitations shall be performed as follows:

Emission Point	Pollutant	Testing Frequency
Tankhouse Boilers	NO_x	every three years*
Combined Heat Plant	NO_x	every year

*Stack testing shall be performed on boilers that have operated at least 300 hours during a three year period.

<u>University of Utah: University of Utah Facilities</u>

H.37 Comment: EPA notes that stack testing for the listed emission points at the University of Utah, shall be performed once every three years. Given the length of time between stack tests, EPA recommends including a provision for additional periodic monitoring (e.g. use of a portable exhaust gas analyzer), to ensure that the NOx emission assumptions remain valid.

UDAQ Response: Stack testing for the boilers and turbine listed in IX.H.2.l.ii has been changed to require testing every year. The test may be either an EPA approved method test or a portable analyzer. A method test is required at least every three years.

The modified limit is listed below:

ii. Testing to show compliance with the emissions limitations of Condition i above shall be performed as specified below:

	Emission Point	Pollutant	Initial Test	Test Frequency**
A.	Boiler #3	NO_x	*	every year#
B.	Boilers #4a & 4b	NOx	2018	every year#
C.	Boilers #5a & 5b	NOx	2017	every year#
D.	Turbine	NO_x	*	every year#
E.	Turbine and WHRU Duct burner	NO_x	*	every year#

* Initial tests have been performed and the next method test using EPA approved test methods shall be performed within 3 years of the last stack test.

\# A compliance test shall be performed at least once every three years from the date of the last compliance test that demonstrated compliance with the emission limit(s). Compliance testing shall be performed using EPA approved test methods acceptable to the Director. The Director shall be notified, in accordance with all applicable rules, of any compliance test that is to be performed. Beginning January 2018, annual screening with a portable monitor must be conducted in those years that a compliance test is not performed. Screening with a portable monitor shall be performed in accordance with the portable monitor manufacturer’s specifications. If screening with a portable monitor indicates a potential exceedance of the concentration limit, a compliance test must performed within 90 days of that screening. Records shall be kept on site which indicate the date, time, and results of each screening and demonstrate that the potable monitor was operated in accordance with manufacturer's specifications.

Brigham Young University: Main Campus

H.38 Comment: IX.H.3.a.i does not specify the methodology for determining sulfur content in fuel oil. A provision specifying how the weight percent of sulfur is determined should be included in this section, and adequate recordkeeping should be specified.

UDAQ Response: IX.H.3.a.i has been modified to include language specifying the methodology of how the sulfur content in the coal is determined. Record keeping is required under the General Requirements listed in IX.H.1.c.

> The modified limit is listed below:
>
> All central heating plant units shall operate on natural gas from November 1 to February 28 each season beginning in the winter season of 2013-2014. Fuel oil may be used as backup fuel during periods of natural gas curtailment. The sulfur content of the fuel oil shall not exceed 0.0015 % by weight. BYU must maintain a fuel specification certification document from the fuel supplier with the sulfur content guarantee. Alternatively, sulfur content may be verified through testing completed by BYU or the fuel supplier using ASTM Method D-4294-10 or EPA approved equivalent acceptable to the Director.
>
> The general rule for the record keeping is listed below:
>
> IX.H.1.c. Any information used to determine compliance shall be recorded for all periods when the source is in operation, and such records shall be kept for a minimum of five years. Any or all of these records shall be made available to the Director upon request, and shall include a period of two years ending with the date of the request.

H.39 Comment: IX.H.3.a.ii specifies the allowable emission concentration in ppm, as well as a lb/hr emission allowable. The header for this condition should say "the following rates and concentrations" rather than "the following concentrations," as is done elsewhere in the maintenance plan.

UDAQ Response: IX.H.3.a.ii has been modified to add the language “rates and” to the concentration requirement. It now reads “Emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:”.

The modified limit is listed below:

> Emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:

H.39.A Comment: EPA notes that the original SIP contained S02 limits, while the current draft SIP does not have S02 limits. S02 will be controlled by limiting the times

at which coal can be used as a fuel, as well as by limiting the sulfur content of the coal or coal mixtures being burned. However, in the absence of an S02 limit, it is not clear through the regulatory text or the accompanying TSD, how an emission estimate of S02 is derived. The TSD pulls PTE values from the most recent approval order (AO), which does not reflect emissions reductions achievable directly and solely from the draft SIP provisions. It is suggested that S02 limits be retained.

UDAQ Response: IX.H.3.a.ii has been modified to include the requirement to test for SO_2 in boilers Unit #2, Unit #3 and Unit #5. These boilers are allowed to burn coal. Unit #1, Unit #4 and Unit #6 are now required to burn natural gas as a fuel with fuel oil as a backup fuel. In the 1994 PM_{10} SIP, these boilers were not restricted on the type of fuel that could be burned. Unit #1 is a backup boiler and was not listed in the 1994 SIP.

The modified limit is listed below:

ii. Emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:

Emission Point	Pollutant	ppm (7% O_2 dry)*		lb/hr	
A.	Unit #1 5.44	NO_x	95	36	9.55
B.	Unit #4 19.2	NO_x	127	36	38.5
C.	Unit #6 19.2	NO_x	127	36	38.5

* Unit #1 NO_x limit is 95 ppm (9.55 lb/hr) until it operates for more than 300 hours during a rolling 12-month period, then the limit will be 36 ppm (5.44 lb/hr). The NO_x limit for units #4 and #6 is 127 ppm (38.5 lb/hr) and starting on December 31, 2018, the limit will then be 36 ppm (19.2 lb/hr).

Emission Point	Pollutant	ppm (7% O_2 dry)	lb/hr	
D.	Unit #2 SO_2	NO_x 597	331 56.0	37.4
E.	Unit #3 SO_2	NO_x 597	331 56.0	37.4
F.	Unit #5 SO_2	NO_x 597	331 112.07	74.8

iii. Stack testing to show compliance with the above emission limitations shall be performed as follows:

Emission Point	Pollutant	Initial test	Test Frequency
A. Unit #1	NO_X	&	every year*

B.	Unit #2	NO_X	#	every year*
C.	Unit #3	NO_X	#	every year*
D.	Unit #4	NO_X	#	every year*
E.	Unit #5	NO_X	#	every year*
F.	Unit #6	NO_X	#	every year*

H.40 Comment: Both IX.H.3.a.iv.B.I and II contain the phrase "or approved equivalent" when specifying methodology for determining sulfur content. This is a form of director's discretion. It is suggested that this phrase be changed to "or EPA-approved equivalent," as can be found in other portions of Part H (e.g. IX.H.2.f.iii). Additionally, the testing methods that a laboratory may use for determining sulfur content, see IX.H.3.f.iv, should be specified. Lastly, it is recommended that BYU not only inspect documentation of sulfur content of coal for each delivery, but also keep the documentation, under IX.H.3.f.iv.B.IV and V.

UDAQ Response: IX.H.3.a.iv.B.I and II have been modified to add the word “EPA” to the requirement. It now reads “EPA-approved equivalent acceptable to the Director”.

IX.H.1.c in the General Requirements section requires BYU to keep and maintain the records for the sulfur content of the coal. See response to comment #a above.

3.a.iv.B.I and II have been modified to add the word “EPA” to the requirement. It now reads “EPA-approved equivalent acceptable to the Director”.

IX.H.3.a.iv was incorrectly titled. It now reads “Central Heating Plant Natural Gas-Fired Boilers” it should have read “Central Heating Plant Coal-Fired Boilers”. This requirement pertains to the burning of coal and not natural gas. It has been corrected to apply to the coal-fired boilers.

The modified limit is listed below:

Central Heating Plant Coal-Fired Boilers

A. Startup and shutdown events shall not exceed 216 hours per boiler per 12-month rolling period.

B. The sulfur content of any coal or any mixture of coals burned shall not exceed either of the following:

I. 0.54 pounds of sulfur per million BTU heat input as determined by ASTM Method D-4239-85, or EPA-approved equivalent acceptable to the Director.

II. 0.60% by weight as determined by ASTM Method D-4239-85, or EPA-approved equivalent acceptable to the Director.

H.41 Comment: EPA notes that stack testing for the listed emission points at BYU, shall be performed once every three years. Given the length of time between stack tests, EPA recommends including a provision for additional periodic monitoring (e.g. use of a portable exhaust gas analyzer), to ensure that the NOx emission assumptions remain valid.

UDAQ Response: Stack testing for the boilers has been changed to require testing every year. The test may be either an EPA approved method test or a portable analyzer. A method test is required at least every three years.

The modified limit is listed below:

An EPA approved test method must be performed at least once every three years. Additional compliance tests must be performed at least once every year using either an EPA approved test method or perform annual portable analyzer testing. If portable analyzer testing is employed, the portable analyzer test must be subsequent to the initial EPA approved test method. A correlation must be established during the initial EPA approved tests to calibrate the portable testing analyzer to the initial EPA approved test. The portable analyzer must be calibrated as per the manufacturer's specification prior to each test. Notification of each annual portable test must be provided.

1. Geneva Nitrogen Inc.: Geneva Nitrogen Plant

   a. **For consistency purposes, EPA suggests that IX.H.3.b.v, "Testing," be structured similarly to IX.H.3.b.ii, "Testing."**

   The testing in IX.H.3.b.v has been reformatted.

   The modified limit is listed below:

   v. Testing

   A. Stack testing for NO_x shall be performed as specified below:

   I. Stack testing to show compliance with the NOx emission limitations shall be performed as specified below:

   1. Testing and Frequency. Emissions shall be tested every three years using an EPA approved test method.

   II. NOx concentration (ppmdv) shall be used as an indicator to provide a reasonable assurance of compliance with the NOx emission limitation as specified below:

1. Measurement Approach: NOx concentration (ppmdv) shall be determined by using a continuous NOx monitoring system.

2. Performance Criteria:
   (i) QA/QC Practices and Criteria: The continuous monitoring system shall be operated, calibrated, and maintained in accordance with manufacture's recommendations. Zero and span drift tests shall be conducted on a daily basis.

II. The EPA approved method test for the Montecatini Plant shall be performed as soon as possible and in no case later than December 31, 2017, and the test for the Weatherly Plant shall be performed as soon as possible and in no case later than December 31, 2018.

H.42 Comment: EPA notes that stack testing for the Prill Tower, Montecatini Plant, and the Weatherly Plant, shall be performed once every three years. Given the length of time between stack tests, EPA recommends including a provision for additional periodic monitoring (e.g. use of a portable exhaust gas analyzer), to ensure that the emission assumptions remain valid.

In the Prill Tower, it is physically impossible to perform periodic monitoring between the three year method tests. The pressure in the tower is too low to check for a pressure drop as could be normally performed in a stack that has a bag house. This is not a conventional stack but is a 220’ tall tower that exhausts through louvers on all four sides of the 18’ wide by 22’ long tower.

A requirement for a CEM has added to the limits. This requires Geneva Nitrogen to monitor their NOx emissions for the Montecatini Plant and Weatherly Plant with a CEM on a continuous basis. This will verify the emissions between the method stack tests.

The modified limits are listed in the comment above.

2. PacifiCorp Energy: Lake Side Power Plant

a. Startup/Shutdown limitations are employed as an alternative emission limitation at the Lake Side Power Plant. A discussion on how these alternative emission limitations were selected should be discussed in the accompanying TSD. EPA's policy for acceptable alternative emission

limitations for periods of startup and shutdown is explained in the SSM SIP Call at 80 FR 33913-14. Consistent with this, a discussion should be provided in the TSD, evaluating the potential for worst-case emissions that could occur during startup and shutdown based on alternative emission limits (80 FR 33914). Additionally, there appears to be a typo in IX.H.3.c.iii.B.IV, where "Block #1" should read as "Block #2."

UDAQ Response: Two commenters pointed out the typographical error in IX.H.3.c.iii.B.IV. UDAQ agrees that the reference to Block #1 should reads as Block #2 and will make the correction as suggested by the commenters.

UDAQ also agrees with the commenter's request that a discussion on startup/shutdown limitations must be included in the technical support. This accompanying documentation can be found in the document titled "PM10 SIP/Maintenance Plan Evaluation Report: PacifiCorp Energy – Lake Side Power Plant." Generally, Section 6 of that document discusses the requirements specific to the Lake Side Power Plant, while Section 6.3 covers both the worst case emissions aspect and historical development of the startup/shutdown requirements.

H.43 Comment: It is recommended that the word "include" be changed to "consists of," if the accompanying list of conditions are a comprehensive list of transient load conditions.

UDAQ Response: UDAQ agrees with this comment and will make the requested change in condition IX.H.3.c.iii.C.III.

Central Valley Water Reclamation Facility: Wastewater Treatment Plant

H.44 Comment: EPA notes that stack testing at Central Valley shall be performed on each engine, at least once every three years. Given the length of time between stack tsts, EPA recommends including a provision for additional monitoring (e.g. use of a portable exhaust gas analyzer), to ensure that the NOx emission factor at each engine remains valid.

UDAQ Response: As described in Central Valley Water Reclamation Facilities letter on November 10, 2015, stack testing conducted in 2010, 2012, and 2015 showed consistent NOx emission levels well below the limit, and so the increased cost of additional stack testing is not economically reasonable. Further, it is unclear how adding a portable exhaust analyzer would assure that the NOx emission factors calculated from the reference method continue to be applicable. A portable analyzer test does not apply the same or equivalent rigorous testing methodologies of a reference method test. Therefore, an emission factor calculated from the results of a portable exhaust gas analyze is not as statistically valid as the reference method test.

UDAQ recommends stack testing by a reference method at least once every three years. No changes were made to the limits

Hexcel Corporations: Salt Lake Operations

H.45 Comment: Natural gas consumption is to be determined through the use of billing records. Will monthly billing records be able to show daily natural gas consumption? If not, EPA recommends that consumption be recorded daily through another means.

UDAQ Response: The requirement has been updated from "Natural gas consumption shall be determined by examination of natural gas billing records for the plant" to "Natural gas consumption shall be determined by examination of natural gas billing records for the plant and onsite pipe-line metering."

H.46 Comment: IX.H.2.e.ii requires the operation of control equipment prior to startup and until shutdown is completed on each fiber line. However, there is no requirement for any particular type of control equipment that may be on a fiber line. In order to take credit for emission reductions attributable to control equipment for each fiber line, the control equipment should be specified as a requirement, along with adequate recordkeeping (for example, of control equipment operating parameters) for enforceability.

UDAQ Response: The baghouses at Hexcel control PM_{10} emissions for fiber lines 13, 14, 15, and 16. Other lines do not have PM_{10} specific control equipment. The requirement has been updated to include this equipment. In addition recordkeeping requirements have been added.

The requirement has been updated to the following:

ii. After a shutdown and prior to startup of fiber lines 13, 14, 15, and 16, the line's baghouse(s) shall be started and remain in operation during production.

a. During fiber line production, the static pressure differential across the filter media shall be within the manufacturer's recommended range and shall be recorded daily.

b. The manometer or the differential pressure gauge shall be calibrated according to the manufacturer's instructions at least once every 12 months.

Interim Emission Limits and Operating Practices Comments

H.47 Comment: IX.H.4.a reads "As the control technology for the sources listed in this section is installed and operational, the terms and conditions listed in IX.H.1 through 3 become applicable and those limits replace the limits in this subsection."

While the apparent intent of this provision is to transition between the interim emissions limits and those found in IX.H.1 through 3, in practice implementation could be difficult, as the refinery source specific provisions are source wide caps. As such, it is recommended that a sunset provision be included in this section, to clearly identify how the transition is to be completed. In addition, EPA recommends that sources be specifically required to report on installation and initial operation of the control technology so that the effectiveness and enforceability of the replacement provisions in IX.H.1 through 3 are clearly established.

UDAQ Response: UDAQ agrees with this comment generally. Establishment of one or more sunset provisions in IX.H.4 does allow for the emission limitations included in that Subsection to expire. To some degree, the limits in IX.H.4 expire automatically by no later than January 1, 2019, as on this date every condition, limitation or requirement in IX.H.4 has been superseded by another requirement found either in IX.H.1 or IX.H.2. However, UDAQ agrees that providing clear language expressing this point would be helpful.

Thus, condition IX.H.4.a shall be rewritten to apply more specifically only to those sources listed in IX.H.4 (the refineries), and to clearly state that the limits which follow have a limited lifespan that shall not extend beyond January 1, 2019. This new language can be found below:

a. The terms and conditions of this Subsection IX.H.4 shall apply to the sources listed in this section on a temporary basis, as a bridge between the 1991 PM10 State Implementation Plan and this PM10 Maintenance Plan. For all other point sources listed in IX.H.2 and IX.H.3 the limits apply upon approval by the Utah Air Quality Board of the PM10 Maintenance Plan. These bridge requirements are needed to impose limits on the sources that have time delays for implementation of controls. During this timeframe, the sources listed in this section may not meet the established limits listed in IX.H.1 and IX.H.2. As the control technology for the sources listed in this section is installed and operational, the terms and conditions listed in IX.H.1 and IX.H.2 become applicable and those limits replace the limits in this subsection. In no case, shall the terms and conditions listed in this Subsection IX.H.4 extend beyond January 1, 2019.

In terms of reporting on the installation and initial operation of the equipment and controls, this is already a requirement under the existing language for each listed source. For each listed source, the equipment being changed is specifically included in the emission caps listed in IX.H.4, and automatically included in the combined plant-wide emission caps of IX.H.2. These are 24-hour emission caps and must be determined for each day of operation. Stack testing and other monitoring provisions for determining the emissions are included in IX.H.1.e and IX.H.1.f, while recordkeeping and emission inventory provisions are found in IX.H.1.c.

The requirement to submit a one-time report on installation and initial operation of the equipment is best handled through UDAQ 's existing NSR permitting program, as the submission of such a report does not, in and of itself, contribute to maintenance of the PM10 standard.

H.48 Comment: An instance of director's discretion is found in IX.H.4.b.i.B.I, in the provision on sulfur content of fuel oils. It is suggested that the provision be reworded from "or approved equivalent" to "or EPA-approved equivalent."

UDAQ Response: UDAQ agrees with this comment and will make the requested change.

H.49 Comment: Throughout IX.H.4, there are a total of 12 references to section IX.H.4.a.(2). This section does not exist, and it appears that the correct section reference should be IX.4.b.i.B. These corrections should be made.

UDAQ Response: UDAQ agrees with this comment. This was a typographical error and will be corrected as suggested.

Big West Oil, LLC Comments

H.50 Comment: Big West Oil, LLC Comment: "We are requesting an alternate limit during startup (or shutdown) of the MSCC Unit that would involve either a block or rolling 24-hour plant-wide SO2 emission limit of 1.2 tons. This alternative limit would apply only during periods of startup (or shutdown) of the MSCC Unit, not to exceed a certain number of instances per year (say 8-10)..."

UDAQ Response: The above is an excerpt of Big West Oil, LLC's (BWO) complete comment. In summary, BWO's comment addresses a period during startup when oil feed is introduced into the MSCC, BWO's unique FCCU design. Reaction has begun, yielding emissions, but before the wet gas compressor can be brought into service to compress the off-gas and route it back into the plant. This initial plug of gas has to be sent to the flare. As explained by BWO, normally this condition only lasts for a few hours and the emissions generated will fall inside the plant's 24-hour emission cap. However, BWO can anticipate a situation where this condition may need to be extended, resulting in additional flaring emissions and a possible exceedance of the daily emission cap.

These extended startup periods are anticipated to be infrequent, and therefore few in number. Given the relatively low amount of SO2 emissions released on a daily basis (0.6 tpd), the anticipated increase seems high when viewed on an individual per day basis, as daily emissions double to 1.2 tpd. However, this amounts to only 6 tons annually. UDAQ has included this increase in the modeled attainment demonstration and sees no anticipated effect.

Therefore, new condition IX.H.2.a.v. Alternate Startup and Shutdown Requirements will be added to BWO's PM10 maintenance plan conditions. This new condition will read as follows:

v. Alternate Startup and Shutdown Requirements

A. During any day which includes startup or shutdown of the FCCU, combined emissions of SO2 shall not exceed 1.2 tons per day (tpd). For purposes of this subsection, a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

B. The total number of days which include startup or shutdown of the FCCU shall not exceed ten (10) per 12-month rolling period.

H.51 Comment: 18.a EPA Comment: The source specific TSDs are helpful for understanding the process units at each facility, and do a good job of comparing old SIP

and new SIP provisions. However, EPA notes that for several sources, the comparison between old SIP limits and new SIP limits is lacking. Specifically, for those sources that do not rely upon a source wide cap, supporting PTE calculations are not provided. These calculations are necessary, as they rely upon operating assumptions that are not immediately clear to EPA. As such, EPA requests that additional information, showing how PTE values are calculated, be included as part of the final SIP submittal.

UDAQ Response: The PTE calculations for each source are based on the latest AO issued to that source. Unfortunately, for many of the listed sources, the PTE calculations are spread out over multiply modified AOs that span a period of multiple years (in some cases decades).

However, for each listed source, the emission values used for the specific attainment demonstration were included in the spreadsheets used to feed the pre-processor step of the overall modeling effort. These emission values detail a "trued-up" 2019 emission inventory for each component at the listed sources. The trued up values were then adjusted for economic growth and other factors as outlined in the modeling section of the TSD.

Further specifics of the calculations for each spreadsheet are included in the TSD for each listed source and in the notes on that particular spreadsheet (included as an appendix to the TSD for that source).

H.52 Comment: The source specific TSDs list out the process equipment and in many instances identify the control technology employed at a facility through narrative discussion, or as part of the process equipment list. However, it would be helpful to see a list of control technologies installed at a facility in a separate section. EPA recommends that an additional section be added after the "Facility Criteria Air Pollutant Emissions Sources" section, listing out control technologies and measures currently employed for each source.

UDAQ Response: As a RACT demonstration is not required as part of a maintenance plan (see the response to WRA comment VI.) the inclusion of a listing of all the controls and control measures being used at each source is also not required. While the inclusion of such a listing in the limitations and control measures section of the maintenance plan itself (Section IX.H of the SIP) would artificially bind and limit the sources – preventing a source from upgrading technology in the future – the inclusion of a simple listing of current control techniques being included in the TSD for informational purposes would not impose this same hardship. UDAQ will include such an update to the TSD for each listed source.

Western Resource Advocates Comments

H.53 Comment: WRA Comment V – R307-165-2: **This comment is summarized. The full text of the comment can be found in WRA's comment letter, dated November 2, 2015.**

"R307-165-2 gives the Utah Air Quality Board apparent discretion to grant exceptions to the requirement that 'emission testing is required at least once every five years'" …

"In any case, 'five years is not frequent enough to satisfy the requirements of the Act and our regulations for practical enforceability and periodic testing and inspection of stationary sources " …

"Thus, this rule must be amended to require more frequent stack testing. R307-165-2 notwithstanding, stack testing to show compliance the proposed SIP emission limitations is often as rare as once every three to five years. Examples include: 1) Central Valley Water Reclamation Facility, H.2 at 10; 2) Kennecott Smelter, H.2 at 27; 3) Brigham Young University, H.3 at 37; 4) Geneva Nitrogen, H.3 at 39; 5) Provo City Power, H.3 at 43; 6) University of Utah, H.2 at 35; 7) Tesoro, H.2 at 31-32; 8) Holly, H.2 at 16-19; 9) Chevron, H.2 at 11-14; and, 10) Kennecott Power Plant and Tailings H.2 at 22-23." …

UDAQ Response: UDAQ disagrees with this comment. The commenter expresses dissatisfaction with R307-165-2, which establishes the minimum required stack testing frequency for sources with emission limitations specified under both Section IX, Part H of the Utah state implementation plan and in approval orders issued under R307-401.

The UDAQ rarely relies on this rule because we establish an appropriate testing frequency rather than a minimum testing frequency. The UDAQ determines sampling frequency using engineering judgement to establish monitoring requirements in approval orders. The project engineer considers technological feasibility, operation consistency, fuel consistency, stringency of the limit and cost when determining monitoring requirements.

R307-165-2 has been approved by the EPA and thus is federally enforceable and reference to this rule in the PM10 maintenance plan satisfies a requirement for an approvable SIP.

H.54 Comment: For each listed source, the specific stack testing requirements are found within the terms and conditions of IX.H.1.e, IX.H.1.f, IX.H.1.g and the individual source requirements of Subsections IX.H.2 and IX.H.3 – none of which contain any reference to R307-165-2.

Of the sources mentioned by the commenter, none has a stack testing requirement less frequent than once every three years. Many of the sources also include alternate monitoring requirements in addition to this periodic stack test in order to demonstrate compliance with the establish emission limit or plant-wide emission cap. These alternate monitoring requirements include such items as: hourly flow rate monitoring, continuous parameter monitoring systems, portable analyzers to be used during off-years (see response to comments on Central Valley Water Reclamation Facility, Kennecott, etc), and daily fuel consumption recordkeeping.

UDAQ has determined that many of the smaller emission units located at these facilities have consistent emissions. This is based on the sources' history of compliance-based stack testing, emission inventory reporting requirements under R307-150, and engineering evaluation of equipment and fuel type (such as gas-fired boilers). After a demonstration of consistent emissions over a period of several years, continuing to require annual stack tests do not result in a decrease in emissions – rather they merely serve to consume UDAQ resources and impose a regulatory burden on the source.

Indeed, most of the emitting units commenter is expressing concern over, such as the "natural gas/refinery fuel gas combustion equipment above 40 MMBtu/hr" located at the refineries, are actually relatively small boilers and heaters/furnaces, with similarly small daily and annual emissions. For example, the largest of these units is located at one of the refineries, and has an estimated potential of emitting about 0.27 tons per day of NOx, although it operates consistently at approximately 1/3 of this or 0.09 tpd. Units with emission potentials larger than this have more frequent stack testing requirements, or are monitored by CEM. UDAQ's minimum stack testing frequency of no less than once every three years is satisfactory for purposes of this maintenance plan.

WRA Comment VI. Control Measures for Area and Point Sources
H.55 Comment (A-C): This comment is summarized. The full text of the comment can be found in WRA's comment letter, dated November 2, 2015.

A. FCCU Emissions
"H.1.g(i)(B) (Petroleum Refineries, FCCU Emissions does not reflect RACT and should be amended" …

B. Averaging Times
"To protect a short-term NAAQS requires short-term emission limits. Emission limitations must also reflect RACT" …
"Yet, the SIP determines expresses emission limits in periods longer than 24-hours and/or determines compliance with SIP emission limits with averaging times longer than 24-hours.
Examples include: 1) H.1.g.iii.C (Sulfur Removal Units, Compliance); 2) West Valley Power Plant, H.2 at 36; 3) FCCU SO2 emissions; 4) limits on Refiner Fuel Gas, H.1 at 2; 5) Kennecott Hollman Boiler, H.2 at 26; 6) PacifiCorp, H.2 at 29; and, 7) Bingham Canyon Mine, H.2 at 20."

UDAQ Response: UDAQ disagrees with this comment. The document being commented on is a maintenance plan demonstrating continued attainment of the 24-hour PM10 standard. There is no requirement for the application of RACT under a maintenance plan. Neither a re-designation request nor a maintenance plan requires a RACT/RACM report. In general, EPA has interpreted RACT and RACM requirements as not "applicable" for purposes of CAA section 107(d)(3)(E)(ii) once an area is attaining the NAAQS. Therefore, this plan is to show that the RACT and RACM already imposed as a part of the previous PM10 SIP have achieved attainment of the standard, and through continued application of the requirements listed within this new maintenance plan: no backsliding will occur, contingency measures remain in place, and continued demonstration of attainment is projected.

UDAQ does agree that emission limitations required as a part of this attainment demonstration need to be protective of the 24-hour standard, and thus must have averaging periods in-line with that standard. Please see UDAQ's responses to EPA comments on individual listed sources for further details. However, UDAQ disagrees that this is a requirement of RACT as part of the maintenance plan.

C. Fugitive Emissions and Rules

"The SIP makes references to the repealed and/or renumber and/or amended fugitive dust and fugitive emissions rules."

UDAQ Response: In Part H.11-13 the references to R307-1-4.5. Fugitive Emissions and Fugitive Dust have been removed and replaced with "the most recent federally approved fugitive emissions and fugitive dust rule".

The reference to a federally approved rule is required for EPA to approve the SIP. With this change, until the EPA approves the State approved rule R307-309; SIP listed sources will be required to comply with the most stringent requirements from both R307-309 and R307-1-4.5.

Western Resources III - Kennecott PM10 Monitors

H.56 Comment: "The Director stated on the Division of Air Quality website that a permit recently issued to Kennecott Utah Copper will require Kennecott to monitor for PM10 at two locations. The monitors will be placed at locations that UDAQ determines to be modeled as the highest impacted. These stations will provide validation that PM10 NAAQS are not being violated as a result of mine operations. Kennecott will submit quarterly monitoring reports.

Despite this promise and the fact that Kennecott's permit was conditioned on installation of the referenced monitors and the successful reporting of the collected data, the SIP Actions do not mention or address the data from this monitors. Without this data, moreover, the Director cannot assure that he has implemented RACT/RACM relative to Kennecott's mining operations."

UDAQ Response: The commenter is referring to UDAQ E-AN0105710028-11, Condition II.B.4.A. This AO was approved on June 27, 2011. This condition requires KUC to operate two ambient monitoring stations to monitor PM10. The purpose of the monitors is to help validate the modeling for a study that was conducted to verify the pit escape fraction of 20% PM10 from the pit.

The results of this study showed reasonable agreement with the concentrations measured at the monitors and the concentrations predicted by the model. The current National Ambient Air

Quality Standard (NAAQS) for PM10 (135 micrograms per cubic meter [µg/m3]) has not been exceeded since the monitors began operation.

This study shows that the emission controls at the Bingham Canyon Mine are adequate to protect the PM10 NAAQS. This data however is not useful in the overall determination of attainment for the Salt Lake PM10 non-attainment area.

Kennecott's Comment

H.57 Comment and UDAQ Response: Comment #1 was in reference to the fugitive dust rule approved by EPA in 1994. This reference has been changed based on EPAs comments. See the reply to EPAs comments and changes in the limits for Kennecot. The rule reference has been changed to most current approved rule.

Narrative SIP, Part A Comments and Responses

EPA Comments

A.1 Comment: On page 5 of all three plans, the commenter takes issue with the statement that "Utah never violated the annual standard at any of its monitoring stations,…" and suggests that a more accurate statement would be "Utah has not recently violated the annual standard at any of its monitoring stations." As the basis for this recommendation, the commenter states that the North Salt Lake monitor violated the annual standard from 1991-1993 through 1993-1995, although the area was not designated a nonattainment area for the annual standard. (EPA; Enclosure 1, 1.a)

UDAQ Response: The point to be made in this (2nd) paragraph on pp. 5 is that, although there is no longer an annual standard for PM10, the data still provides a useful metric for trends evaluation. The commenter is correct that none of Utah's nonattainment areas was ever designated as such for the annual standard.
The SIP narrative will be revised as shown to address the concern: "None of Utah's areas was ever designated nonattainment for the annual NAAQS[~~Utah never violated the annual standard at any of its monitoring stations~~], and the annual average was not retained as a PM_{10} standard when the NAAQS was revised in 2006."

A.2 Comment: On page 5 of all three plans, the commenter can find no source citation for the statement (in the 4th paragraph) that "EPA discounts these gaps if the highest recorded PM_{10} reading at the affected monitor on the day before or after the gap is not more than 75 percent of the standard, and no measured exceedance has occurred during the year.", and recommends that it be stricken from the proposed narrative. (EPA; Enclosure 1, 1.b)

UDAQ Response: UDAQ agrees, and since the statement is not at all critical to the point made in the narrative, it will be stricken from the narrative.

A.3 Comment: On page 5 of all three plans, the commenter notes that the Aerometric Information and Retrieval System (AIRS) is obsolete terminology and should be replaced with a reference to AQS. (EPA; Enclosure 1, 1.c)

UDAQ Response: UDAQ agrees and will make the necessary correction.

A.4 Comment: On page 5 of all three plans, the commenter notes that Appendix N to Part 50 – Interpretation of the National Ambient Air Quality Standards for Particulate Matter" is no longer the correct citation for PM_{10}, and should be changed to Appendix K (of the same title). (EPA; Enclosure 1, 1.d)

UDAQ Response: UDAQ agrees but intends to strike this entire sentence. See response to Comment MP5 below.

A.5 Comment: On page 5 of all three plans, the commenter states that the quoted text spanning lines 37-40 no longer appears in Appendix N (since 2013), and should be removed. (EPA; Enclosure 1, 1.e)

UDAQ Response: The point to be made with this language on pp. 5 is that EPA acknowledges that there are valid reasons for excluding data from regulatory consideration. This language may have been removed from Appendix N, but similar language can be found in the federal rules. The maintenance plans will be revised as follows:

[~~Appendix N to Part 50 – "Interpretation of the National Ambient Air Quality Standards for Particulate Matter" anticipates this and states: "Data resulting from uncontrollable or natural events, for example structural fires or high winds, may require special consideration. In some cases, it may be appropriate to exclude these data because they could result in inappropriate values to compare with the levels of the PM standards."~~] <u>40 CFR 50.14 "Treatment of air quality monitoring data influenced by exceptional events" anticipates this, and says that a State may request EPA to exclude data showing exceedances or violations… that are directly due to an event that affects air quality, is not reasonably controllable or preventable, is an event caused by human activity that is unlikely to recur at a particular location or a natural event, from use in determinations.</u>

A.6 Comment: On page 5 of all three plans, the commenter states that the term "outlier" (in paragraph 6) is not relevant and should be changed to "event." (EPA; Enclosure 1, 1.f)

UDAQ Response: UDAQ will make the necessary correction.

A.7 Comment: Table IX.A.10.2 on page 6 is unnecessarily complicated by a double set of zeros. Since there is no difference because of flagged data, the Table should be simplified using only one set of zeros. (EPA; Enclosure 1, 1.g)

UDAQ Response: UDAQ will make the necessary correction to Table 2 of all three maintenance plans.

A.8 Comment: On page 7 of the Salt Lake County plan, the list of monitoring stations should also include Beach (two sites, 1988-1990 and 1991-1997) and Magna Breeze Drive (1988-1990). (EPA; Enclosure 1, 1.h)

UDAQ Response: The following site descriptions will be added to the narrative, and the map in Figure 1 will be updated accordingly:
8. Beach #2 (AQS number 49-035-0005): This site, from 1988-1990, was located near the Great Salt Lake.
9. Beach #3 (AQS number 49-035-2003): This site, from 1991-1992, was located at the Great Salt Lake Marina.
10. Beach #4 (AQS number 49-035-2004): This site, from 1991-1997, was located at the Great Salt Lake Marina.

A.9 Comment: On page 7 of the Utah County plan, the list of monitoring stations should also include Pleasant Grove (1985-1987) and Orem (1991-1993). (EPA; Enclosure 1, 1.i)

UDAQ Response: The following site descriptions will be added to the narrative, and the map in Figure 1 will be updated accordingly:
14. Pleasant Grove (AQS number 49-049-2001): This site, from 1985-1987, was located in a

suburban area.
15. Orem (AQS number 49-049-5004): This site, from 1991-1993, was located next to a through highway in a business area.

A.10 Comment: On page 9 of all three plans, the titles of the annual and 5-year documents should be changed as follows: Information concerning PM_{10} monitoring in Utah is included in the <u>Annual Monitoring Plan</u> [~~Annual Monitoring Network Review~~] and the <u>5-Year Monitoring Network Assessment</u> [~~The 5 Year Network Plan~~]. (EPA; Enclosure 1, 1.j)

UDAQ Response: UDAQ will make the necessary correction.

A.11 Comment: On page 10 of the Salt Lake County plan (line 27), "nor" should be changed to "not." (EPA; Enclosure 1, 1.k)

UDAQ Response: UDAQ will make the necessary correction.

A.12 Comment: On page 10 of both the Salt Lake and Utah County plans (lines 28-30 and 37-39 respectively) include the following statement: "From 2001 to present, the areas have experienced strong growth while at the same time achieving continuous attainment of the 24-hour and annual PM_{10} NAAQS." The commenter notes that Salt Lake County was in violation of the NAAQS from 2001 – 2010 and Utah County was in violation from 2008 – 2010. Additionally, such violation is actually shown in Table 3 of the respective plans. (EPA; Enclosure 1, 1.l)

UDAQ Response: UDAQ agrees that this statement is in error, and will strike it from both plans. The point to be made in this paragraph is that the overall improvement in air quality is not merely the result of economic downturn. UDAQ acknowledges that the statement referred to by the commenter is in error. Nevertheless, all of the noncompliance identified by the commenter may be attributed to events flagged by UDAQ as exceptional yet not concurred with by EPA. These events were, almost without exception, wind events. Only one of the 21 events even occurred within the winter PM10 season. Within the context of a discussion of how the data may be indicative of the economy, one would have to conclude that such events would be uncharacteristic of day-to-day trends and not useful for comparison.

Without delving into a lengthy discussion of event flagging, UDAQ will revise the statement to read as follows: From 2001 to present, the areas have experienced strong growth [~~while at the same time achieving continuous attainment of the 24-hour and annual PM10 NAAQS~~].

A.13 Comment: Table IX.A.10. 3 of the proposed plan for Salt Lake County shows no data in 2010 for the Cottonwood monitor. Earlier (pp. 8) it said that this monitor closed in 2011. There were 3.0 expected exceedances at Cottonwood in 2010. The omission should be explained or included in the table. (EPA; Enclosure 1, 1.m)

UDAQ Response: The Cottonwood monitoring station was failing the criteria for siting a monitor, and was finally shut down on Oct 1, 2011.

Some of the immediate issues at the site were local impacts from an adjacent to ball diamond, a neighbor to the east who burned wood every day and kept chickens immediately next to the monitor. Dirt from the infield and chicken feathers were found in the monitors.

After the station was shut down it was determined that the PM measurements from 2010 and 2011 where compromised. A null code was placed on the affected data. A network modification form was sent to EPA on September 23, 2011 and the station was shut down on Oct 1.

A.14 Comment: On pages 11 and 12 of the Salt Lake County and Utah County plans respectively, the term "outlier" should be changed to "event." (EPA; Enclosure 1, 1.n)

UDAQ Response: Language in all three plans will be modified as follows: Data is flagged when circumstances indicate that it would [~~represent an outlier in the data set and~~] not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within.

A.15 Comment: Figure 2 on page 12 of the proposed Salt Lake County plan shows 24-hour data from the Cottonwood monitor. The figure should include data from 2010. An explanation of the 2010 data including Cottonwood's highest ever PM10 value (492 µg/m3) should also be provided. (EPA; Enclosure 1, 1.o)

UDAQ Response: The Cottonwood monitoring station was failing the criteria for siting a monitor, and was finally shut down on Oct 1, 2011.

Some of the immediate issues at the site were local impacts from an adjacent to ball diamond, a neighbor to the east who burned wood every day and kept chickens immediately next to the monitor. Dirt from the infield and chicken feathers were found in the monitors.

After the station was shut down it was determined that the PM measurements from 2010 and 2011 where compromised. A null code was placed on the affected data. A network modification form was sent to EPA on September 23, 2011 and the station was shut down on Oct 1.

Cottonwood's highest ever PM10 value (492 µg/m3) was not uniquely local. It was measured on March 30, 2010, a day when winds reached almost 60 miles per hour and the entire network recorded extremely high values. The Lindon station recorded 424 µg/m3, North Provo measured 395 µg/m3, Hawthorne was only 166 µg/m3, but North Salt Lake hit 385 µg/m3, and Magna measured 605 µg/m3, Ogden also was high, at 216 µg/m3. These values are all shown in the Figures depicting the 3 highest 24-hour values at the respective stations. Utah flagged and documented all of these data points as exceptional, but EPA does not concur.

A.16 Comment: Figure 7 on page 15 of the proposed Salt Lake County plan shows annual data from the Cottonwood monitor. An explanation should be included on why data from 2010 was omitted. (EPA; Enclosure 1, 1.p)

UDAQ Response: The Cottonwood monitoring station was failing the criteria for siting a monitor, and was finally shut down on Oct 1, 2011.

Some of the immediate issues at the site were local impacts from an adjacent to ball diamond, a neighbor to the east who burned wood every day and kept chickens immediately next to the monitor. Dirt from the infield and chicken feathers were found in the monitors.

After the station was shut down it was determined that the PM measurements from 2010 and 2011 where compromised. A null code was placed on the affected data. A network modification form was sent to EPA on September 23, 2011 and the station was shut down on Oct 1.

A.17 Comment: For all three plans, Section c.(6), "Mobile Source Budget for Purposes of Conformity" includes the following statement: "Utah has determined that mobile sources are not significant contributors of SO_2 for this maintenance plan. As such, this maintenance plan does not establish a motor vehicle emissions budget for SO_2." (See pp. 43, 42, and 39 for Salt Lake, Utah, and Ogden respectively.)
The commenter references 40 CFR 93.102(b)(v), and offers that the language is not necessary and can be removed. (EPA; Enclosure 4, 1. a.i, b.i, and c.i)

UDAQ Response: UDAQ agrees, and will make the necessary correction in all three plans.

A.18 Comment: For all three plans, Section c.(6)(a)(i), "Direct PM10 Emissions Budget" states in the last sentence of the first color-coded paragraph: "However, and as discussed below, the modeled concentration is 37.0 µg/m^3 below the NAAQS of 150 µg/m^3, and represents potential PM_{10} emissions that may be considered for allocation to the PM_{10} MVEB." (See pp. 44, 43, and 40 for Salt Lake, Utah, and Ogden respectively.)
The commenter notes it would be more proper to state that the modeled headroom …indicates the potential for PM_{10} emissions to be considered for allocation to the PM_{10} MVEB." (EPA; Enclosure 4, 1. a.ii, b.ii, and c.ii)

UDAQ Response: UDAQ agrees and will make the necessary correction in all three plans.

A.19 Comment: For all three plans, Section c.(6)(a)(ii), "NOx Emissions Budget" states in the last sentence of the first color-coded paragraph: "However, and as discussed below, the modeled concentration is 37.0 µg/m^3 below the NAAQS of 150 µg/m^3, and represents potential NOx emissions that may be considered for allocation to the NOx MVEB." (pp. 45, 43, and 41 for Salt Lake, Utah, and Ogden respectively.)
The commenter notes it would be more proper to state that the modeled headroom …indicates the potential for NOx emissions to be considered for allocation to the NOx MVEB." (EPA; Enclosure 4, 1. a.iii, b.iii, and c.iii)

UDAQ Response: UDAQ agrees and will make the necessary correction in all three plans.

A.20 Comment: On page 48 of the Salt Lake County plan, it would be helpful to include the date on which the prior PM10 SIP was federally approved. (EPA; Enclosure 1, 1.r)

UDAQ Response: UDAQ agrees and will make clarify that the SIP referred to on pp. 48 was approved by EPA on July 8, 1994. It became effective on August 8, 1994.

Hexcel's Comments

A.21 Comment: Hexcel commented on the proposed natural gas consumption limit. The natural gas consumption limit needed to be increased to 5.5 MMscf/day, as requested on November 9, 2015 in an email titled SIP Comments. This limit is based on the yearly natural gas consumption limit given in its AO. This yearly limit is converted to a daily limit by dividing by 365 days per year and multiplying by a peaking factor of 30%.

UDAQ 's Response: The natural gas consumption limit was increased to 5.5 MMscf/day for this maintenance plan. However, the natural gas limit, 4.42 MMscf/day, given in Section IX, Part H, Subsection 12, i Hexcel Corporation: Salt Lake Operations of the Utah State Implementation Plan still applies to Hexcel. Hexcel has not requested an increase in its PTE or its yearly natural gas consumption limit. Additional information on this change can be reviewed in the TSD.

TSD Comments and Responses

EPA Comments

<u>Section 110(l) Requirements; Backsliding</u>

T.1 Comment: For plan revisions that modify or revoke emission limitations in an approved SIP, EPA has suggested that one approach to showing non-interference with attainment or maintenance of the NAAQS is a demonstration that permanent, enforceable, contemporaneous and surplus equivalent emissions reductions will be achieved. Substitute control measures may be used to show that there will be no net emissions increase under the plan revision.
The 110(l) demonstration [in TSD Section 6.c] shows significant emission reductions when comparing allowable emissions from the approved SIP to current actual emissions. While commendable, the demonstration should compare emissions allowed under the federally approved SIP with emissions that are allowed for under this maintenance plan. See also the comment from Enclosure 3, 1.a.vi [Comment T7.] (EPA; Enclosure 2, 17.a & b)

UDAQ Response: UDAQ agrees with the commenter, and has attempted to show the efficacy of the substitute measures, both in the modeled demonstration of continued maintenance and in the document discussed in section 6.c of the TSD.
TSD section 6.c considers two groups of sources: those retained source specific regulation by the proposed maintenance plans, and those that had been regulated in the federally approved SIP but which will not be retained by the proposed maintenance plans.
As presented, section 6.c compares the "before-and-after" emissions of each group, and allows the reader to conclude that the proposed maintenance plans will indeed not interfere with attainment or maintenance of the NAAQS.
UDAQ also agrees that this comparison would be more applicable to the context of CAA section 110(l) if the "after" emissions were not presented as the actual emissions (from 2011), but instead reflected the emissions that would be allowed for under the proposed maintenance plan.
UDAQ will revise TSD section 6.c to compare emissions allowed for under the federally approved SIP with emissions that are allowed for under this maintenance plan. The revisions will affect the first two Tables as well as the surrounding text, and will point to the same conclusion: that the proposed maintenance plans will not interfere with attainment or maintenance of the NAAQS.

T.2 Comment and UDAQ Response: Comment Answered at T.16.

T.3 Comment: It appears there are some inconsistencies, concerning the sources listed, within several of the documents presented in the TSD. See also Comment G4.
Section 5.c.v) "Minor Sources Removed from Original SIP"

- **Is missing (for Salt Lake County) an analysis of Ostler Rocky Mountain and Utah Power & Light (40 N. 1st W.)**
- **Includes (for Utah County) the following sources: Bonneville Pacific Corp. (Lehi Cogeneration), General Refractories (A.P.Green Refractories Inc. / Utah Refractories Corp.), Geneva Steel, Heckett (Harsco Metals America), Reilly Industries, and UP&L Hale.**

Section 6.a.i) "Overview Contingency Measures"

- **Is missing (for Salt Lake County) Centrex (Lone Star) and Hercules (ATK / Bacchus).**
- **Also, the list of sources does not match the source list in the Salt Lake County maintenance plan on page 48.**
- **Includes no sources from Utah County.**

Section 6.a.ii) "PM10 SIP"

- **Does not reflect the sources found in Section 5.c.v) "Minor Sources Removed from Original SIP," and appears to be missing Centrex (Lone Star) and Hercules (ATK / Bacchus).**

(EPA; Enclosure 3, 1.a.vii, viii, and ix)

UDAQ Response: UDAQ agrees that there are inconsistencies between these several documents.

Collectively, these documents are intended to show that: 1) there are certain sources that are currently regulated in a federally approved PM10 SIP which will not be specifically regulated in the PM10 maintenance plan, 2) not all of these sources are still operational, and 3) for those that do remain viable, the list of potential contingency measures identified in the maintenance plan is to include the current conditions from the federally approved SIP.

To make sure all this is done correctly, and explained in the technical support, the following revisions will be made to each of the documents identified above:

Maintenance Plan for Salt Lake County – The list of sources (at Section c.(10)) with current SIP limitations that may be considered as candidate contingency measures will be revised to include Utah Power & Light (40 N. 1st W.)

Section 5.c.v) "Minor Sources Removed from Original SIP" – This document addresses sources that are presently regulated in a federally approved SIP, but which will not be carried forward into the revised Part H as part of the maintenance plan. Within the context of backsliding, these sources would not be part of a comparison between the old SIP and the new. Nevertheless, UDAQ sees value in discussing each source in order to provide confidence that their removal from the SIP is appropriate and that they still will be regulated under their approval orders. Revisions will include the following:

- The introduction to this document will be revised to clarify its purpose.

- Ostler Rocky Mountain Refractories and Utah Power & Light (40 N. 1st W.) will be added, as per the comment, to the Salt Lake County section.

- The Utah County section however, will be revised to include only the discussion on Geneva Steel. The commenter lists five other sources presently included in the proposed TSD section 5.c.v, and suggests they should be cross-matched with section 6.a.i.

The confusion here is due to EPA approval of a revised PM10 SIP for Utah County. In this revision, which became effective on January 22, 2003, the number of sources to be specifically regulated was pared down to include only: Geneva Nitrogen, Geneva Rock Products (Orem), Geneva Steel, Provo City Power, and Springville City Corp. From this list, only Geneva Steel belongs in TSD section 5.c.v
The original PM10 SIP for Utah County had been federally enforceable since August 8, 1994.

Section 6.a.i) "Overview Contingency Measures" – The introduction to this document will be revised to clarify that the sources listed therein, for each county, will include all sources (other than Sand & Gravel sources) not to be carried forward for specific regulation in the proposed maintenance plans.

It will also be made clear that some of these sources are no longer even operational. Only after taking this into consideration is it then appropriate to identify the subset of sources to be carried forward into the contingency measures section of each maintenance plan. This subset should match, not only the sources listed in each plan, but the source list for TSD section 6.a.ii. It is in this document that the current federally enforceable SIP conditions have been included should these contingency measures ever become triggered.
In addition:

- Centrex and Hercules will be added, as per the comment, to the list for Salt Lake County.

- A section will be added for Utah County, and that section will list Geneva Steel as the only source to be dropped from specific regulation.

Section 6.a.ii) "PM10 SIP" – This document contains the current federally enforceable SIP conditions belonging to sources to be carried forward into the contingency measures section of each maintenance plan.
The title of this document will be revised to clarify its purpose, and the list of sources to be included will follow from TSD section 6.a.i.

T.4 Comment: The document titled "Backsliding TSD" at Section 6.c should also include a discussion about transport, both interstate and intrastate. (EPA; Enclosure 3, 1.a.xi)

UDAQ Response: From a backsliding perspective, we need only look at any potential differences in emissions due to any potential relaxation of control strategies. From the previous discussion of control strategies, it has been shown that the only difference in controls concerns the stationary point sources located in Salt Lake County. Furthermore, it was shown that the aggregate of allowable point source emissions for Salt Lake County is lower in the proposed maintenance plan than it had been in the 1994 SIP. This is true for each of the pollutants regulated by the PM10 SIP (PM10, SO2 and NOx). Thus, one would not expect any interference issues down-wind of the nonattainment area with respect to any of these pollutants; whether interstate or intrastate. The same could be said for PM2.5, since: 1) at least part of the PM10 would also be PM2.5 and 2) since both SO2 and NOx act as precursors to PM2.5. Finally, NOx is also an ozone precursor, and a net reduction in NOx should not create any interference issues for ozone.

Comment T.5: An explanation should be provided for why the modeling shows increases in PM10 in future years, and how this is consistent with the section 110(l) demonstration of non-interference with the NAAQS. (EPA; Enclosure 5, 1.a)

UDAQ Response: UDAQ will add the following discussion to the TSD at Section 6.c:

Projected Trend of PM10 Concentrations: As required by the Clean Air Act, a maintenance plan must demonstrate compliance with the NAAQS for a period of 10 years from the point of approval by EPA. In this plan, concentrations are modeled in a base year (2011) and then projected forward in 2019, 2024, 2028, and 2030.

Within the context of CAA section 110(l), one might wish to look at the projected trend of PM10 concentrations throughout this period. For the purpose of such discussion, these results are shown below.

Monitor	2011 BDV	2019 RRF	2019 FDV	2024 RRF	2024 FDV	2028 RRF	2028 FDV	2030 RRF	2030 FDV
Ogden	88.2	1.05	92.6	1.04	91.7	1.04	91.7	1.05	92.6
Hawthorne	100.9	1.09	110.0	1.09	110.0	1.11	112.0	1.12	113.0
Magna	70.5	1.14	80.4	1.13	79.7	1.14	80.4	1.15	81.1
Lindon	111.4	1.16	129.2	1.12	124.8	1.14	127.0	1.16	129.2
North Provo	124.4	1.15	143.1	1.12	139.3	1.13	140.6	1.15	143.1

Results across each of the 5 years are very consistent throughout the array of 5 monitors. First, there is an initial jump in concentrations between 2011 and 2019. This can largely be explained by the fact that 2011 is a baseline year and not a projection year. As such, the emissions run through the model are actual emissions. By contrast, all other years rely on emission estimates using projected data which is always more conservative (larger numbers.)

Next is a downward trend from 2019 to 2024 followed by a rise again in 2028 and 2030. This is likely explained by the combination of a downward trend in on-road mobile source tailpipe emissions and an upward trend in area source emissions. Mobile source emissions reflect the continuing effectiveness of Tier 2 and the introduction in 2017 of Tier 3, while area source emissions are tied to population increase.
Still, compared to the first projection year (2019), the concentrations in 2030 represent an increase of less than 3%. Also in this final year, the station closest to the NAAQS still shows a fair degree of headroom beneath the NAAQS, even after the allocation of safety margin discussed in IX.A.12.c.(6).

It should be recalled that the federally approved SIPs also projected PM10 concentrations to increase (from 1993 – 2003), and were only able to demonstrate continued attainment through the year 2003.

Thus, from a backsliding perspective, it is fair to say that the proposed maintenance plans will not interfere with attainment or maintenance of the NAAQS.

T.6 Comment: The source specific TSDs do a good job of comparing old SIP provisions and new SIP provisions; however, such comparison is lacking for several sources. Specifically, for those sources that do not rely upon a source-wide cap, supporting PTE calculations are not provided. These calculations are necessary, and should be included as part of the final SIP. (EPA; Enclosure 2, 18.a)

UDAQ Response: *See* comment H.51.

T.7 Comment: Table 4.b.4 and 4.b.5 of the TSD (showing area-wide emissions for Salt Lake and Utah Counties respectively) appear to contain math errors; 30.3 to 30.4 tons of S02 appear in the Salt Lake totals in the Table for 2019, 2024, 2028 and 2030 that are above the total of the component emissions shown; 2028 Utah County N02 total is 3.6 tons lower than the sum of the 4 components. The totals shown in the TSD do not match the totals in the respective tables shown in the maintenance plans (IX.A.10, IX.A.11, and IX.A.12). Within table 4.b.4 for Salt Lake County: the S02 Year Total for 2019 shows 39.2 and should be 8.8, the S02 Year Total for 2024 shows 39.8 and should be 9.4, the S02 Year Total for 2028 shows 40.2 and should be 9.7, and the S02 Year Total for 2030 shows 40.4 and should be 9.9. Within table 4.b.5 for Utah County: the S02 Year Total for 2028 shows 11.3 and should be 14.9. These apparent errors should be checked and possibly corrected. See also the comment from Enclosure 1, 1.q [Comment G2.] (EPA; Enclosure 5, 1.d)

UDAQ Response: Point source NOx emissions were not initially modelled for the 2028 projection year. This oversight was corrected after the maintenance plan was submitted for comment, but before the TSD was submitted.

An inventory formatting script did not account for the 2028 point source NOx data. This omission occurred because the label name for "NOx" used in the 2028 point source workbook differed from other years. SMOKE reports were thoroughly examined at great length; it was found that all other pollutants were correctly processed through SMOKE.

After including the missing NOx, the 2028 projection year was re-modelled. Final point source NOx totals were manually added to the TSD tables (4.b.4 and 4.b.5).

When combined with the correction discussed in response to Comment G2, the Tables in the TSD will match the Tables in the maintenance plans

T.8 Comment: At Section 5.a) of the TSD, a document labeled "Background and Overview" discusses CAA requirements for nonattainment plans. The document appears to be a legacy from the moderate PM2.5 SIP, and should be revised to instead support this re-designation request / maintenance plan. (EPA; Enclosure 3, 1.a.i)

UDAQ Response: The commenter is correct. This document is a legacy from the moderate PM2.5 SIP. It will be removed, and the link will be replaced with a label that says "Intentionally Left Blank." Additionally, the label in the table of contents for section 5), "Control Strategies" will be changed to "PM10 SIP/Maintenance Plan Evaluation Reports."

T.9 Comment: At Section 5.b.ii.A of the TSD, the document labeled "Intentionally Left Blank" appears to be out of place, and appears to be a legacy from the moderate PM2.5 SIP. If so, it should be removed or replaced. (EPA; Enclosure 3, 1.a.ii)

UDAQ Response: The commenter is correct. This document is a legacy from the moderate PM2.5 SIP. It will be removed, and so will its place in the table of contents, along with 5.b.ii.B.

T.10 Comment: At Section 5.b.iii) of the TSD, the document labeled "Ammonia Reasonable Available Control Technology (RACT)" appears to be a legacy from the moderate PM2.5 SIP. If so, it should be removed or replaced with a document supporting the PM10 maintenance plan. **(EPA; Enclosure 3, 1.a.iii)**

UDAQ Response: The commenter is correct. This document is a legacy from the moderate PM2.5 SIP. It will be removed, and so will its place in the table of contents.

T.11 Comment: At Section 5.c.iii) of the TSD, the document labeled "RACT/RACM Evaluation Reports" appears to be mislabeled. If so, the title of the document should be corrected. It should be noted that a RACT/RACM report would not be required as part of a redesignation request and maintenance plan, where the area is attaining the NAAQS. (EPA; Enclosure 3, 1.a.iv)

UDAQ Response: This document is also a legacy from the moderate PM2.5 SIP. It will be removed, and so will its place in the table of contents, along with 5.c.ii.

T.12 Comment: At Section 5.c.iv) of the TSD, the document labeled "Aggregate Sources" contains tables that discuss emission reductions from post SIP allowables to current emission limits. The column heading "Actuals/Current AO Allowables" is unclear. Additionally, a review of "allowables" to "allowables" would be a better representation of a net benefit for this SIP revision. See also the comment from Enclosure 2, 17.b. (EPA; Enclosure 3, 1.a.vi)

UDAQ Response: *See* comment and response T.16.

T.13 Comment: There appears to be a typo on page 15 of the document titled "Backsliding TSD" at Section 6.c. Within a discussion concerning PM2.5, the paragraph beginning: "Again, the most significant source category for NOx emissions is On-road Mobile Sources" concludes, in the last sentence, that there "is nothing to suggest that the proposed PM10 Maintenance Plans would interfere with Reasonable Further Progress toward attainment of the *ozone* standard." In this last sentence, the word "ozone" should be replaced with "PM2.5." (EPA; Enclosure 3, 1.a.x)

UDAQ Response: UDAQ agrees, and will make the necessary correction.

T.14 Comment: Within the Inventory Preparation Plan, at TSD section 1.b), Tables 4 and 5 provide information showing what percentages of area and population respectively belong, for each county, within the air quality modeling domain. The commenter notes

that Table 5 includes 100% of the population from Uintah County, but Table 4 omits the County entirely (0% area). If Uintah County is not included in the modeling domain, it should be removed from Table 5 of the IPP. (EPA; Enclosure 5, 1.b)

UDAQ Response: The commenter is correct that the modeling domain does not include any part of Uintah County, Utah. However, even though Table 5 lists an entry for Uintah County, no emissions from Uintah County ever made it into the air quality modeling. The SMOKE emissions processor only processes emissions located within the modeling domain.

Comment T15: Within the on-line table of contents for the TSD there are two links; 3.b.ii.D "Table 4: 2028 Projected Inventory Emissions for 23 Major Point Sources" and 3.c.ii "Post SMOKE Area Source Summary Tables: 2010, 2015" that lead to the same document. The link at 3.c.ii should be corrected, and if the change is found to be substantive the comment period should be extended. (EPA; Enclosure 5, 1.c)

UDAQ Response: The commenter is correct, and the link at 3.c.ii has been corrected to now show the Area Source emission summary tables as intended. This is not a substantive correction.

T.16 Comment: Under section 5.c.iv), within the document titled "Aggregate Sources" the fugitive dust rule, R307-309, is discussed. However, the discussion of these revisions does not appear to be intended to be submitted as part of the maintenance plan for approval into the SIP. Given this, those revisions should not be relied upon for reductions in order to show that that the maintenance plan revisions do not interfere with applicable requirements regarding attainment of the NAAQS. EPA at this point views the discussion of those revisions as general information only.

UDAQ Response:

The reference to R307-309 has been removed. It was not the UDAQ 's intention to reference this regulation. Also, all aggregate, asphalt, and concrete facilities are subject to the requirements found in the most recent federally approved Fugitive Emissions and Fugitive Dust rules.

T.17 Comment: vi. Under section 5.c.iv), the document titled "Aggregate Sources" contains tables that discuss emission reductions from post SIP allowables to current emission limits. However, the current emission limits column is titled "Actuals/Current AO Allowables" which is unclear. What limits are "Actuals" and which are "Allowables" ? Or are they one and the same? To show a net benefit for this SIP revision, a review of "allowables" to "allowables" would be a better representation than "allowables" vs. "actuals." Additionally, what does the column "Post SIP Allowables" mean? Are these emission limits from the original federally approved SIP? See comment from Enclosure 2, 15.b. above for more detailed information about this analysis.

UDAQ Response: Actuals/Current, AO Allowables , and all emissions presented in Table 3 (Utah County Emission Reductions/Increases) and Table 4 (Davis and Salt Lake County Emission Reductions/Increases) are meant to represent current AO Allowable emissions. Therefore, the column heading "Actuals/Current AO Allowables" in the Aggregate Sources document are defined as Allowable emissions from the current SIP listed source AOs. Actuals were listed in the table as “0” for sources which are no longer in operation. All emissions are recognized to be allowable.

The column heading “Post SIP Allowables” is defined as the approved allowable emission limits from the original federally approved SIP.

Therefore, this exercise is a comparison of Post SIP Allowable emissions from the original federally approved SIP versus the current allowable emissions for the federally approved SIP sources. This exercise does show a net benefit as there are reductions in both the Utah, Davis and Salt Lake County SIP listed source emissions.

Kennecott Comment

T.18 Comment: Kennecott's second comment was in reference to discussion in the Technical Support Document for Barneys Canyon mine being closed.

UDAQ Response: See the TSD for the changes based on this comment.

ITEM 5

State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQ-071-15

M E M O R A N D U M

TO: Air Quality Board

THROUGH: Bryce C. Bird, Executive Secretary

FROM: Bill Reiss, Environmental Engineer

DATE: November 20, 2015

SUBJECT: FINAL ADOPTION: Repeal of Existing SIP Subsection IX.A.11 and Re-enact with SIP Subsection IX.A.12: PM_{10} Maintenance Provisions for Utah County, as amended.

Introduction:

This item concerns a proposed State Implementation Plan (SIP) revision to address Utah's three nonattainment areas for PM_{10}, Salt Lake County, Utah County, and Ogden City.

The revision is structured as a maintenance plan. It demonstrates that these areas will continue to attain the PM_{10} standard through the year 2030 and allows Utah to request that EPA change the area designations back to attainment.

The existing SIP for PM_{10} affecting Salt Lake and Utah Counties was adopted in 1991. It resulted in attainment of the 1987 National Ambient Air Quality Standards (NAAQS) in both areas by 1996. Since that time, $PM_{2.5}$ has supplanted PM_{10} as the indicator of fine particulate matter.

Essentially, this SIP revision would close the book on PM_{10} and allow Utah to focus on meeting the $PM_{2.5}$ standard. All three of the affected areas are currently designated nonattainment for $PM_{2.5}$.

Scope:

There are two parts to the SIP revision. (This) Section IX. Part A is the SIP document itself. It addresses each of the criteria necessary to request redesignation. It includes the actual maintenance plan, which includes the quantitative demonstration of continued attainment.

Some of the items addressed in Part A include:

- monitored attainment of the PM_{10} NAAQS,
- establishment of motor vehicle emission budgets (MVEB) for purposes of transportation conformity,
- consideration of emission reduction credits, and
- contingency measures.

The second piece is SIP Section IX, Part H. It includes the emission limits for certain specific stationary sources. Inclusion of these limits within the SIP makes them federally enforceable.

The list of stationary sources to be included in Part H was updated as part of this proposal. It includes sources located in any of the nonattainment areas with actual emissions from 2011 that were at least 100 tons per year (tpy) for PM_{10}, SO_2, or NOx. It also includes sources with the potential to emit at least 100 tpy for any of these pollutants.

Using these criteria means that some sources will not be retained in the revised Part H. Other new sources that did not exist when the original SIP was written will be added.

The Board proposed this comprehensive SIP revision for public comment at the September 2, 2015 Utah Air Quality Board meeting.

Re-Numbering and SIP Organization:

You will notice that the proposed Subsection IX.A.10, 11, and 12 have been renumbered to IX.A.11, 12, and 13.

The way the SIP proposal was structured created an unintended problem for Utah County. It would have effectively repealed the existing Mobile Source Emissions Budgets (MVEB) for PM_{10} and NOx, leaving Utah County without any defined budgets until the year 2030, the last year of the new maintenance plan.

The problem arises because of differences between the federally approved SIP and the version of the SIP that resides within State law. To explain:

The original PM_{10} nonattainment SIPs for Salt Lake and Utah Counties created Subsections IX.A. 1 – 9 of the Utah SIP. EPA approved Subsections IX.A. 1 – 9 on July 8, 1994.

Utah County’s portion of the SIP was revised in 2002, and a Subsection IX.A.10 was added at that time to address transportation conformity within Utah County. These revisions were also approved by EPA on December 23, 2002.

In 2005, Utah prepared a revision that also was structured as a maintenance plan. Maintenance provisions for Salt Lake County, Utah County, and Ogden City were prepared and located at SIP Subsections IX.A.10, 11, and 12 (respectively.) The MVEB for Utah County was addressed in Subsection IX.A.11, and the pre-existing Subsection IX.A.10 was overwritten.

Subsequently, however, EPA proposed to disapprove the 2005 maintenance plan, and Utah withdrew it from consideration. As a federal matter, Utah County’s existing MVEB still resides in Subsection IX.A.10. There is no IX.A.11, or 12.

In September, we recommended repealing the existing Subsections IX.A.10, 11, & 12, (the State-approved, Maintenance Provisions for Salt Lake County, Utah County and Ogden City respectively), and re-enacting with new maintenance provisions for the same three areas at the same respective SIP locations.

Assuming the Board was to approve these revisions, they would then be submitted to EPA for federal approval. At that point, Utah would essentially be asking EPA to over-write existing Subsection IX.A.10 (Utah County's MVEB) with the new maintenance provisions for Salt Lake County.

To prevent this, each of the three maintenance plans will be re-positioned. Rather than using Subsections IX.A.10, 11, and 12, the new maintenance provisions for the three areas should appear in Subsections IX.A.11, 12, and 13. EPA can then approve them into the federal SIP while leaving Subsection IX.A.10 intact.

For this reason, you will notice, in every case, the appropriate re-numbering of the plans that were proposed in September.

Comments Received and Other Amendments:

A 30-day public comment period was held. A summary of each of the comments that was received, along with a response from UDAQ, is attached.

Any recommended revision to SIP Subsection IX.A.11 has been identified in the amended attachment using strikeout and underline. Where these amendments are in response to the comments received, they are highlighted in red color coding.

Some of the comments also directed UDAQ to make revisions to the technical support documentation (TSD.) Since this technical material is not explicitly part of the rulemaking action, these revisions have not been prepared for the December 2015 Air Quality Board meeting. They will, however, be completed in time for official submittal to the EPA.

Finally, the reader should still note that blue text is specific to the Salt Lake County nonattainment area, green text is specific to Utah County, and purple text is specific to Ogden City.

Staff Recommendation: Staff recommends that the Board repeal existing (State) SIP Subsection IX.A.11, and re-enact with SIP Subsection IX.A.12: PM_{10} Maintenance Provisions for Utah County, as amended.

UTAH

PM_{10} Maintenance Provisions for Utah County

Section IX.A.12[~~11~~]

Adopted by the Air Quality Board

December 2, 2015

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Section IX.A.12[~~11~~]
PM$_{10}$ Maintenance Provisions for Utah County

IX.A.12[~~11~~].a Introduction

The State of Utah is requesting that the U.S. Environmental Protection Agency (EPA) redesignate the Utah County nonattainment area to attainment status for the 24-hour PM10 National Ambient Air Quality Standard (NAAQS).

The foregoing Subsections 1-9 of Part IX.A of the Utah State Implementation Plans (SIP) were written in 1991 to address violations of the NAAQS for PM$_{10}$ in both Utah County and Salt Lake County. These areas were each classified as Initial Moderate PM$_{10}$ Nonattainment Areas, and as such required "nonattainment SIPs" to bring them into compliance with the NAAQS by a statutory attainment date. The control measures adopted as part of those plans have proven successful in that regard, and at the time of this writing (2015) each of these areas continues to show compliance with the federal health standards for PM$_{10}$.

This Subsection 12[~~11~~] of Part IX.A of the Utah SIP represents the second chapter of the PM$_{10}$ story for Utah County, and demonstrates that the area has achieved compliance with the PM$_{10}$ NAAQS and will continue to maintain that standard through the year 2030. As such, it is written in accordance with Section 175A (42 U.S.C. 7505a) of the federal Clean Air Act (the Act), and should serve to satisfy the requirement of Section 107(d)(3)(E)(iv) of the Act.

This section is hereafter referred to as the "Maintenance Plan" or "the Plan," and contains the maintenance provisions of the PM$_{10}$ SIP for Utah County.

While the Maintenance Plan could be written to replace all that had come before, it is presented herein as an addendum to Subsections 1-9 in the interest of providing the reader with some sense of historical perspective. Subsections 1-9 are retained for historical purposes, as is the federally approved Subsection 10 (transportation conformity for Utah County). [~~while existing subsection 10 (transportation conformity for Utah County) is replaced with the maintenance provisions for Salt Lake County. Transportation conformity for Utah County is herein replaced with a more current evaluation of transportation conformity.~~]

In a similar way, any references to the Technical Support Document (TSD) in this section means actually Supplement IV-15 to the Technical Support Document for the PM$_{10}$ SIP.

Background

The Act requires areas failing to meet the federal ambient PM$_{10}$ standard to develop SIP revisions with sufficient control requirements to expeditiously attain and maintain the standard. On July 1, 1987, EPA promulgated a new NAAQS for particulate matter with a diameter of 10 microns or less (PM$_{10}$), and listed Utah County as a Group I area for PM$_{10}$. This designation was based on historical data for the previous standard, total suspended particulate, and indicated there was a 95% probability the area would exceed the new PM$_{10}$ standard. Group I area SIPs were due in April 1988, but Utah was unable to complete the SIP by that date. In 1989, several citizens groups sued EPA (*Preservation Counsel v. Reilly*, civil Action (No. 89-C262-G (D, Utah)) for failure to implement a Federal Implementation Plan (FIP) under provisions of §110(c)(1) of the Clean Air Act (42 U.S.C. 7410(c)(1)).

A settlement agreement in January 1990 called for Utah to submit a SIP and for EPA to approve it by December 31, 1991. In August 1991, the parties voluntarily agreed to dismiss the lawsuit and the complaint and vacate the settlement agreement.

The Clean Air Act Amendments of November 1990 redesignated Group I areas as initial moderate nonattainment areas and required that SIPs be submitted by November 15, 1991. These moderate area SIPs were to require installation of Reasonably Available Control Measures (RACM) on industrial sources by December 10, 1993 and a demonstration the NAAQS would be attained no later than December 31, 1994.

(1) The PM_{10} SIP

On November 14, 1991, Utah submitted a SIP for Salt Lake and Utah Counties that demonstrated attainment of the PM_{10} standards in Salt Lake and Utah Counties for 10 years, 1993 through 2003. EPA published approval of the SIP on July 8, 1994 (59 FR 35036).

(2) Supplemental History of SIP Approval - PM_{10}

Utah's SIP included two provisions that promised additional action by the state: 1) a road salting and sanding program, and 2) a diesel vehicle emissions inspection and maintenance program.

On February 3, 1995, Utah submitted amendments to the SIP to specify the details of the road salting and sanding program promised as a control measure. EPA published approval of the road salting and sanding provisions on December 6, 1999 (64 FR 68031).

On February 6, 1996, Utah submitted to EPA a new SIP Section XXI, a diesel vehicle inspection and maintenance program.

Also, in April 1992, EPA published the "General Preamble," describing EPA's views on reviewing state SIP submittals. One of the requirements was that moderate nonattainment area states must submit contingency plans by November 15, 1993.

On July 31, 1994, Utah submitted an amendment to the PM_{10} SIP that required lowering the threshold for calling no-burn days as a contingency measure for Salt Lake, Davis and Utah Counties.

On July 18, 1997, EPA promulgated a new form of the PM_{10} standard. As a way to simplify EPA's process of revoking the old PM_{10} standard, EPA requested on April 6, 1998, that Utah withdraw its submittals of contingency measures. Utah submitted a letter requesting withdrawal on November 9, 1998, and EPA returned the submittals on January 29, 1999.

(3) Attainment of the PM_{10} Standard and Reasonable Further Progress

By statute, EPA was to determine whether Initial Moderate Areas were attaining the standard as of December 31, 1994. This determination requires an examination of the three previous calendar years of monitoring data (in this case 1992, 1993 and 1994). The 24-hour NAAQS allows no more than three expected exceedances of the 24-hour standard at any monitor in this 3-year period. Since the statutory deadline for the implementation of RACM was not until the end of 1993, it was reasonable to presume that the area might not be able to show attainment with a 3-

year data set until the end of 1996 even if the control measures were having the desired effect. Presumably for this reason, Section 188(d) of the Act, (42 U.S.C. 7513(d)) allows a state to request up to two 1-year extensions of the attainment date. In doing so, the state must show that it has met all requirements of the SIP, that no more than one exceedance of the 24-hour PM_{10} NAAQS has been observed in the year prior to the request, and that the annual mean concentration for such year is less than or equal to the annual standard.

EPA's Office of Air Quality Planning and Standards issued a guidance memorandum concerning extension requests (November 14, 1994), clarifying that the authority delegated to the Administrator for extending moderate area attainment dates is discretionary. In exercising this discretionary authority, it says, EPA will examine the air quality planning progress made in the area, and in addition to the two criteria specified in Section 188(d), EPA will be disinclined to grant an attainment date extension unless a state has, in substantial part, addressed its moderate PM_{10} planning obligations for the area. The EPA will expect the State to have adopted and substantially implemented control measures submitted to address the requirement for implementing RACM/RACT in the moderate nonattainment area, as this was the central control requirement applicable to such areas. Furthermore it said, “EPA believes this request is appropriate, as it provides a reliable indication that any improvement in air quality evidenced by a low number of exceedances reflects the application of permanent steps to improve the air quality in the region, rather than temporary economic or meteorological changes.” As part of this showing, EPA expected the State to demonstrate that the PM_{10} nonattainment area has made emission reductions amounting to reasonable further progress (RFP) toward attainment of the NAAQS, as defined in Section 171(1) of the Act.

On May 11, 1995, Utah requested one-year extensions of the attainment date for both Salt Lake and Utah Counties. On October 18, 1995, EPA sent a letter granting the requests for extensions, and on January 25, 1996, sent a letter indicating that EPA would publish a rulemaking action on the extension requests. On March 27, 1996, Utah requested a second one-year extension for Utah County.

Along with the extension requests in 1995, Utah submitted a milestone report as required under Section 172(1) of the Act, (42 U.S.C. 7501(1)) to assess progress toward attainment. This milestone report addressed two issues: 1) that all control measures in the approved plan had been implemented, and 2) that reasonable further progress (RFP) had been made toward attainment of the standard in terms of reducing emissions. As defined in Section 171(1), RFP means such annual incremental reductions in emissions of the relevant air pollutant as are required to ensure attainment of the applicable NAAQS by the applicable date.

On June 18, 2001, EPA published notice in the Federal Register (66 FR 32752) that Utah’s extension requests were granted, that Salt Lake County attained the PM_{10} standard by December 31, 1995, and that Utah County attained the standard by December 31, 1996. The notice stated that these areas remain moderate nonattainment areas and are not subject to the additional requirements of serious nonattainment areas.

IX.A.12[~~11~~].b Pre-requisites to Area Redesignation

Section 107(d)(3)(E) of the Act outlines five requirements that must be satisfied in order that a state may petition the Administrator to redesignate a nonattainment area back to attainment. These requirements are summarized as follows: 1) the Administrator determines that the area has attained the applicable NAAQS, 2) the Administrator has fully approved the applicable implementation plan for the area under §110(k) of the Act, 3) the Administrator determines that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan … and other permanent and enforceable reductions, 4) the Administrator has fully approved a maintenance plan for the area as meeting the requirements of §175A of the Act, and 5) the State containing such area has met all requirements applicable to the area under §110 and Part D of the Act.

Each of these requirements will be addressed below. Certainly, the central element from this list is the maintenance plan found at Subsection IX.A.11.c below. Section 175A of the Act contains the necessary requirements of a maintenance plan, and EPA policy based on the Act requires additional elements in order that such plan be federally approvable. Table IX.A.11. 1 identifies the prerequisites that must be fulfilled before a nonattainment area may be redesignated to attainment under Section 107(d)(3)(E) of the Act.

Table IX.A.12[~~11~~]. 1 Prerequisites to Redesignation in the Federal Clean Air Act (CAA)

Category	**Requirement**	**Reference**	**Addressed in Section**
Attainment of Standard	Three consecutive years of PM_{10} monitoring data must show that violations of the standard are no longer occurring.	CAA §107(d)(3)(E)(i)	IX.A. 12[~~11~~].b(1)
Approved State Implementation Plan	The SIP for the area must be fully approved.	CAA §107(d)(3)(E)(ii)	IX.A. 12[~~11~~].b(2)
Permanent and Enforceable Emissions Reductions	The State must be able to reasonably attribute the improvement in air quality to emission reductions that are permanent and enforceable	CAA §107(d)(3)(E)(iii), Calcagni memo (Sect 3, para 2)	IX.A. 12[~~11~~].b(3)
Section 110 and Part D requirements	The State must verify that the area has met all requirements applicable to the area under section 110 and Part D.	CAA: §107(d)(3)(E)(v), §110(a)(2), Sec 171	IX.A. 12[~~11~~].b(4)
Maintenance Plan	The Administrator has fully approved the Maintenance Plan for the area as meeting the requirements of CAA §175A	CAA: §107(d)(3)(E)(iv)	IX.A. 12[~~11~~].b(5) and IX.A. 12[~~11~~].c

(1) The Area Has Attained the PM_{10} NAAQS

CAA 107(d)(3)(E)(i) - *The Administrator determines that the area has attained the national ambient air quality standard.* To satisfy this requirement, the State must show that the area is attaining the applicable NAAQS. According to EPA's guidance concerning area redesignations (Procedures for Processing Requests to Redesignate Areas to Attainment, John Calcagni to Regional Air Directors, September 4, 1992 [or, Calcagni]), there are generally two components involved in making this demonstration. The first relies upon ambient air quality data which should be representative of the area of highest concentration and should be collected and quality assured in accordance with 40 CFR 58. The second component relies upon supplemental air quality modeling. Each will be discussed in turn.

(a) Ambient Air Quality Data (Monitoring)

In 1987 EPA promulgated the National Ambient Air Quality Standard (NAAQS) for PM_{10}. The NAAQS for PM_{10} is listed in 40 CFR 50.6 along with the criteria for attaining the standard. The 24-hour NAAQS is 150 micrograms per cubic meter (ug/m^3) for a 24-hour period, measured from midnight to midnight. The 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 ug/m^3, as determined in accordance with Appendix K to that part, is equal to or less than one. In other words, each monitoring site is allowed up to three expected exceedances of the 24-hour standard within a period of three calendar years. More than three expected exceedances in that three-year period is a violation of the NAAQS.

There also had been an annual standard of 50 ug/m^3. The annual standard was attained if the three-year average of individual annual averages was less than 50 ug/m^3. None of Utah's areas was ever designated nonattainment for the annual NAAQS [~~Utah never violated the annual standard at any of its monitoring stations~~], and the annual average was not retained as a PM_{10} standard when the NAAQS was revised in 2006. Nevertheless, an annual average still provides a useful metric to evaluate long-term trends in PM_{10} concentrations here in Utah where short-term meteorology has such an influence on high 24-hour concentrations during the winter season.

40 CFR 58 Appendix K, Interpretation of the National Ambient Air Quality Standards for Particulate Matter, acknowledges the uncertainty inherent in measuring ambient PM_{10} concentrations by specifying that an *observed exceedance* of the (150 ug/m^3) 24-hour health standard means a daily value that is above the level of the 24-hour standard after rounding to the nearest 10 ug/m^3 (e.g., values ending in 5 or greater are to be rounded up).

The term *expected exceedance* accounts for the possibility of missing data. Missing data can occur when a monitor is being repaired, calibrated, or is malfunctioning, leaving a time gap in the monitored readings. [~~EPA discounts these gaps if the highest recorded PM_{10} reading at the affected monitor on the day before or after the gap is not more than 75 percent of the standard, and no measured exceedance has occurred during the year.~~]

Expected exceedances are calculated from the (AQS) [~~Aerometric Information and Retrieval System (AIRS)~~] data base according to procedures contained in 40 CFR Part 50, Appendix K. The State relied on the expected exceedance values contained in the (AQS) [~~AIRS~~] Quick Look Report (AMP 450) to determine if a violation of the standard had occurred.

Data may also be flagged when circumstances indicate that it would represent an event [~~outlier~~] in the data set and not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within. 40 CFR 50.14 "Treatment of air quality monitoring data influenced by exceptional events" anticipates this, and says that a State may request EPA to exclude data showing exceedances or violations… that are directly due to an event that affects air quality, is not reasonably controllable or preventable, is an event caused by human activity that is unlikely to recur at a particular location or a natural event, from use in determinations. [~~Appendix N to Part 50 – "Interpretation of the National Ambient Air Quality Standards for Particulate Matter" anticipates this and states: "Data resulting from uncontrollable or natural events, for example structural fires or high winds, may require special consideration. In some cases, it may be appropriate to exclude these data because they could result in inappropriate values to compare with the levels of the PM standards."~~] The protocol for data handling dictates that flagging is initiated by the state or local agency, and then the EPA either concurs or indicates that it has not concurred. Some discussion will be provided to help the reader understand the occasional occurrence of wind-blown dust events that affect these nonattainment areas, and how the resulting data should be interpreted with respect to the control measures enacted to address the 24-hour NAAQS.

Using the criteria from 40 CFR 58 Appendix K, data was compiled for all PM_{10} monitors within the Utah County nonattainment area that recorded a four-year data set comprising the years 2011 – 2014. For each monitor, the number of expected exceedances is reported for each year, and then the average number of expected exceedances is reported for the overlapping three-year periods. If this average number of expected exceedances is less than or equal to 1.0, then that particular monitor is said to be in compliance with the 24-hour standard for PM_{10}. In order for an area to be in compliance with the NAAQS, every monitor within that area must be in compliance.

As illustrated in the table below, the results of this exercise show that the Utah County PM_{10} nonattainment area is presently attaining the NAAQS.

Table IX.A.12[~~11~~]. 2 PM_{10} Compliance in Utah County, 2011-2014

Lindon 49-049-4001	24-hr Standard	3-Year Average
	No. Expected Exceedances	No. Expected Exceedances
2011	0.0[~~/ 0.0*~~]	
2012	0.0[~~/ 0.0*~~]	
2013	0.0[~~/ 0.0*~~]	0.0[~~/ 0.0*~~]
2014	0.0[~~/ 0.0*~~]	0.0[~~/ 0.0*~~]

North Provo 49-049-0002	24-hr Standard	3-Year Average
	No. Expected Exceedances	No. Expected Exceedances
2011	0.0[~~/ 0.0*~~]	
2012	0.0[~~/ 0.0*~~]	
2013	0.0[~~/ 0.0*~~]	0.0[~~/ 0.0*~~]
2014	0.0[~~/ 0.0*~~]	0.0[~~/ 0.0*~~]

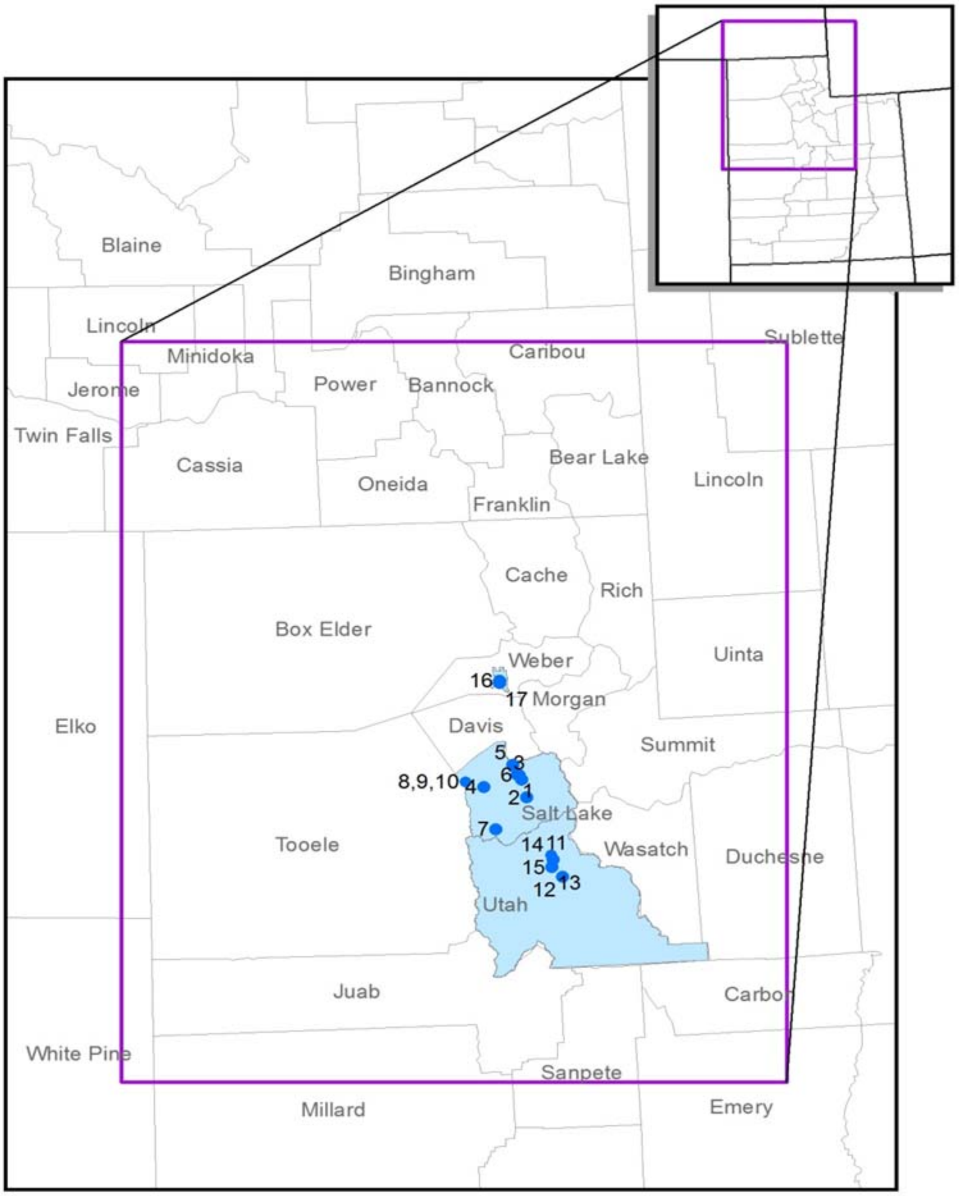
[~~* The second set of numbers shows what would be the effect of including all of the data that has been flagged by DAQ and not yet concurred with by EPA.~~]

(b) PM_{10} Monitoring Network

The overall assessments made in the preceding paragraph were based on data collected at monitoring stations located throughout the nonattainment area. The Utah DAQ maintains a network of PM_{10} monitoring stations in accordance with 40 CFR 58. These stations are referred to as SLAMS sites, meaning that they are State and Local Air Monitoring Stations. In consultation with EPA, an Annual Monitoring Network Plan is developed to address the adequacy of the monitoring network for all criteria pollutants. Within the network, individual stations may be situated so as to monitor large sources of PM_{10}, capture the highest concentrations in the area, represent residential areas, or assess regional concentrations of PM_{10}. Collectively, these monitors make up Utah's PM_{10} monitoring network. The following paragraphs describe the network in each of Utah's three nonattainment areas for PM_{10}.

Provided in Figure IX.A.12[~~11~~]. 1 is a map of the modeling domain that shows the existing PM_{10} nonattainment areas and the locations of the monitors therein. Some of the monitors at these locations are no longer operational, but they have been included for informational purposes.

Figure IX.A.12[~~11~~]. 1 Modeling Domain



The following PM_{10} monitoring stations operated in the Salt Lake County PM_{10} nonattainment area from 1985 through 2015. They are numbered as they appear on the map:

1. Air Monitoring Center (AMC) (AIRS number 49-035-0010): This site was located in an urban city center, near an area of high vehicle use. It was closed in 1999 when DAQ lost its lease on the building.

2. Cottonwood (AIRS number 49-035-0003): This site was located in a suburban residential area. It collected data from 1986 - 2011. It was closed in 2011 due to siting criteria violations as well as safety concerns.

3. Hawthorne (AIRS number 49-035-3006): This site is located in a suburban residential area. It began collecting data in 1997 and is the NCORE site for Utah.

4. Magna (AIRS number 49-035-1001): This site is located in a suburban residential area. It was historically impacted periodically by blowing dust from a large tailings impoundment, and as such is anomalous with respect to the typical wintertime scenario that otherwise characterizes the nonattainment area. It has been collecting data since 1987.

5. North Salt Lake (AIRS number 49-035-0012): This site was located in an industrial area that is impacted by sand and gravel operations, freeway traffic, and several refineries. It was near a residential area as well. It collected data from 1985 - 2013. The monitor was situated over a sewer main, and service of that main required its removal in September 2013, and following the service, the site owner did not allow the monitor to return.

6. Salt Lake City (AIRS number 49-035-3001): This site was situated in an urban city center. It was discontinued in 1994 because of modifications that were made to the air conditioning on the roof-top.

7. Herriman #3 (AIRS number 49-035-3012): This site is located in a suburban residential area. It began collecting data in 2015.

8. Beach #2 (AQS number 49-035-0005): This site, from 1988-1990, was located near the Great Salt Lake.

9. Beach #3 (AQS number 49-035-2003): This site, from 1991-1992, was located at the Great Salt Lake Marina.

10. Beach #4 (AQS number 49-035-2004): This site, from 1991-1997, was located at the Great Salt Lake Marina.

The following PM_{10} monitoring stations operated in the Utah County PM_{10} nonattainment area from 1985 through 2015. They are numbered as they appear on the map:

11[~~8~~]. Lindon (AIRS number 49-049-4001): This site is designed to measure population exposure to PM_{10}. It is located in a suburban residential area affected by both industrial and vehicle emissions. PM_{10} has been measured at this site since 1985, and the readings taken here have consistently been the highest in Utah County. Area source emissions, primarily wood smoke, also affect the site.

12[~~9~~]. North Provo (AIRS number 49-049-0002): This is a neighborhood site in a mixed residential-commercial area in Provo, Utah. It began collecting data in 1986.

13[~~10~~]. West Orem (AIRS number 49-049-5001): This site was originally located in a residential area adjacent to a large steel mill which has since closed. It is a neighborhood site. It was situated based on computer modeling, and has historically reported high PM_{10}

values, but not consistently as high as those observed at the Lindon site. The site was closed at the end of 1997 for this reason.

14. Pleasant Grove (AQS number 49-049-2001): This site, from 1985-1987, was located in a suburban area.

15. Orem (AQS number 49-049-5004): This site, from 1991-1993, was located next to a through highway in a business area.

The following PM_{10} monitoring stations operated in the Ogden City PM_{10} nonattainment area from 1986 through 2015. They are numbered as they appear on the map:

16[~~11~~]. Ogden 1 (AIRS number 49-057-0001): This site was situated in an urban city center. It was discontinued in 2000 because DAQ lost its lease on the building.

17[~~12~~]. Ogden 2 (AIRS number 49-057-0002): This site began collecting data in 2001, as a replacement for the Ogden 1 location. It, too, is situated in an urban city center.

(c) Modeling Element

EPA guidance concerning redesignation requests and maintenance plans (Calcagni) discusses the requirement that the area has attained the standard, and notes that air quality modeling may be necessary to determine the representativeness of the monitored data.

Information concerning PM_{10} monitoring in Utah is included in the Annual Monitoring Plan [~~Annual Monitoring Network Review~~] and the 5-Year Monitoring Network Assessment [~~The 5 Year Network Plan~~]. Since the early 1980's, the network review has been updated annually and submitted to EPA for approval. EPA has concurred with the annual network reviews and agreed that the PM_{10} network is adequate. EPA personnel have also visited the monitor sites on several occasions to verify compliance with federal siting requirements. Therefore, additional modeling will not be necessary to determine the representativeness of the monitored data.

The Calcagni memo goes on to say that areas that were designated nonattainment based on modeling will generally not be redesignated to attainment unless an acceptable modeling analysis indicates attainment.

Though none of Utah’s three PM_{10} nonattainment areas was designated based on modeling, Calcagni also states that (when dealing with PM_{10}) dispersion modeling will generally be necessary to evaluate comprehensively sources’ impacts and to determine the areas of expected high concentrations based upon current conditions. Air quality modeling was conducted for the purpose of this maintenance demonstration. It shows that all three nonattainment areas are presently in compliance, and will continue to comply with the PM_{10} NAAQS through the year 2030.

(d) EPA Acknowledgement

The data presented in the preceding paragraphs shows quite clearly that the Utah County PM_{10} nonattainment area is attaining the NAAQS. As discussed before, the EPA acknowledged in the Federal Register that both Utah County and Salt Lake County had already attained.

On June 18, 2001, EPA published notice in the Federal Register (66 FR 32752) that Utah's extension requests were granted, and that Utah County attained the standard by December 31, 1996. The notice stated that the area would remain a moderate nonattainment area and would not be subject to the additional requirements of serious nonattainment areas.

(2) Fully Approved Attainment Plan for PM_{10}

CAA 107(d)(3)(E)(ii) - *The Administrator has fully approved the applicable implementation plan for the area under section 110(k).*

On November 14, 1991, Utah submitted a SIP for Salt Lake and Utah Counties that demonstrated attainment for Salt Lake and Utah Counties for 10 years, 1993 through 2003. EPA published approval of the SIP on July 8, 1994 (59 FR 35036).

On July 3, 2002, Utah submitted a PM_{10} SIP revision for Utah County. It revised the existing attainment demonstration in the approved PM_{10} SIP based on a short-term emissions inventory, established 24-hour emission limits for the major stationary sources in the Utah County nonattainment area, and established motor vehicle emission budgets based on EPA's most recent mobile source emissions model, MOBILE6. It demonstrated attainment in the Utah County nonattainment area through 2003. The revised attainment demonstration extended through the year 2003. EPA published approval of this SIP revision on December 23, 2002 (67 FR 78181). It became effective on January 22, 2003.

Also, on March 9, 2015, Utah submitted a revision to the SIP, adding a new rule regarding trading of motor vehicle emission budgets (MVEB) for Utah County. The rule allows trading from the motor vehicle emissions budget for primary PM_{10} to the motor vehicle emissions budget for nitrogen oxides (NO_X), which is a PM_{10} precursor. The resulting motor vehicle emissions budgets for NO_X and PM_{10} may then be used to demonstrate transportation conformity with the SIP. The rule was approved by EPA and became effective on July 17, 2015.

(3) Improvements in Air Quality Due to Permanent and Enforceable Reductions in Emissions

CAA 107(d)(3)(E)(iii) - *The Administrator determines that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan and applicable Federal air pollutant control regulations and other permanent and enforceable reductions.* Speaking further on the issue, EPA guidance (Calcagni) reads that the State must be able to reasonably attribute the improvement in air quality to emission reductions which are permanent and enforceable. In the following sections, both the improvement in air quality and the emission reductions themselves will be discussed.

(a) Improvement in Air Quality

The improvement in air quality with respect to PM_{10} can be shown in a number of ways. Improvement, in this case, is relative to the various control strategies that affected the airshed.

For the Utah County nonattainment area, these control measures were implemented as the result of the nonattainment PM_{10} SIP promulgated in 1991. As discussed below, the actual implementation of the control strategies required therein first exhibits itself in the observable data in 1994. The ambient air quality data presented below includes values prior to 1994 in order to give a representation of the air quality prior to the application of any control measures. It then includes data collected from then until the present time to illustrate the effect of these controls. In considering the data presented below, it is important to keep this distinction in mind: data through 1993 represents pre-SIP conditions, and data collected from 1994 through the present represents post-SIP conditions.

Additionally, a downturn in the economy is clearly not responsible for the improvement in ambient particulate levels in Salt Lake County, Utah County, and Ogden City areas. From 2001 to present, the areas have experienced strong growth [~~while at the same time achieving continuous attainment of the 24-hour and annual PM_{10} NAAQS~~]. Data was analyzed for the Salt Lake City Metropolitan Statistical Area from the US Department of Commerce, Bureau of Economic Analysis. According to this data, job growth from 2011 through 2013 increased by 5.5 percent, population increased by 3 percent, and personal income increased by approximately 10 percent. The estimated VMT increase was 12 percent from 2011 to present.

Expected Exceedances – Referring back to the discussion of the PM_{10} NAAQS in Subsection IX.A.12[~~11~~].b(1), it is apparent that the number of expected exceedances of the 24-hour standard is an important indicator. As such, this information has been tabulated for each of the monitors located in each of the nonattainment areas. The data in Table IX.A.12[~~11~~]. 3 below reveals a marked decline in the number of these expected exceedances, and therefore that the Utah County PM_{10} nonattainment area has experienced significant improvements in air quality. The gray cells indicate that the monitor was not in operation. This improvement is especially revealing in light of the significant growth experienced during this same period in time.

Table IX.A.12[~~11~~]. 3 Utah County: Expected Exceedances Per-Year, 1986-2014

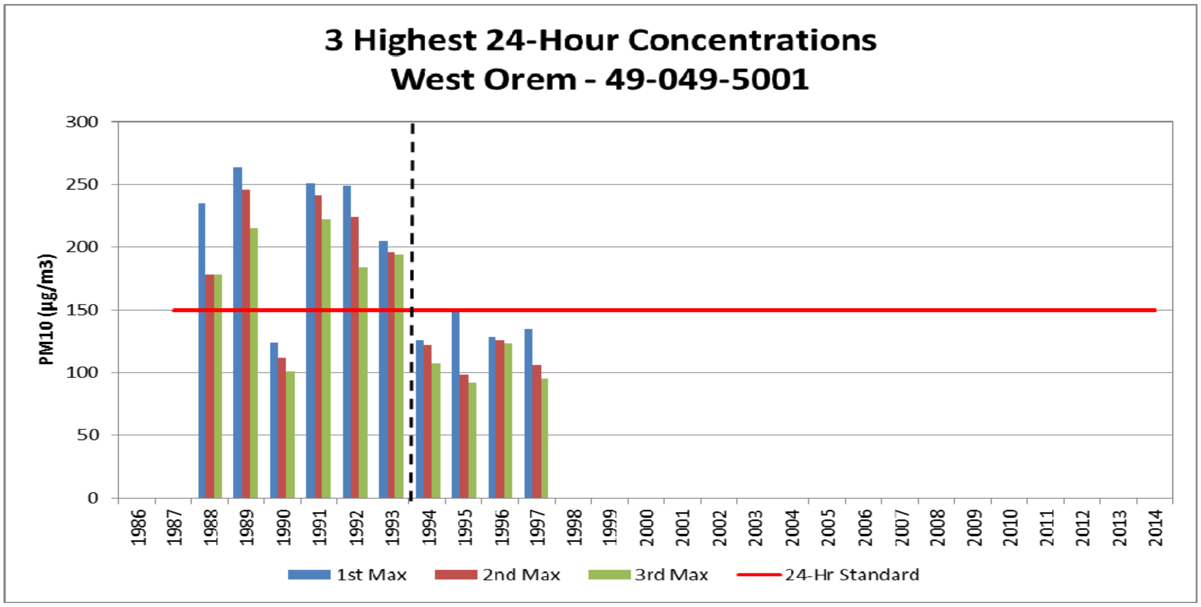
Utah County Nonattainment Area		
Monitor:	North Provo	Lindon
1986		
1987	0.0	0.0
1988	2.0	15.9
1989	8.0	22.2
1990	0.0	0.0
1991	7.3	11.7
1992	3.1	5.3
1993	4.1	5.2
1994	0.0	0.0
1995	0.0	0.0
1996	0.0	0.0
1997	0.0	0.0
1998	0.0	0.0
1999	0.0	0.0
2000	0.0	0.0
2001	0.0	0.0
2002	0.0	1.0
2003	0.0	0.0
2004	0.0	1.0
2005	0.0	0.0
2006	0.0	0.0
2007	0.0	0.0
2008	0.0	4.0
2009	0.0	2.1
2010	3.5	1.0
2011	0.0	0.0
2012	0.0	0.0
2013	0.0	0.0
2014	0.0	0.0

As discussed before in section IX.A.12[~~10~~].b(1), the number of expected exceedances may include data which had been flagged by DAQ as being influenced by an exceptional event; most typically, a wind-blown dust event. Data is flagged when circumstances indicate that it would [~~represent an outlier in the data set and~~] not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within.

As such two things should be noted: 1) The focus of the control strategy developed for the 1991 PM_{10} SIP was directed at episodes characterized by wintertime temperature inversions, elevated concentrations of secondary aerosol, and low wind speed. Under these conditions, blowing dust is generally nonexistent. Therefore, in evaluating the effectiveness of these types of controls, the inclusion of several high wind events may bias the conclusion. 2) Even with the inclusion of these values, the conclusion remains essentially the same; that since 1994 when the 1991 SIP controls were fully implemented, there has been a marked improvement in monitored air quality.

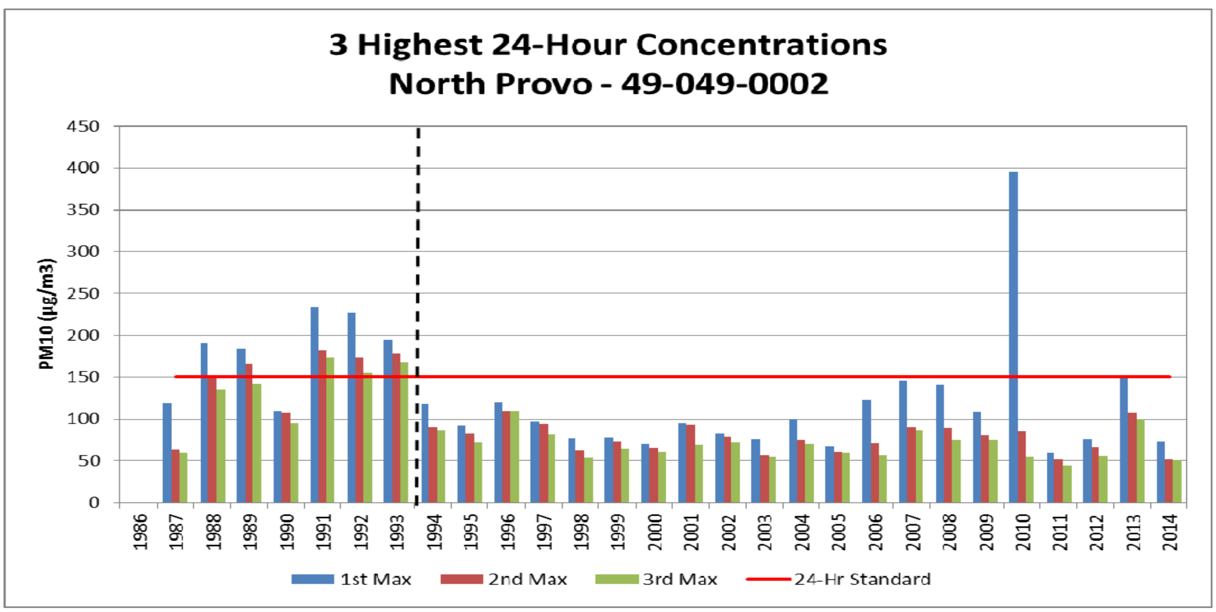
Highest Values – Also indicative of improvement in air quality with respect to the 24-hour standard, is the magnitude of the excessive concentrations that are observed. This is illustrated in Figures IX.A.12[~~11~~]. 2-4, which show the three highest 24-hour concentrations observed at each monitor in a particular year.

Figure IX.A.12[~~11~~]. 2 3 Highest 24-hr PM_{10} Concentrations; West Orem



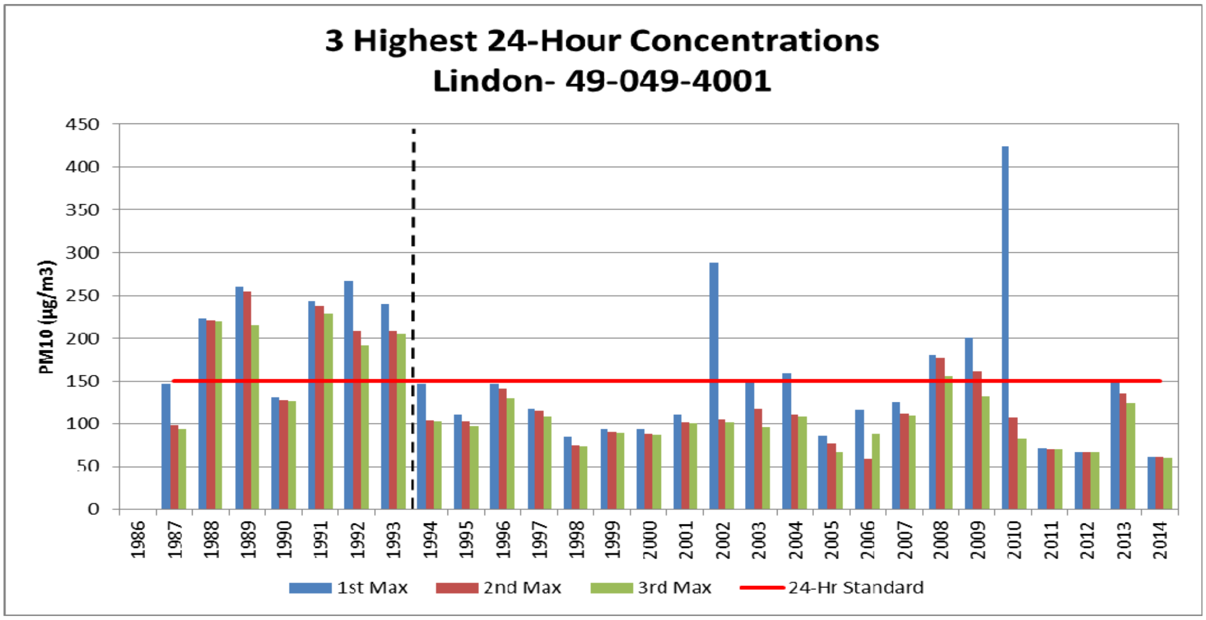
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Figure IX.A.12[~~11~~]. 3 3 Highest 24-hr PM_{10} Concentrations; North Provo



(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Figure IX.A.12[~~11~~]. 4 3 Highest 24-hr PM_{10} Concentrations; Lindon

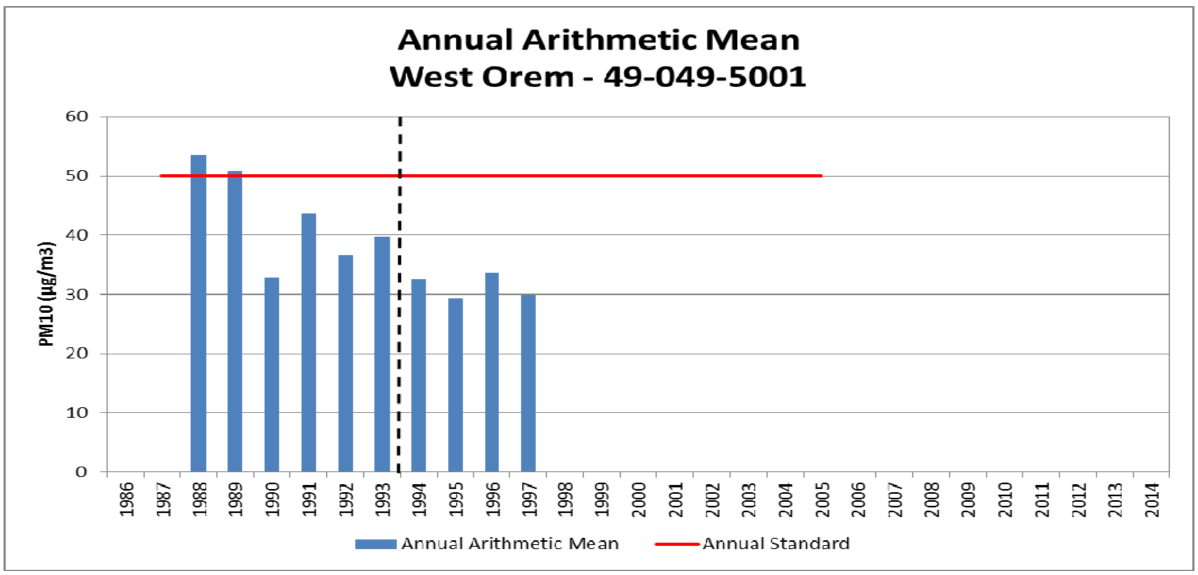


(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Again there is a noticeable improvement in the magnitude of these concentrations. It must be kept in mind, however, that some of these concentrations may have resulted from windblown dust events that occur outside of the typical scenario of wintertime air stagnation. As such, the effectiveness of any control measures directed at the precursors to PM_{10} would not be evident.

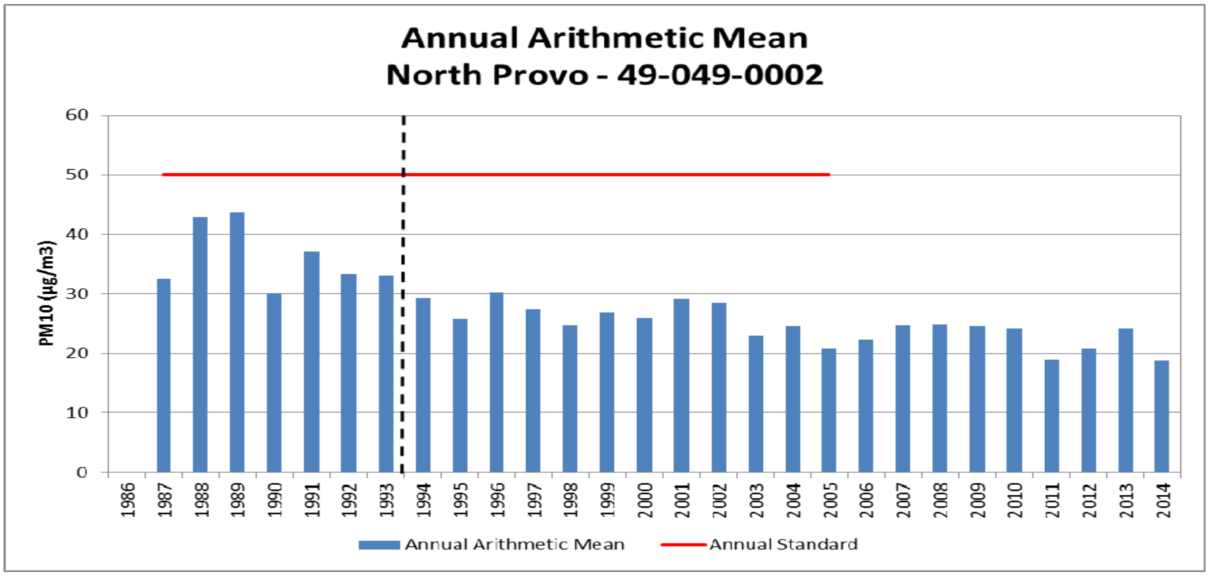
Annual Mean – Although there is no longer an annual PM_{10} standard, the annual arithmetic mean is also a significant parameter to consider. This is especially so given one of the assumptions made in the original nonattainment SIP for Utah County. The SIP was developed to address the 24-hour standard for PM_{10}, but it was assumed that by controlling for the wintertime 24-hour standard, the annual arithmetic mean concentrations would also be reduced such that the annual standard would be protected (even though it had never been violated). Annual arithmetic means have been plotted in Figures IX.A.12[~~11~~]. 5-7, and the data reveals a noticeable decline in the values of these annual means. This supports the validity of the assumption made in the SIP, and indicates that there have been significant improvements in air quality in the Utah County nonattainment area.

Figure IX.A.12[~~11~~]. 5 Annual Arithmetic Mean; West Orem



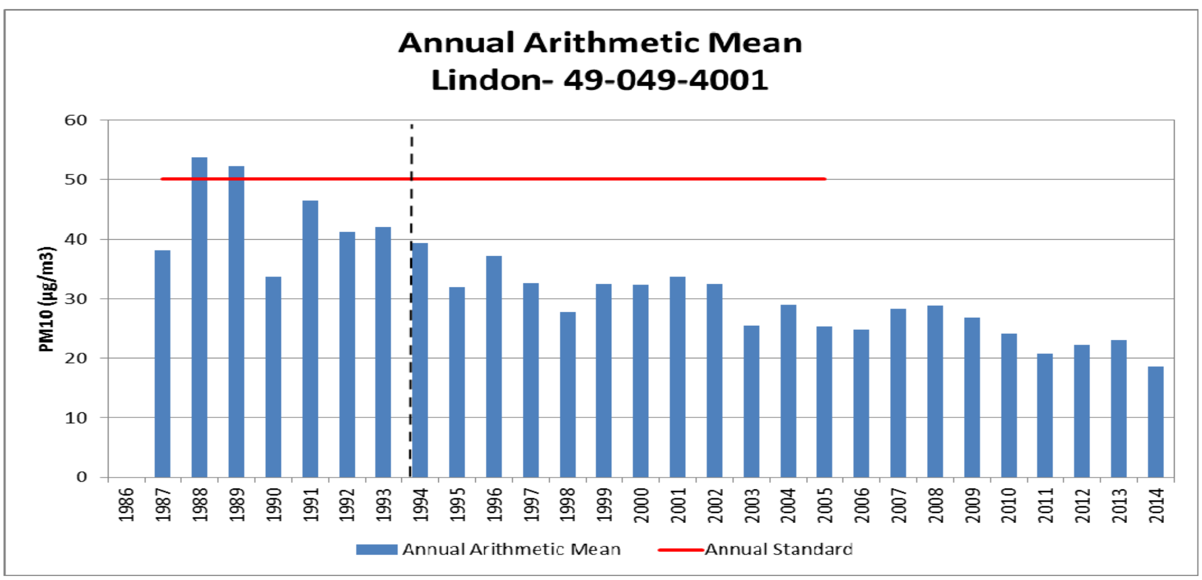
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Figure IX.A.12[~~11~~]. 6 Annual Arithmetic Mean; North Provo



(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Figure IX.A.12[~~11~~]. 7 Annual Arithmetic Mean; Lindon



(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

As with the number of expected exceedances and the three highest values, the data in Figures IX.A.12[~~11~~]. 5-7 may include data which had been flagged by DAQ as being influenced by wind-blown dust events. Nevertheless, the annual averaging period tends to make these data points less significant. The downward trend of these annual mean values is truly indicative of improvements in air quality, particularly during the winter inversion season.

(b) Reduction in Emissions

As stated above, EPA guidance (Calcagni) says that the State must be able to reasonably attribute the improvement in air quality to emission reductions that are permanent and enforceable. In making this showing, the State should estimate the percent reduction (from the year that was used to determine the design value) achieved by Federal measures such as motor vehicle control, as well as by control measures that have been adopted and implemented by the State.

In Utah County, the design values at each of the representative monitors were measured in 1988 or 1989 (see SIP Subsections IX.A.3-5).

As mentioned before, the ambient air quality data presented in Subsection IX.A.12[~~11~~].b(3)(a) above includes values prior to these dates in order to give a representation of the air quality prior to the application of any control measures. It then includes data collected from then until the present time to illustrate the lasting effect of these controls. In discussing the effect of the controls, as well as the control measures themselves, however, it is important to keep in mind the time necessary for their implementation.

The nonattainment SIPs for all initial moderate PM_{10} nonattainment areas included a statutory date for the implementation of reasonably available control measures (RACM), which includes reasonably available control technologies (RACT). This date was December 10, 1993 (Section 189(a) CAA). Thus, 1994 marked the first year in which these control measures were reflected in the emissions inventories for Utah County.

The nonattainment SIP for the Utah County PM_{10} nonattainment area included control strategies for stationary sources and area sources (including controls for woodburning, mobile sources, and road salting and sanding) of primary PM_{10} emissions as well as sulfur oxide (SO_X) and nitrogen oxide (NO_X) emissions, which are secondary sources of particulate emissions. This is discussed in SIP Subsection IX.A.6, and was reflected in the attainment demonstration presented in Subsection IX.A.3.

The RACM control measures prescribed by the nonattainment SIP and their subsequent implementation by the State were discussed in more detail in a milestone report submitted for the area.

Section 189(c) of the CAA identifies, as a required plan element, quantitative milestones which are to be achieved every 3 years, and which demonstrate reasonable further progress (RFP) toward attainment of the standard by the applicable date. As defined in CAA Section 171(1), the term *reasonable further progress* has the meaning of such annual incremental reductions in emissions of the relevant air pollutant as are required by Part D of the Act for the purpose of ensuring attainment of the NAAQS by the applicable date.

Hence, the milestone report must demonstrate that all measures in the approved nonattainment SIP have been implemented and that the milestone has been met. In the case of initial moderate areas for PM_{10}, this first milestone had the meaning of all control measures identified in the plan being sufficient to bring the area into compliance with the NAAQS by the statutory attainment date of December 31, 1994.

Section 188(d) of the Act allows States to petition the Administrator for up to two one-year extensions of the attainment date, provided that all SIP elements have been implemented and that the ambient data collected in the area during the year preceding the extension year indicates that the area is on-target to attain the NAAQS. Presumably this is because the statutory attainment date for initial moderate PM_{10} nonattainment areas occurred only one year after the statutory implementation date for RACM, the central control element of all implementation plans for such areas, and because three consecutive years of clean ambient data are needed to determine that an area has attained the standard. Because the milestone report and the request for extension of the attainment date both required a demonstration that all SIP elements had been implemented, as well as a showing of RFP, Utah combined these into a single analysis.

Utah's actions to meet these requirements and EPA's subsequent review thereof are discussed in a Federal Register notice from Monday, June 18, 2001 (66 FR 32752). In this notice, EPA granted two one-year extensions of the attainment date for the Utah County PM_{10} nonattainment area and determined that the area had attained the PM_{10} NAAQS by December 31, 1996. The key elements of that FR notice are reiterated below.

On May 11, 1995, Utah submitted a milestone report as required by sec.189(c)(2). On Sept.29, 1995, Utah submitted a revised version of the milestone report. It estimated current emissions from all source categories covered by the SIP, and compared those to actual emissions from 1988. Based on information the State submitted in 1995, EPA believes that Utah was in substantial compliance with the requirements and commitments in the SIP for the Utah County PM_{10} nonattainment area when Utah submitted its first extension request. The milestone report indicates that Utah had implemented most of its adopted control measures, and had therefore substantially implemented the RACM/RACT requirements applicable to moderate PM_{10} nonattainment areas. It showed that in Utah County, emissions of PM_{10}, SO_2 and NO_X had been reduced by approximately 3,129 tpy (from 25,920 down to 22,791). With its March 27, 1996 request for an additional extension year, Utah submitted another milestone report (and revised it again on May 17) which repeated this exercise using more current numbers. The results this time showed that emissions had been reduced by approximately 8,391 tpy. The effect of these emission reductions appears to be reflected in ambient measurements at the monitoring sites [and] this is evidence that the State's implementation of the PM_{10} SIP control measures resulted in emission reductions amounting to RFP in the Utah County PM_{10} nonattainment area.

This Federal Register notice (66 FR 32752), the milestone report from September 29, 1995, and the milestone report from May 17, 1996 have all been included in the TSD.

Furthermore, since these control measures are incorporated into the Utah SIP, the emission reductions that resulted are consistent with the notion of permanent and enforceable improvements in air quality. Taken together, the trends in ambient air quality illustrated in the preceding paragraph, along with the continued implementation of the nonattainment SIP for the Utah County nonattainment area, provide a reliable indication that these improvements in air quality reflect the application of permanent steps to improve the air quality in the region, rather than just temporary economic or meteorological changes.

(4) State has Met Requirements of Section 110 and Part D

CAA 107(d)(3)(E)(v) - The State containing such area has met all requirements applicable to the area under section 110 and part D. Section 110(a)(2) of the Act deals with the broad scope of state implementation plans and the capacity of the respective state agency to effectively administer such a plan. Sections I through VIII of Utah's SIP contain information relevant to these criteria. Part D deals specifically with plan requirements for nonattainment areas, and includes the requirements for a maintenance plan in Section 175A.

Utah currently has an approved SIP that meets the requirements of section 110(a)(2) of the Act. Many of these elements have been in place for several decades. In the March 9, 2001 approval of Utah's Ogden City Maintenance Plan for Carbon Monoxide, EPA stated:

> On August 15, 1984, we approved revisions to Utah's SIP as meeting the requirements of section 110(a)(2) of the CAA (see 45 FR 32575). Although section 110 of the CAA was amended in 1990, most of the changes were not substantial. Thus, we have determined that the SIP revisions approved in 1984 continue to satisfy the requirements of section 110(a)(2). For further detail, see 45 FR 32575 dated August 15, 1984 (Volume 49, No. 159) or 66 FR 14079 dated March 9, 2001 (Volume 66, No. 47.)

Part D of the Act addresses "Plan Requirements for Nonattainment Areas." Subpart 1 of Part D includes the general requirements that apply to all areas designated nonattainment based on a violation of the NAAQS. Section 172(c) of this subpart contains a list of generally required elements for all nonattainment plans. Subpart 1 is followed by a series of subparts (2-5) specific to various criteria pollutants. Subpart 4 contains the provisions specific to PM_{10} nonattainment areas. The general requirements for nonattainment plans in Section 172(c) may be subsumed within or superseded by the more specific requirements of Subpart 4, but each element must be addressed in the respective nonattainment plan.

One of the pre-conditions for a maintenance plan is a fully approved (non)attainment plan for the area. This is also discussed in section IX.A.12[~~11~~].b(2).

Other Part D requirements that are applicable in nonattainment and maintenance areas include the general and transportation conformity provisions of Section 176(c) of the Act. These provisions ensure that federally funded or approved projects and actions conform to the PM_{10} SIPs and Maintenance Plans prior to the projects or actions being implemented. The State has already submitted to EPA a SIP revision implementing the requirement of Section 176(c).

For Utah County, the Part D requirements for PM_{10} were first addressed in an attainment SIP approved by EPA on July 8, 1994 (59 FR 35036), and most recently addressed in a revision to the attainment SIP approved by EPA on December 23, 2002 (67 FR 78181).

(5) Maintenance Plan for PM_{10} Areas

As stated in the Act, an area may not request redesignation to attainment without first submitting, and then receiving EPA approval of, a maintenance plan. The plan is basically a quantitative showing that the area will continue to attain the NAAQS for an additional 10 years (from EPA approval), accompanied by sufficient assurance that the terms of the numeric demonstration will be administered by the State and by the EPA in an oversight capacity. The maintenance plan is the central criterion for redesignation. It is contained in the following subsection.

IX.A.12[~~11~~].c Maintenance Plan

CAA 107(d)(3)(E)(iv) - The Administrator has fully approved a maintenance plan for the area as meeting the requirements of section 175A. An approved maintenance plan is one of several criteria necessary for area redesignation as outlined in Section 107(d)(3)(E) of the Act. The maintenance plan itself, as described in Section 175A of the Act and further addressed in EPA guidance (Procedures for Processing Requests to Redesignate Areas to Attainment, John Calcagni to Regional Air Directors, September 4, 1992; or for the purpose of this document, simply "Calcagni"), has its own list of required elements. The following table is presented to summarize these requirements. Each will then be addressed in turn.

Table IX.A.12[~~11~~]. 4 Requirements of a Maintenance Plan in the Clean Air Act (CAA)

Category	Requirement	Reference	Addressed in Section
Maintenance demonstration	Provide for maintenance of the relevant NAAQS in the area for at least 10 years after redesignation.	CAA: Sec 175A(a)	IX.A. 12[~~11~~].c(1)
Revise in 8 Years	The State must submit an additional revision to the plan, 8 years after redesignation, showing an additional 10 years of maintenance.	CAA: Sec 175A(b)	IX.A. 12[~~11~~].c(8)
Continued Implementation of Nonattainment Area Control Strategy	The Clean Air Act requires continued implementation of the nonattainment area control strategy unless such measures are shown to be unnecessary for maintenance or are replaced with measures that achieve equivalent reductions.	CAA: Sec 175A(c), CAA Sec 110(l), Calcagni memo	IX.A. 12[~~11~~].c(7)
Contingency Measures	Areas seeking redesignation from nonattainment to attainment are required to develop contingency measures that include State commitments to implement additional control measures in response to future violations of the NAAQS.	CAA: Sec 175A(d)	IX.A. 12[~~11~~].c(10)
Verification of Continued Maintenance	The maintenance plan must indicate how the State will track the progress of the maintenance plan.	Calcagni memo	IX.A. 12[~~11~~].c(9)

(1) Demonstration of Maintenance - Modeling Analysis

CAA 175A(a) - Each State which submits a request under section 107(d) for redesignation of a nonattainment area as an area which has attained the NAAQS shall also submit a revision of the applicable implementation plan to provide for maintenance of the NAAQS for at least 10 years after the redesignation. The plan shall contain such additional measures, if any, as may be required to ensure such maintenance. The maintenance demonstration is discussed in EPA guidance (Calcagni) as one of the core provisions that should be considered by states for inclusion in a maintenance plan.

According to Calcagni, a State may generally demonstrate maintenance of the NAAQS by either showing that future emissions of a pollutant or its precursors will not exceed the level of the attainment inventory (discussed below) or by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS. Utah has elected to make its demonstration based on air quality modeling.

(a) Introduction

The following chapter presents an analysis using observational datasets to detail the chemical regimes of Utah's Nonattainment areas.

Prior to the development of this PM_{10} maintenance plan, UDAQ conducted a technical analysis to support the development of Utah's 24-hr State Implementation Plan for $PM_{2.5}$. That analysis included preparation of emissions inventories and meteorological data, and the evaluation and application of a regional photochemical model.

Outside of the springtime high wind events and wildfires, the Wasatch Front experiences high 24-hr PM_{10} concentrations under stable conditions during the wintertime (e.g., temperature inversion). These are the same episodes where the Wasatch Front sees its highest concentrations of 24-hr $PM_{2.5}$ that sometimes exceed the 24-hr $PM_{2.5}$ NAAQS. Most (60% to 90%) of the PM_{10} observed during high wintertime pollution days consists of $PM_{2.5}$. The dominant species of the wintertime PM_{10} is secondarily formed particulate nitrate, which is also the dominant species of $PM_{2.5}$.

Given these similarities, the $PM_{2.5}$ modeling analysis was utilized as the foundation for this PM_{10} Maintenance Plan.

The CMAQ model performance for the PM_{10} Maintenance Plan adds to the detailed model performance that was part of the UDAQ's previous $PM_{2.5}$ SIP process. Utah DAQ used the same modeling episode that was used in the $PM_{2.5}$ SIP, which is the 45-day modeling episode from the winter of 2009-2010. The modeled meteorology datasets from the Weather Research and Forecasting (WRF) model for the PM_{10} Plan are the same datasets used for the $PM_{2.5}$ SIP. Also, the CMAQ version (4.7.1) and CMAQ model setup (i.e., vertical advection module turned off) for the PM_{10} modeling matches the $PM_{2.5}$ SIP setup.

For this reason, much of the information presented below pertains specifically to the $PM_{2.5}$ evaluation. This is supplemented with information pertaining to PM_{10}, most notably with respect to the PM_{10} model performance evaluation.

The additional PM_{10} analysis is also presented in the Technical Support Document.

(b) Photochemical Modeling

Photochemical models are relied upon by federal and state regulatory agencies to support their planning efforts. Used properly, models can assist policy makers in deciding which control programs are most effective in improving air quality, and meeting specific goals and objectives. The air quality analyses were conducted with the Community Multiscale Air Quality (CMAQ) Model version 4.7.1, with emissions and meteorology inputs generated using SMOKE and WRF, respectively. CMAQ was selected because it is the open source atmospheric chemistry model co-sponsored by EPA and the National Oceanic Atmospheric Administration (NOAA), and thus approved by EPA for this plan.

(c) Domain/Grid Resolution

UDAQ selected a high resolution 4-km modeling domain to cover all of northern Utah including the portion of southern Idaho extending north of Franklin County and west to the Nevada border (Figure IX.A.12[~~11~~]. 8). This 97 x 79 horizontal grid cell domain was selected to ensure that all of the major emissions sources that have the potential to impact the nonattainment areas were included. The vertical resolution in the air quality model consists of 17 layers extending up to 15 km, with higher resolution in the boundary layer.

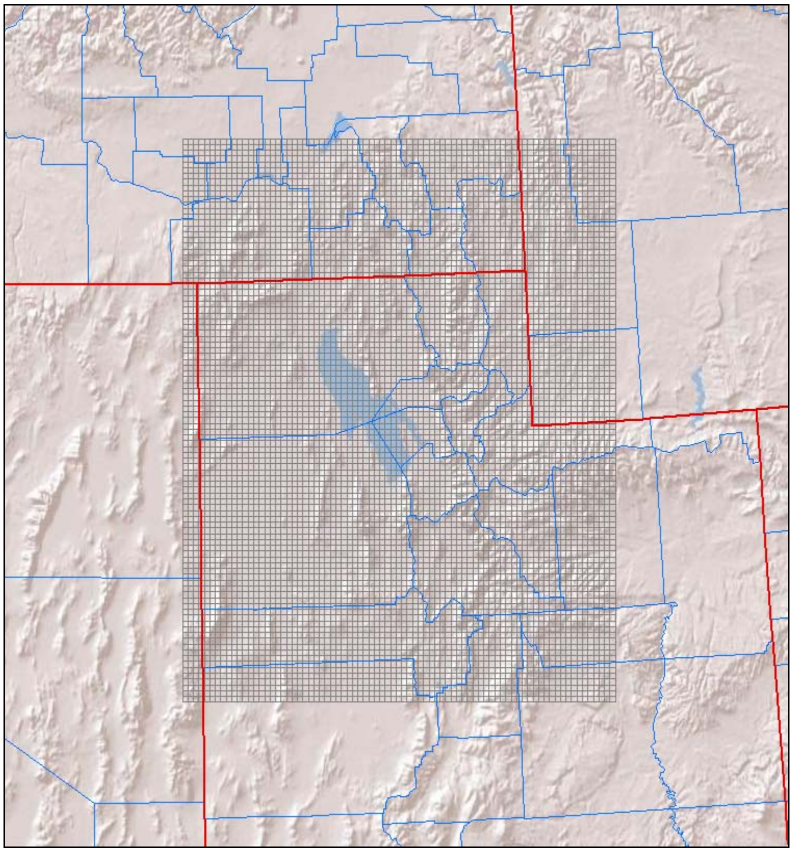


Figure IX.A.12[~~11~~]. 8 Northern Utah photochemical modeling domain.

(d) Episode Selection

According to EPA's April 2007 "Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, $PM_{2.5}$, and Regional Haze," the selection of SIP episodes for modeling should consider the following 4 criteria:

1. Select episodes that represent a variety of meteorological conditions that lead to elevated $PM_{2.5}$.

2. Select episodes during which observed concentrations are close to the baseline design value.

3. Select episodes that have extensive air quality data bases.

4. Select enough episodes such that the model attainment test is based on multiple days at each monitor violating NAAQS.

In general, UDAQ wanted to select episodes with hourly $PM_{2.5}$ concentrations that are reflective of conditions that lead to 24-hour NAAQS exceedances. From a synoptic meteorology point of view, each selected episode features a similar pattern. The typical pattern includes a deep trough over the eastern United States with a building and eastward moving ridge over the western United States. The episodes typically begin as the ridge begins to build eastward, near surface winds weaken, and rapid stabilization due to warm advection and subsidence dominate. As the ridge centers over Utah and subsidence peaks, the atmosphere becomes extremely stable and a subsidence inversion descends towards the surface. During this time, weak insolation, light winds, and cold temperatures promote the development of a persistent cold air pool. Not until the ridge moves eastward or breaks down from north to south is there enough mixing in the atmosphere to completely erode the persistent cold air pool.

From the most recent 5-year period of 2007-2011, UDAQ developed a long list of candidate $PM_{2.5}$ wintertime episodes. Three episodes were selected. An episode was selected from January 2007, an episode from February 2008, and an episode during the winter of 2009-2010 that features multi-event episodes of $PM_{2.5}$ buildup and washout.

As noted in the introduction, these episodes were also ideal from the standpoint of characterizing PM_{10} buildup and formation.

Further detail of the episodes is below:

- **Episode 1: January 11-20, 2007**

A cold front passed through Utah during the early portion of the episode and brought very cold temperatures and several inches of fresh snow to the Wasatch Front. The trough was quickly followed by a ridge that built north into British Columbia and began expanding east into Utah. This ridge did not fully center itself over Utah, but the associated light winds, cold temperatures, fresh snow, and subsidence inversion produced very stagnant conditions along the Wasatch Front. High temperatures in Salt Lake City throughout the episode were in the high teens to mid-20's Fahrenheit.

Figure IX.A.12[~~11~~]. 9 shows hourly $PM_{2.5}$ concentrations from Utah's 4 $PM_{2.5}$ monitors for January 11-20, 2007. The first 6 to 8 days of this episode are suited for modeling. The episode becomes less suited after January 18 because of the complexities in the meteorological conditions leading to temporary $PM_{2.5}$ reductions.

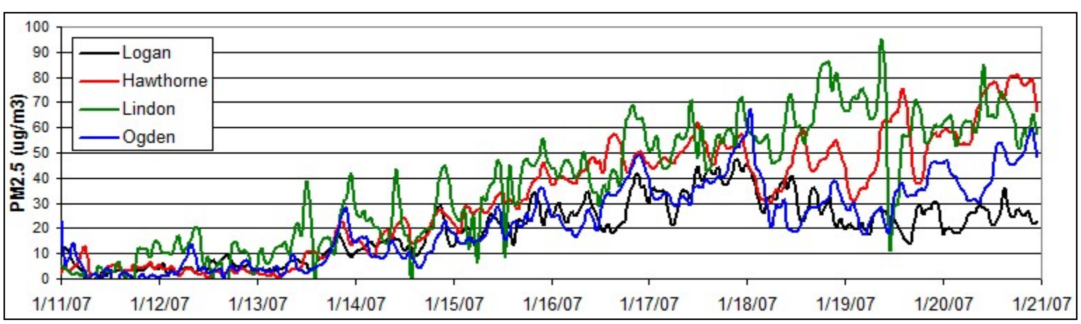


Figure IX.A.12[~~11~~]. 9 Hourly $PM_{2.5}$ concentrations for January 11-20, 2007

- **Episode 2: February 14-18, 2008**

The February 2008 episode features a cold front passage at the start of the episode that brought significant new snow to the Wasatch Front. A ridge began building eastward from the Pacific Coast and centered itself over Utah on Feb 20th. During this time a subsidence inversion lowered significantly from February 16 to February 19. Temperatures during this episode were mild with high temperatures at SLC in the upper 30's and lower 40's Fahrenheit.

The 24-hour average $PM_{2.5}$ exceedances observed during the proposed modeling period of February 14-19, 2008 were not exceptionally high. What makes this episode a good candidate for modeling are the high hourly values and smooth concentration build-up. The first 24-hour exceedances occurred on February 16 and were followed by a rapid increase in $PM_{2.5}$ through the first half of February 17 (Figure IX.A.12[~~11~~]. 10). During the second half of February 17, a subtle meteorological feature produced a mid-morning partial mix-out of particulate matter and forced 24-hour averages to fall. After February 18, the atmosphere began to stabilize again and resulted in even higher $PM_{2.5}$ concentrations during February 20, 21, and 22. Modeling the 14th through the 19th of this episode should successfully capture these dynamics. The smooth gradual build-up of hourly $PM_{2.5}$ is ideal for modeling.

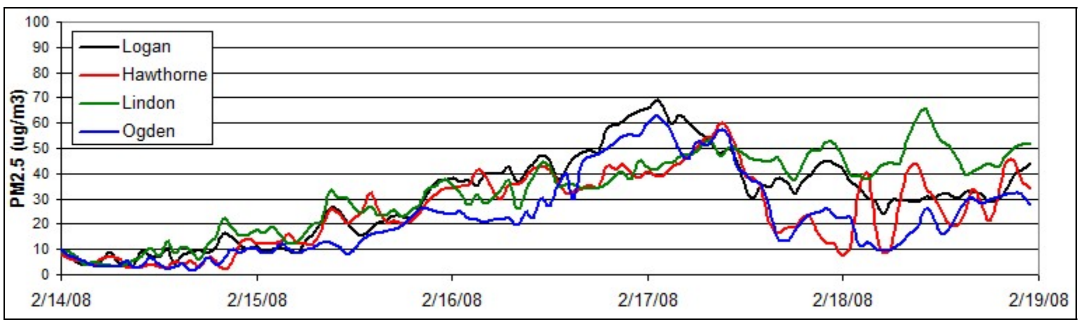


Figure IX.A.12[~~11~~]. 10 Hourly $PM_{2.5}$ concentrations for February 14-19, 2008

- **Episode 3: December 13, 2009 – January 18, 2010**

The third episode that was selected is more similar to a "season" than a single $PM_{2.5}$ episode (Figure IX.A.12[~~11~~]. 11). During the winter of 2009 and 2010, Utah was dominated by a semi-permanent ridge of high pressure that prevented strong storms from crossing Utah. This 35 day period was characterized by 4 to 5 individual $PM_{2.5}$ episodes each followed by a partial $PM_{2.5}$ mix out when a weak weather system passed through the ridge. The long length of the episode and repetitive $PM_{2.5}$ build-up and mix-out cycles makes it ideal for evaluating model strengths and weaknesses and $PM_{2.5}$ control strategies.

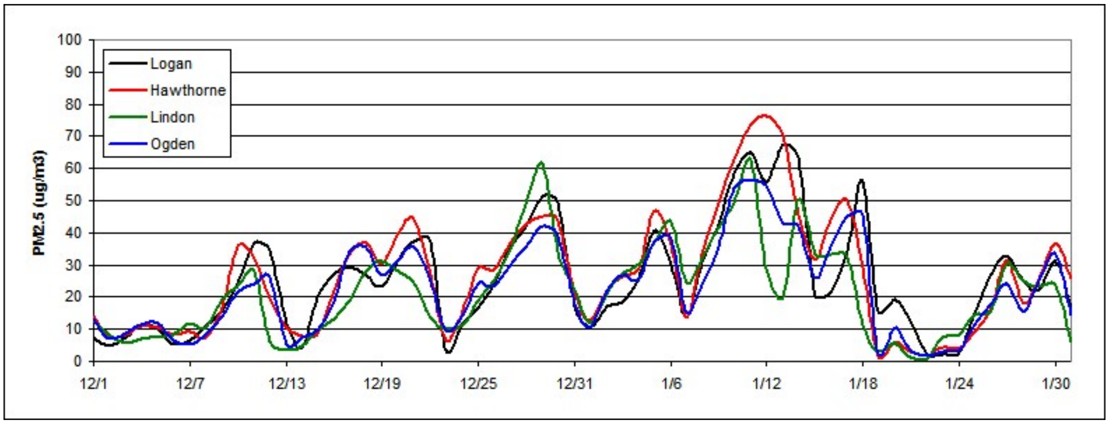


Figure IX.A.12[~~11~~]. 11 24-hour average $PM_{2.5}$ concentrations for December-January, 2009-10

(e) Meteorological Data

Meteorological inputs were derived using the Advanced Research WRF (WRF-ARW) model version 3.2. WRF contains separate modules to compute different physical processes such as surface energy budgets and soil interactions, turbulence, cloud microphysics, and atmospheric radiation. Within WRF, the user has many options for selecting the different schemes for each type of physical process. There is also a WRF Preprocessing System (WPS) that generates the initial and boundary conditions used by WRF, based on topographic datasets, land use information, and larger-scale atmospheric and oceanic models.

Model performance of WRF was assessed against observations at sites maintained by the Utah Air Monitoring Center. A summary of the performance evaluation results for WRF are presented below:

- The biggest issue with meteorological performance is the existence of a warm bias in surface temperatures during high $PM_{2.5}$ episodes. This warm bias is a common trait of WRF modeling during Utah wintertime inversions.

- WRF does a good job of replicating the light wind speeds (< 5 mph) that occur during high $PM_{2.5}$ episodes.

- WRF is able to simulate the diurnal wind flows common during high $PM_{2.5}$ episodes. WRF captures the overnight downslope and daytime upslope wind flow that occurs in Utah valley basins.

- WRF has reasonable ability to replicate the vertical temperature structure of the boundary layer (i.e., the temperature inversion), although it is difficult for WRF to reproduce the inversion when the inversion is shallow and strong (i.e., an 8 degree temperature increase over 100 vertical meters).

(f) Photochemical Model Performance Evaluation

$PM_{2.5}$ Results

The model performance evaluation focused on the magnitude, spatial pattern, and temporal variation of modeled and measured concentrations. This exercise was intended to assess whether, and to what degree, confidence in the model is warranted (and to assess whether model improvements are necessary).

CMAQ model performance was assessed with observed air quality datasets at UDAQ-maintained air monitoring sites (Figure IX.A.12[~~11~~]. 12). Measurements of observed $PM_{2.5}$ concentrations along with gaseous precursors of secondary particulate (e.g., NO_x, ozone) and carbon monoxide are made throughout winter at most of the locations in the figure. $PM_{2.5}$ speciation performance was assessed using the three Speciation Monitoring Network Sites (STN) located at the Hawthorne site in Salt Lake City, the Bountiful site in Davis County, and the Lindon site in Utah County.

PM_{10} data is also collected at Logan, Bountiful, Ogden2, Magna, Hawthorne, North Provo, and Lindon.

PM_{10} filters were collected at Bountiful, Hawthorne and Lindon, and analyzed with the goal comparing CMAQ modeled speciation to the collected PM_{10} filters. While analyzing the PM_{10} filters, most of the secondarily chemically formed particulate nitrate had been volatized, and thus could not be accounted for. This is most likely due to the age of the filters, which were collected over five years ago. Thus, a robust comparison of CMAQ modeled PM_{10} speciation to PM_{10} filter speciation could not be made for this modeling period.

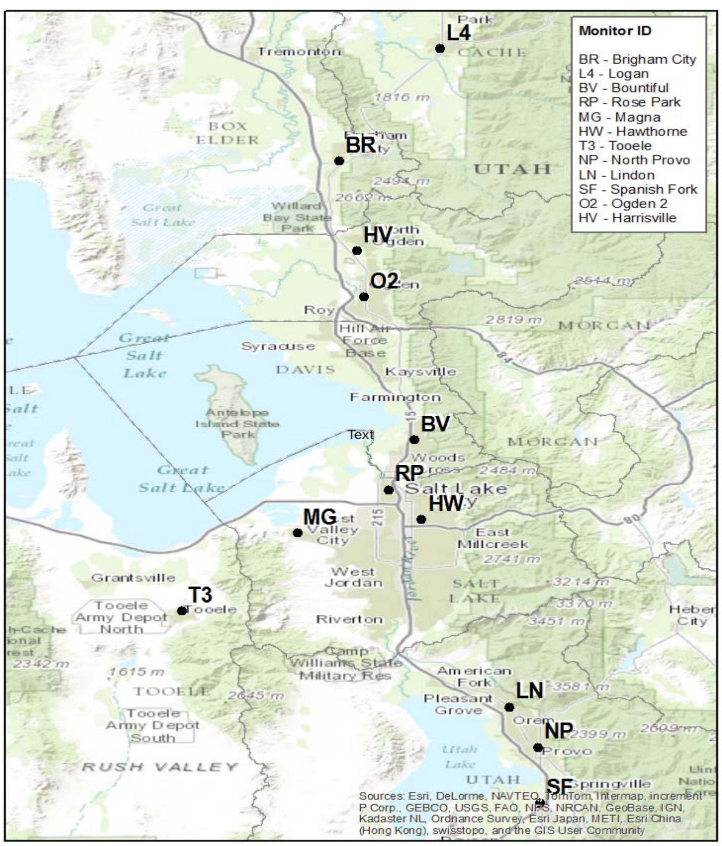


Figure IX.A.12[~~11~~]. 12 UDAQ monitoring network.

A spatial plot is provided for modeled 24-hr $PM_{2.5}$ for 2010 January 03 in Figure IX.A.12[~~11~~]. 13. The spatial plot shows the model does a reasonable job reproducing the high $PM_{2.5}$ values, and keeping those high values confined in the valley locations where emissions occur.

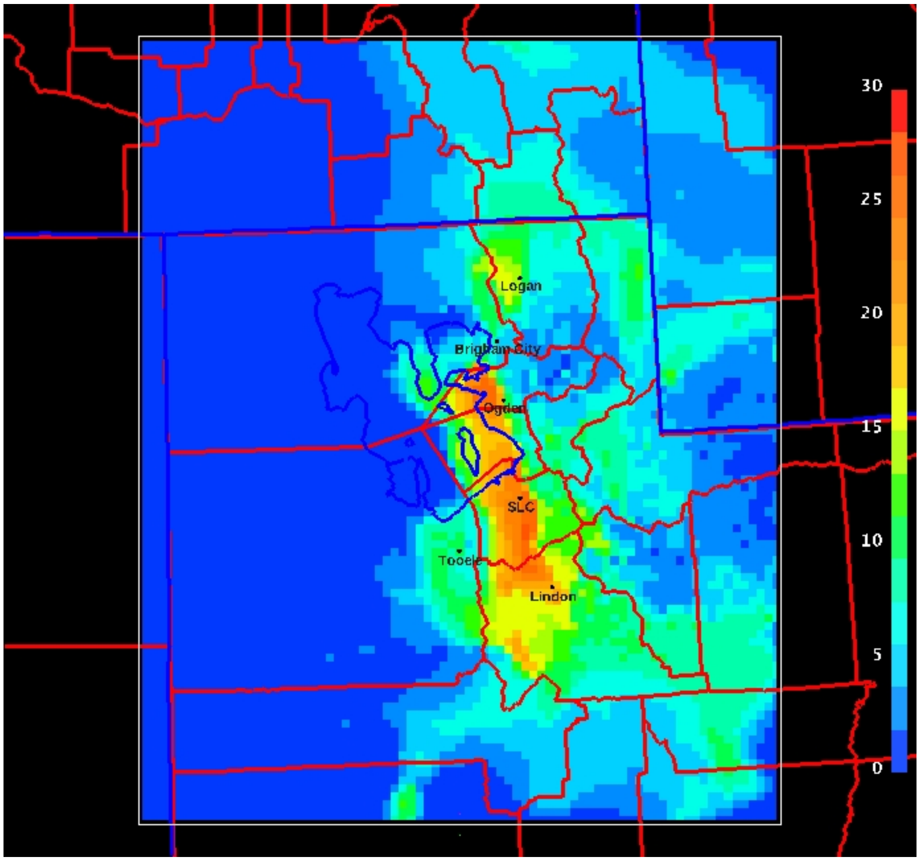


Figure IX.A.12[~~11~~]. 13 Spatial plot of CMAQ modeled 24-hr $PM_{2.5}$ ($\mu g/m^3$) for 2010 Jan. 03.

Time series of 24-hr $PM_{2.5}$ concentrations for the 13 Dec. 2009 – 15 Jan. 2010 modeling period are shown in Figs. IX.A.12[~~11~~]. 14-17 at the Hawthorne site in Salt Lake City, the Ogden site in Weber County, the Lindon site in Utah County, and the Logan site in Cache County. For the most part, CMAQ replicates the buildup and washout of each individual episode. While CMAQ builds 24-hr $PM_{2.5}$ concentrations during the 08 Jan. – 14 Jan. 2010 episode, it was not able to produce the > 60 $\mu g/m^3$ concentrations observed at the monitoring locations.

It is often seen that CMAQ "washes" out the $PM_{2.5}$ episode a day or two earlier than that seen in the observations. For example, on the day 21 Dec. 2009, the concentration of $PM_{2.5}$ continues to build while CMAQ has already cleaned the valley basins of high $PM_{2.5}$ concentrations. At these times, the observed cold pool that holds the $PM_{2.5}$ is often very shallow and winds just above this cold pool are southerly and strong before the approaching cold front. This situation is very difficult for a meteorological and photochemical model to reproduce. An example of this situation is shown in Fig. IX.A.12[~~11~~]. 18, where the lowest part of the Salt Lake Valley is still under a very shallow stable cold pool, yet higher elevations of the valley have already been cleared of the high $PM_{2.5}$ concentrations.

During the 24 – 30 Dec. 2009 episode, a weak meteorological disturbance brushes through the northernmost portion of Utah. It is noticeable in the observations at the Ogden monitor on 25

Dec. as $PM_{2.5}$ concentrations drop on this day before resuming an increase through Dec. 30. The meteorological model and thus CMAQ correctly pick up this disturbance, but completely clears out the building $PM_{2.5}$; and thus performance suffers at the most northern Utah monitors (e.g. Ogden, Logan). The monitors to the south (Hawthorne, Lindon) are not influence by this disturbance and building of $PM_{2.5}$ is replicated by CMAQ. This highlights another challenge of modeling $PM_{2.5}$ episodes in Utah. Often during cold pool events, weak disturbances will pass through Utah that will de-stabilize the valley inversion and cause a partial clear out of $PM_{2.5}$. However, the $PM_{2.5}$ is not completely cleared out, and after the disturbance exits, the valley inversion strengthens and the $PM_{2.5}$ concentrations continue to build. Typically, CMAQ completely mixes out the valley inversion during these weak disturbances.

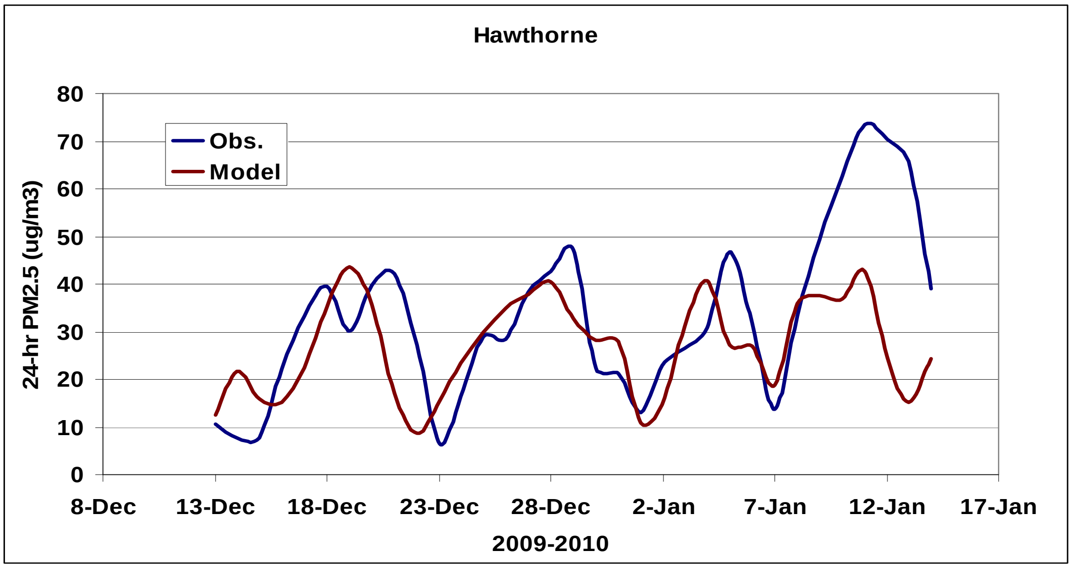


Figure IX.A.12[~~11~~]. 14 24-hr $PM_{2.5}$ time series (Hawthorne). Observed 24-hr $PM_{2.5}$ (blue trace) and CMAQ modeled 24-hr PM2.5 (red trace).

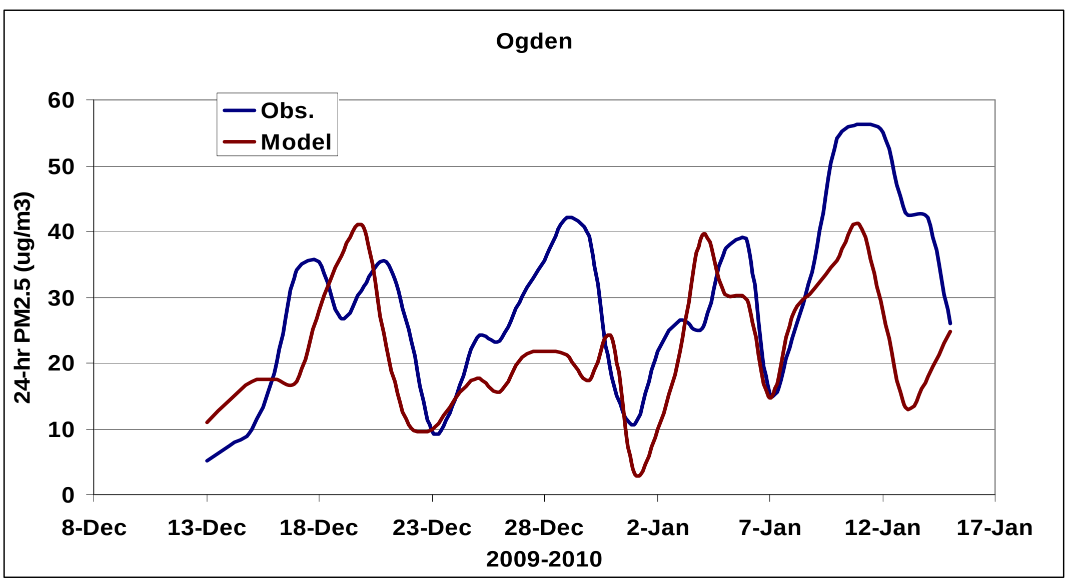


Figure IX.A.12[~~11~~]. 15 24-hr $PM_{2.5}$ time series (Ogden). Observed 24-hr $PM_{2.5}$ (blue trace) and CMAQ modeled 24-hr $PM_{2.5}$ (red trace).

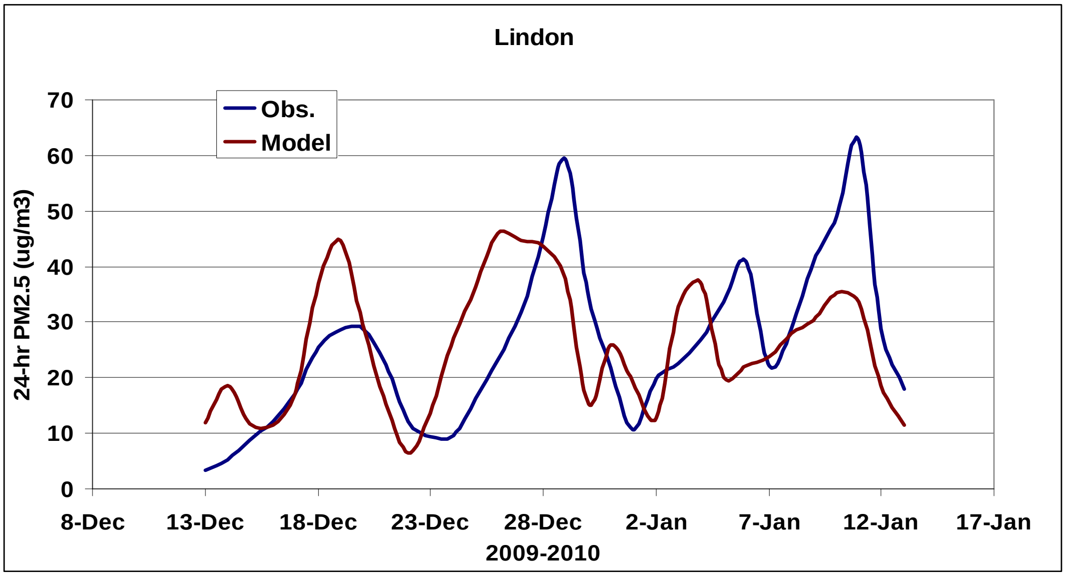


Figure IX.A.12[~~11~~]. 16 24-hr $PM_{2.5}$ time series (Lindon). Observed 24-hr $PM_{2.5}$ (blue trace) and CMAQ modeled 24-hr $PM_{2.5}$ (red trace).

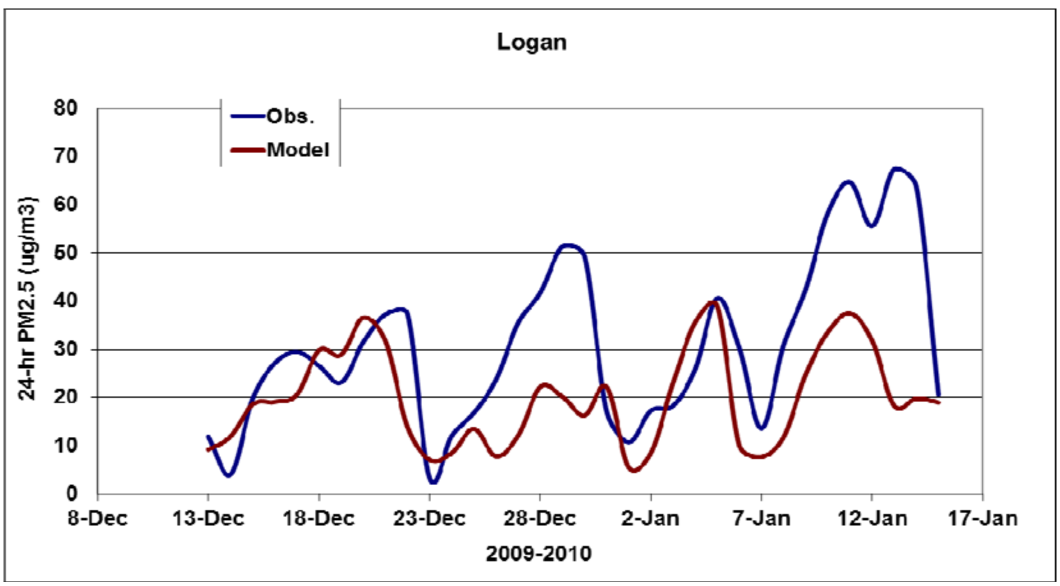


Figure IX.A.12[~~11~~]. 17 24-hr $PM_{2.5}$ time series (Logan). Observed 24-hr $PM_{2.5}$ (blue trace) and CMAQ modeled 24-hr $PM_{2.5}$ (red trace).

Figure IX.A.12[~~11~~]. 18 An example of the Salt Lake Valley at the end of a high $PM_{2.5}$ episode. The lowest elevations of the Salt Lake Valley are still experiencing an inversion and elevated $PM_{2.5}$ concentrations while the $PM_{2.5}$ has been 'cleared out' throughout the rest of the valley. These 'end of episode' clear out periods are difficult to replicate in the photochemical model.

Generally, the performance of CMAQ to replicate the buildup and clear out of $PM_{2.5}$ is good. However, it is important to verify that CMAQ is replicating the components of $PM_{2.5}$ concentrations. $PM_{2.5}$ simulated and observed speciation is shown at the 3 STN sites in Figures IX.A.12[~~11~~]. 19-21. The observed speciation is constructed using days in which the STN filter 24-hr $PM_{2.5}$ concentration was > 35 µg/m^3. For the 2009-2010 modeling period, the observed speciation pie charts were created using 8 filter days at Hawthorne, 6 days at Lindon, and 4 days at Bountiful.

The simulated speciation is constructed using modeling days that produced 24-hr $PM_{2.5}$ concentrations > 35 µg/m^3. Using this criterion, the simulated speciation pie chart is created from 18 modeling days for Hawthorne, 14 days at Lindon, and 14 days at Bountiful.
At all 3 STN sites, the percentage of simulated nitrate is greater than 40%, while the simulated ammonium percentage is at ~15%. This indicates that the model is able to replicate the secondarily formed particulates that typically make up the majority of the measured $PM_{2.5}$ on the STN filters during wintertime pollution events.

The percentage of model simulated organic carbon is ~13% at all STN sites, which is in agreement with the observed speciation of organic carbon at Hawthorne and slightly overestimated (by ~3%) at Lindon and Bountiful.

There is no STN site in the Logan nonattainment area, and very little speciation information available in the Cache Valley. Figure IX.A.12[~~11~~]. 22 shows the model simulated speciation at Logan. Ammonium (17%) and nitrate (56%) make up a higher percentage of the simulated $PM_{2.5}$ at Logan when compared to sites along the Wasatch Front.

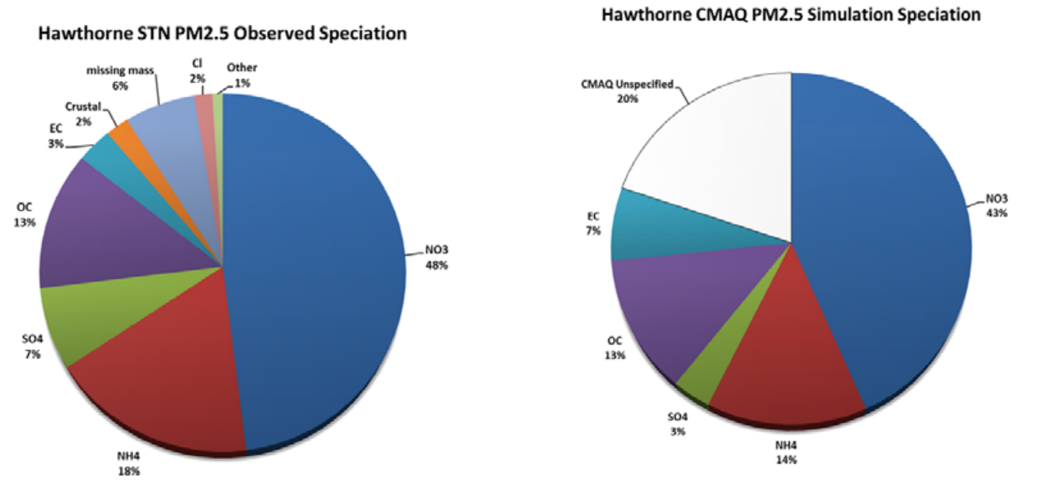


Figure IX.A.12[~~11~~]. 19 The composition of observed and model simulated average 24-hr $PM_{2.5}$ speciation averaged over days when an observed and modeled day had 24-hr concentrations > 35 μg/m^3 at the Hawthorne STN site.

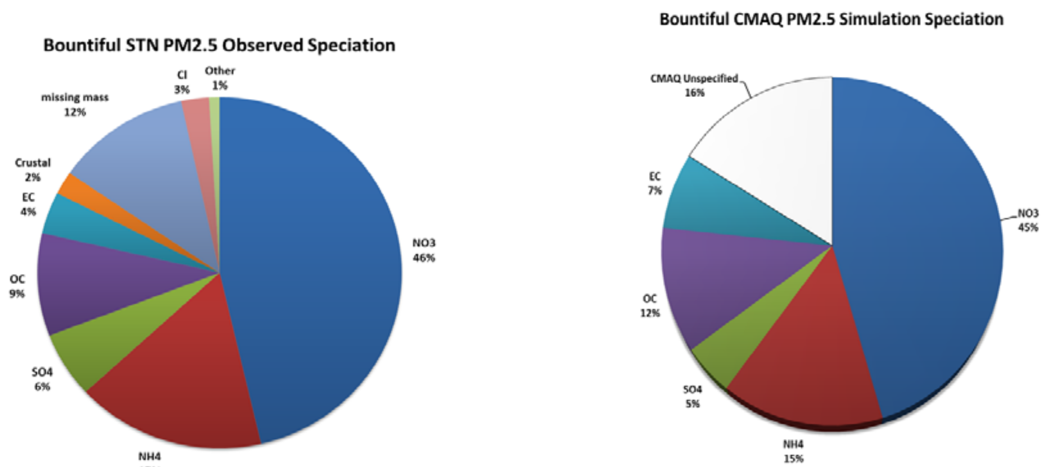


Figure IX.A.12[~~11~~]. 20 The composition of observed and model simulated average 24-hr $PM_{2.5}$ speciation averaged over days when an observed and modeled day had 24-hr concentrations > 35 μg/m^3 at the Bountiful STN site.

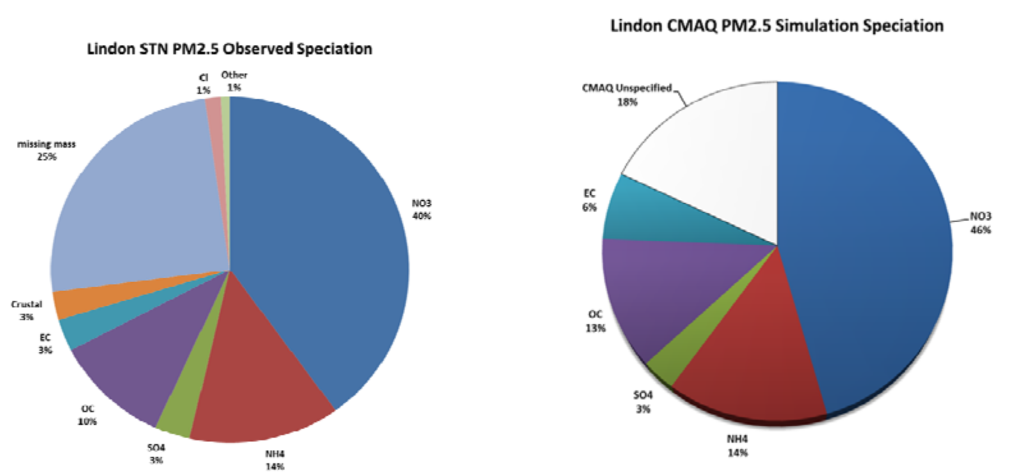


Figure IX.A.12[~~11~~]. 21 The composition of observed and model simulated average 24-hr $PM_{2.5}$ speciation averaged over days when an observed and modeled day had 24-hr concentrations > 35 µg/m^3 at the Lindon STN site.

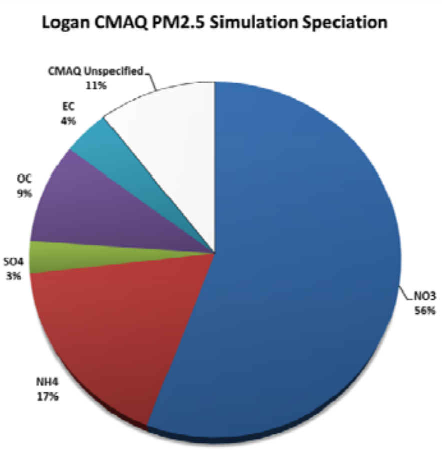


Figure IX.A.12[~~11~~]. 22 The composition of model simulated average 24-hr $PM_{2.5}$ speciation averaged over days when a modeled day had 24-hr concentrations > 35 µg/m^3 at the Logan monitoring site. No observed speciation data is available for Logan.

PM_{10} Results

As mentioned previously, the bulk of the performance for CMAQ modeled Particulate Matter (PM) for the 2009 – 2010 episode was done for the 24-hr $PM_{2.5}$ SIP. The detailed model performance was shown using time series, statistical metrics, and pie charts. For the CMAQ performance of PM_{10} in particular, UDAQ has updated the model versus observations time series plots to show PM_{10}, in addition to the prior times series using $PM_{2.5}$. For the 2009 – 2010 episode, UDAQ collected PM_{10} observational data at Hawthorne and Magna in Salt Lake County; Lindon and North Provo in Utah County; and for Ogden City.

The PM_{10} model versus observation time series is shown in Figures IX.A.12[~~11~~]. 23-28.

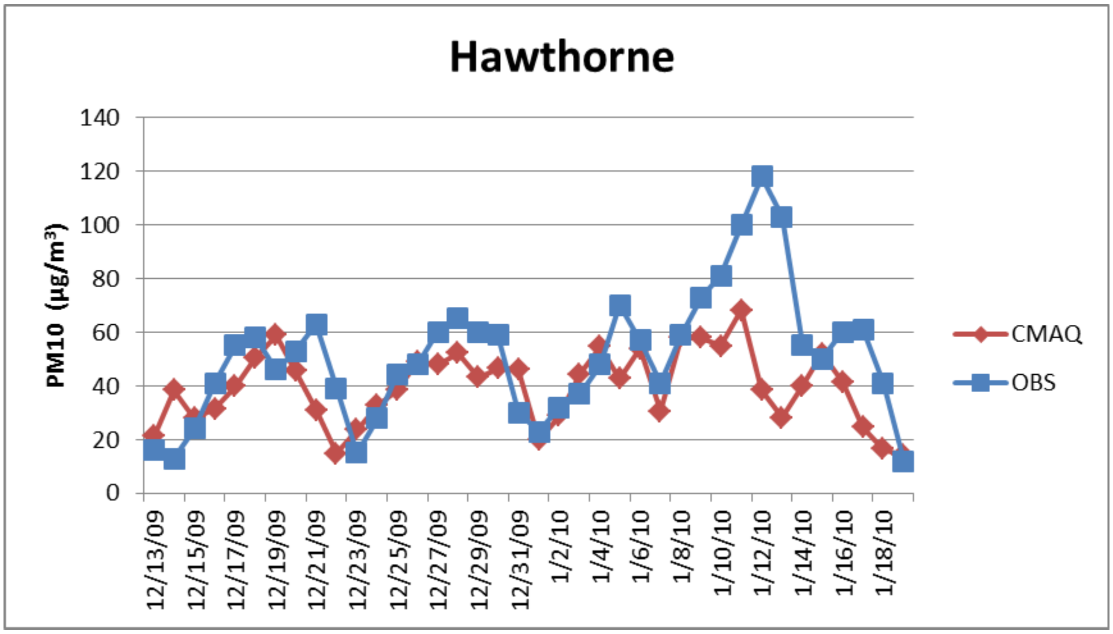


Figure IX.A.12[~~11~~]. 23 Time Series of total PM10 (ug/m3) for Hawthorne for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

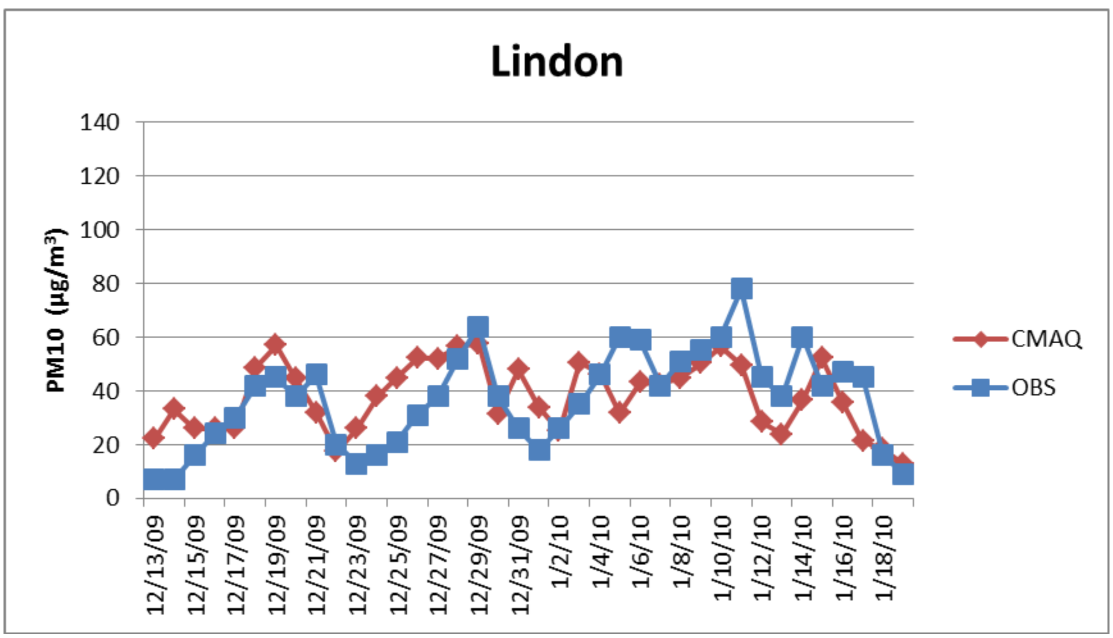


Figure IX.A.12[~~11~~]. 24 Time Series of total PM10 (ug/m3) for Lindon for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

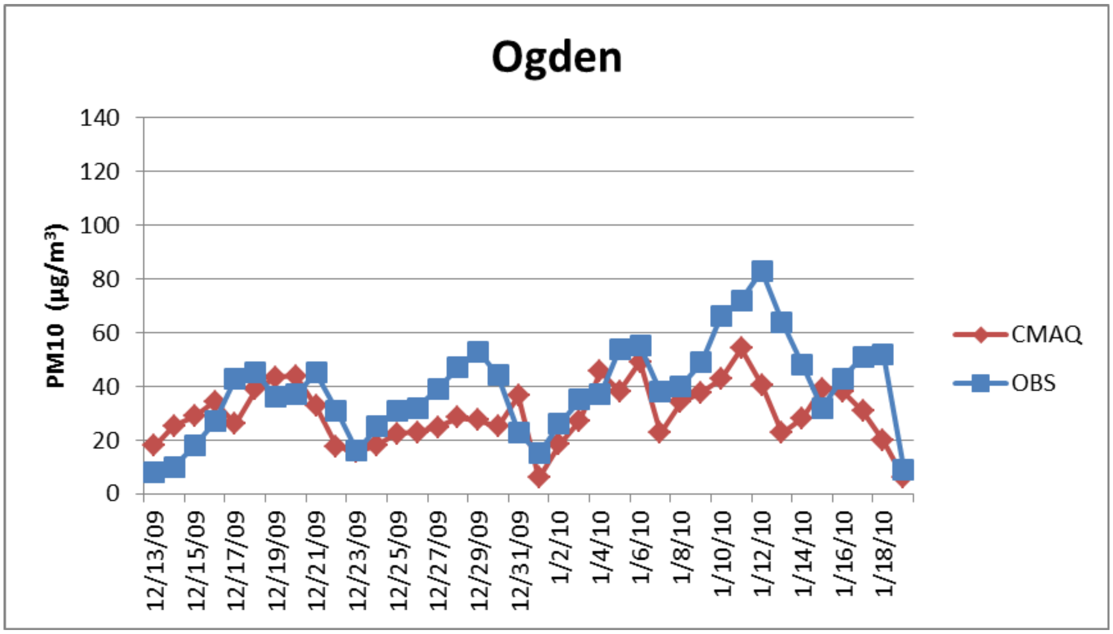


Figure IX.A.12[~~11~~]. 25 Time Series of total PM10 (ug/m3) for Ogden for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

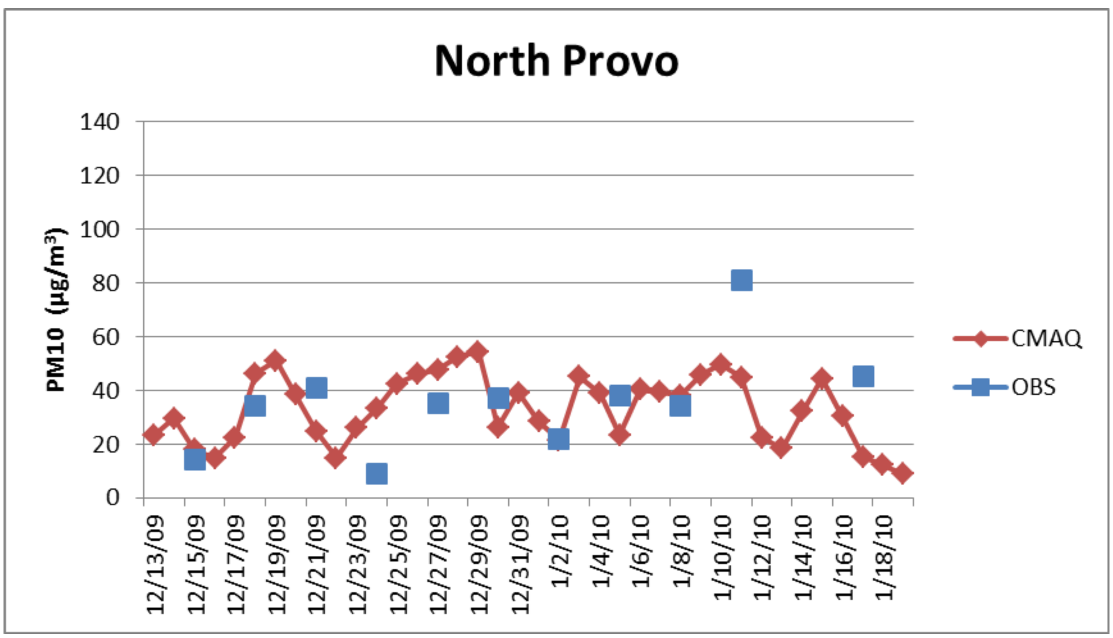


Figure IX.A.12[~~11~~]. 26 Time Series of total PM10 (ug/m3) for North Provo for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

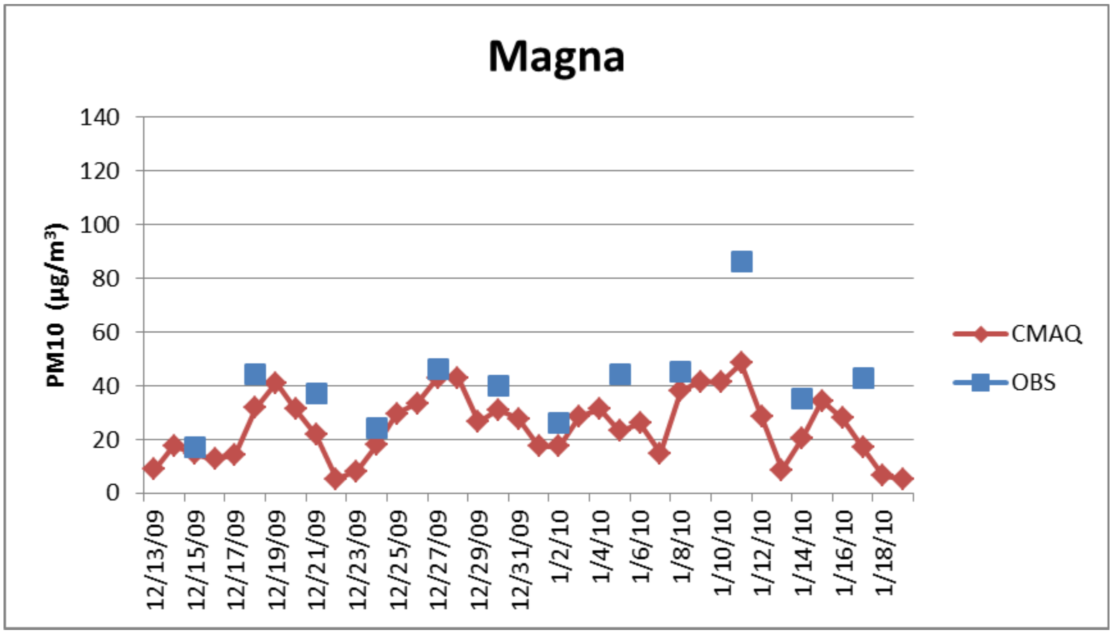


Figure IX.A.12[~~11~~]. 27 Time Series of total PM10 (ug/m3) for Magna for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

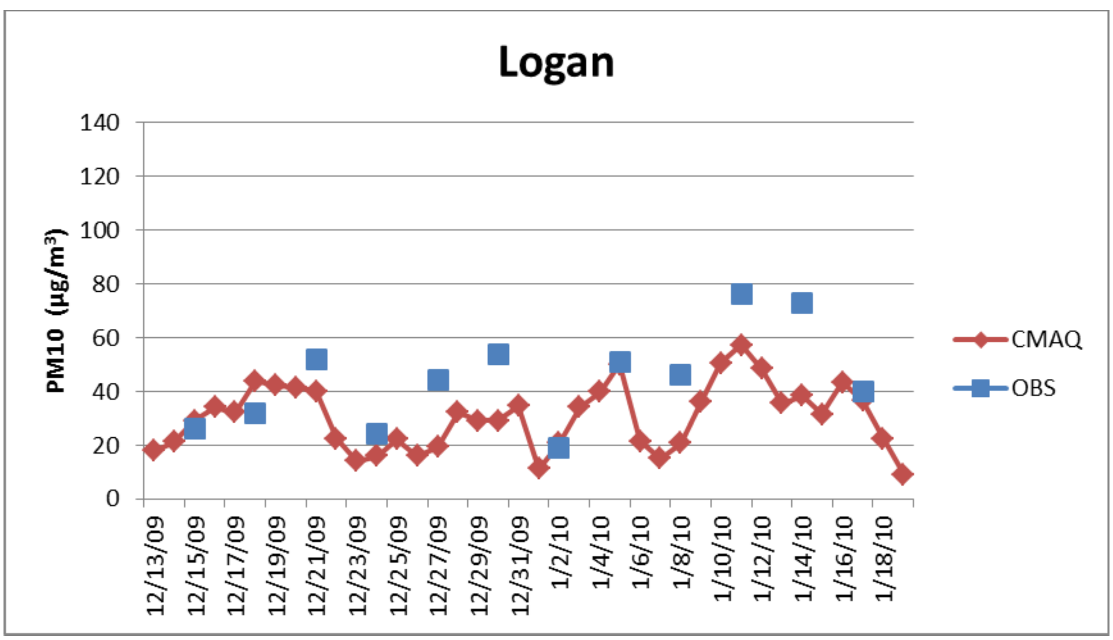


Figure IX.A.12[~~11~~]. 28 Time Series of total PM10 (ug/m3) for Logan for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

As noted before, a robust comparison of CMAQ modeled PM_{10} speciation to PM_{10} filter speciation could not be made for this modeling period because most of the secondarily chemically formed particulate nitrate had been volatized from the PM_{10} filters and thus could not be accounted for. It should be noted that CMAQ was able to produce the secondarily formed nitrate

when compared to $PM_{2.5}$ filters during the previous $PM_{2.5}$ SIP work. Therefore, UDAQ feels CMAQ shows good replication of the species that make up PM_{10} during wintertime pollution events.

(g) Summary of Model Performance

Model performance for 24-hr $PM_{2.5}$ is good and generally acceptable and can be characterized as follows:

- Good replication of the episodic buildup and clear out of $PM_{2.5}$. Often the model will clear out the simulated $PM_{2.5}$ a day too early at the end of an episode. This clear out time period is difficult to model (i.e., Figure IX.A.<u>12</u>[~~11~~]. 18).

- Good agreement in the magnitude of $PM_{2.5}$, as the model can consistently produce the high concentrations of $PM_{2.5}$ that coincide with observed high concentrations.

- Spatial patterns of modeled 24-hr $PM_{2.5}$, show for the most part, that the $PM_{2.5}$ is being confined in the valley basins, consistent to what is observed.

- Speciation and composition of the modeled $PM_{2.5}$ matches the observed speciation quite well. Modeled and observed nitrate are between 40% and 50% of the $PM_{2.5}$. Ammonium is between 15% and 20% for both modeled and observed $PM_{2.5}$, while modeled and observed organic carbon falls between 10% to 13% of the total $PM_{2.5.}$

For PM_{10} the CMAQ model performance is quite good at all locations along Northern Utah. CMAQ is able to re-produce the buildup and washout of the pollution episodes during the 2009 – 2010 winter. CMAQ is also able to re-produce the peak PM_{10} concentrations during most episodes. The exception being the 2010 Jan. 08 – 14 episode, where CMAQ fails to build to the extremely high PM_{10} concentration (>80 ug/m3) seen at the monitors. This episode in particular featured an "early model washout," and these results are similar to the results found in $PM_{2.5}$ modeling.

Several observations should be noted on the implications of these model performance findings on the attainment modeling presented in the following section. First, it has been demonstrated that model performance overall is acceptable and, thus, the model can be used for air quality planning purposes. Second, consistent with EPA guidance, the model is used in a relative sense to project future year values. EPA suggests that this approach "should reduce some of the uncertainty attendant with using absolute model predictions alone."

(h) Modeled Attainment Test

- **Introduction**

With acceptable performance, the model can be utilized to make future-year attainment projections. For any given (future) year, an attainment projection is made by calculating a concentration termed the Future Design Value (FDV). This calculation is made for each monitor included in the analysis, and then compared to the NAAQS (150 $\mu g/m^3$). If the FDV at every monitor located within a nonattainment area is smaller than the NAAQS, this would demonstrate attainment for that area in that future year.

A maintenance plan must demonstrate continued attainment of the NAAQS for a span of ten years. This span is measured from the time EPA approves the plan, a date which is somewhat uncertain during plan development. To be conservative, attainment projections were made for 2019, 2028, and 2030. An assessment was also made for 2024 as a "spot-check" against emission trends within the ten year span.

- **PM_{10} Baseline Design Values**

For any monitor, the FDV is greatly influenced by existing air quality at that location. This can be quantified and expressed as a Baseline Design Value (BDV). The BDV is consistent with the form of the 24-hour PM_{10} NAAQS; that is, that the probability of exceeding the standard should be no greater than once per calendar year. Quantification of the BDV for each monitor is included in the TSD, and is consistent with EPA guidance.

Hourly PM_{10} observations are taken from FRM filters spanning five monitors in three maintenance areas: Salt Lake County, Utah County, and the city of Ogden.

In Table IX.A.12[~~11~~]. 5, baseline design values are given for Ogden, Hawthorne, Magna, Lindon, and North Provo. These values were calculated based on data collected during the 2011-2014 time period.

Table IX.A.12[~~11~~]. 5: Baseline design values listed for each monitor.

Site	Maintenance Area	2011-2014 BDV
Ogden	Ogden City	88.2 $\mu g/m^3$
Hawthorne	Salt Lake County	100.9 $\mu g/m^3$
Magna	Salt Lake County	70.5 $\mu g/m^3$
Lindon	Utah County	111.4 $\mu g/m^3$
North Provo	Utah County	124.4 $\mu g/m^3$

- **Relative Response Factors**

In making future-year predictions, the output from the CMAQ 4.7.1 model is not considered to be an absolute answer. Rather, the model is used in a relative sense. In doing so, a comparison is made using the predicted concentrations for both the year in question and a pre-selected base-year, which for this plan is 2011. This comparison results in a Relative Response Factor (RRF). RRFs are calculated as follows:

1) Modeled PM_{10} concentrations are calculated for each grid cell in the modeling domain over the 39-day wintertime 2009-2010 episode. Of particular interest are the nine grid cells (3x3 window) that are collocated with each monitor. The monitor, itself is located in the window's center cell.

2) For every simulated day, the maximum daily PM_{10} concentration for each of these nine-cell windows is identified.

3) For each monitor, the top 20% of these 39 values are averaged to formulate a modeled PM_{10} peak concentration value (PCV).

4) At each monitor, the RRF is calculated as the ratio between future-year PCV and base-year PCV: **RRF = FPCV / BPCV**

- **Future Design Values and Results**

Finally, for each monitor, the FDV is calculated by multiplying the baseline design value by the relative response factor: **FDV = RRF * BDV**. These FDV's are compared to the NAAQS in order to determine whether attainment is predicted at that location or not. The results for each of the monitors are shown below in Table IX.A.12[~~11~~]. 6.

Table IX.A.12[~~11~~]. 6: Baseline design values, relative response factors, and future design values for all monitors and future years. Units of design values are μg/m^3, while RRF's are dimensionless.

Monitor	2011 BDV	2019 RRF	2019 FDV	2024 RRF	2024 FDV	2028 RRF	2028 FDV	2030 RRF	2030 FDV
Ogden	88.2	1.05	92.6	1.04	91.7	1.04[~~02~~]	91.7[~~90.0~~]	1.05	92.6
Hawthorne	100.9	1.09	110.0	1.09	110.0	1.11[~~09~~]	112.0[~~110.0~~]	1.12	113.0
Magna	70.5	1.14	80.4	1.13	79.7	1.14[~~11~~]	80.4[~~78.3~~]	1.15	81.1
Lindon	111.4	1.16	129.2	1.12	124.8	1.14[~~11~~]	127.0[~~123.7~~]	1.16	129.2
North Provo	124.4	1.15	143.1	1.12	139.3	1.13[~~10~~]	140.6[~~136.8~~]	1.15	143.1

For all future-years and monitors, no FDV exceeds the NAAQS. Therefore continued attainment is demonstrated for all three maintenance areas.

(2) Attainment Inventory

The attainment inventory is discussed in EPA guidance (Calcagni) as another one of the core provisions that should be considered by states for inclusion in a maintenance plan.

According to Calcagni, the stated purpose of the attainment inventory is to establish the level of emissions during the time periods associated with monitoring data showing attainment.

In cases such as this, where a maintenance demonstration is founded on a modeling analysis that is used in a relative sense, the baseline inventory modeled as the basis for comparison with every projection year model run is best suited to act as the attainment inventory. For this analysis, a baseline inventory was compiled for the year 2011. This year also falls within the span of data representing current attainment of the PM_{10} NAAQS.

Calcagni speaks about the projection inventory as well, and notes that it should consider future growth, including population and industry, should be consistent with the base-year attainment inventory, and should document data inputs and assumptions. Any assumptions concerning emission rates must reflect permanent, enforceable measures.

Utah compiled projection inventories for use in the quantitative modeling demonstration. The years selected for projection included 2019, 2024, 2028, and 2030. The emissions contained in the inventories include sources located within a regional area called a modeling domain. The modeling domain encompasses all three areas within the state that were designated as nonattainment areas for PM_{10}: Salt Lake County, Utah County, and Ogden City, as well as a bordering region see Figure IX.A.12[~~11~~]. 1.

Since this bordering region is so large (owing to its creation to assess a much larger region of $PM_{2.5}$ nonattainment), a "core area" within this domain was identified wherein a higher degree of accuracy would be important. Within this core area (which includes Weber, Davis, Salt Lake, and Utah Counties), SIP-specific inventories were prepared to include seasonal adjustments and forecasting to represent each of the projection years. In the bordering regions away from this core, the 2011 National Emissions Inventory was downloaded from EPA and inserted to the analysis. It remained unchanged throughout the analysis period.

There are four general categories of sources included in these inventories: large stationary sources, smaller area sources, on-road mobile sources, and off-road mobile sources.

For each of these source categories, the pollutants that were inventoried included: particulate matter with an aerodynamic diameter of ten microns or less (PM_{10}), sulfur dioxide (SO_2), oxides of nitrogen (NO_X), volatile organic compounds (VOC), and ammonia. SO_2 and NO_X are specifically defined as PM_{10} precursors, that is, compounds that, after being emitted to the atmosphere, undergo chemical or physical change to become PM_{10}. Any PM_{10} that is created in this way is referred to as secondary aerosol. The CMAQ model also considers ammonia and VOC to be contributing factors in the formation of secondary aerosol.

The unit of measure for point and area sources is the traditional tons per year, but the CMAQ model includes a pre-processor that converts these emission rates to hourly increments throughout each day for each episode. Mobile source emissions are reported in terms of tons per day, and are also pre-processed by the model.

The basis for the point source and area inventories, for the base-year attainment inventory as well as all future-year projection inventories, was the 2011 tri-annual inventory of actual emissions that had already been compiled by the Division of Air Quality.

Area sources, off-road mobile sources, and generally also the large point sources were projected forward from 2011, using population and economic forecasts from the Governor's Office of Management and Budget.

Mobile source emissions were calculated for each year using MOVES2010 in conjunction with the appropriate estimates for vehicle miles traveled (VMT). VMT estimates for the urban counties were based on a travel demand model that is only run periodically for specific projection years. VMT for intervening years were estimated by interpolation.

Since this SIP subsection takes the form of a maintenance plan, it must demonstrate that the area will continue to attain the PM_{10} NAAQS throughout a period of ten years from the date of EPA approval. It is also necessary to "spot check" this ten-year interval. Hence, projection inventories were prepared for the following years: 2019, 2024, 2028, (the ten-year mark from anticipated EPA approval), and 2030. 2011 was established as the baseline period.

The following tables are provided to summarize these inventories. As described, they represent point, area, on-road mobile, and off-road mobile sources in the modeling domain. They include PM_{10}, SO_2, NO_X, VOC, and ammonia.

The first Table IX.A.12[~~11~~]. 7 shows the baseline emissions for each of the areas within the modeling domain. The second Table IX.A.12[~~11~~]. 8 is specific to this nonattainment area, and shows the emissions from the baseline through the projection years.

Table IX.A.12[~~11~~]. 7 Baseline Emissions throughout the Modeling Domain

2011 Baseline	NA-Area	Source Category	PM10	SO2	NOx	VOC	NH3
2011 Baseline Sum of Emissions (tpd)	Ogden City NA-Area	Area Sources	0.85	0.08	2.12	5.67	0.86
		NonRoad	0.90	0.00	1.32	0.91	0.00
		Point Source	0.00	0.00	0.00	0.00	0.00
		Mobile Sources	2.09	0.05	12.18	8.58	0.22
		Provo NA Total	**3.84**	**0.13**	**15.62**	**15.16**	**1.08**
	Salt Lake County NA-Area	Area Sources	~~4.61~~	~~0.05~~	~~0.73~~	~~32.62~~	~~1.53~~
		NonRoad	7.12	0.32	11.71	6.38	0.00
		Point Source	4.04	8.90	15.56	2.97	0.20
		Mobile Sources	10.95	0.28	57.96	35.35	1.14
		Salt Lake City NA Total	**~~26.72~~**	**~~9.55~~**	**~~85.96~~**	**~~77.32~~**	**~~2.87~~**
	Utah County NA-Area	Area Sources	~~2.19~~	~~0.02~~	~~0.22~~	~~1.16~~	~~0.83~~
		NonRoad	3.53	0.02	4.24	2.31	0.00
		Point Source	0.28	0.29	1.03	0.18	0.18
		Mobile Sources	4.90	0.13	24.64	11.89	0.49
		Surrounding Areas Total	**~~10.90~~**	**~~0.46~~**	**~~30.13~~**	**~~15.54~~**	**~~1.50~~**
	Surrounding Areas	Area Sources	~~537.49~~	~~13.60~~	~~228.31~~	~~629.52~~	~~331.22~~
		NonRoad	34.53	0.10	60.77	72.57	0.01
		Point Source	17.64	283.15	538.86	63.96	6.08
		Mobile Sources	22.80	193.52	434.92	6.47	1.67
		Surrounding Areas Total	**~~612.46~~**	**~~490.37~~**	**~~1262.86~~**	**~~772.52~~**	**~~338.98~~**
		2011 Total	**653.92**	**500.51**	**1394.57**	**880.54**	**344.43**

2011 Baseline	NA-Area	Source Category	PM10	SO2	NOx	VOC	NH3
2011 Baseline Sum of Emissions (tpd)	Ogden City NA-Area	Area Sources	0.85	0.08	2.12	5.67	0.86
		NonRoad Sources	0.90	0.00	1.32	0.91	0.00
		Point Sources	0.00	0.00	0.00	0.00	0.00
		Mobile Sources	2.09	0.05	12.18	8.58	0.22
		Ogden City NA Total	**3.84**	**0.13**	**15.62**	**15.16**	**1.08**
	Salt Lake County NA-Area	Area Sources	5.50	0.37	9.14	30.35	3.82
		NonRoad Sources	7.12	0.32	11.71	6.38	0.00
		Point Sources	4.04	8.90	15.56	2.97	0.20
		Mobile Sources	10.95	0.28	57.96	35.35	1.14
		Salt Lake County NA Total	**27.61**	**9.87**	**94.37**	**75.05**	**5.16**
	Utah County NA-Area	Area Sources	3.90	0.28	5.61	13.02	6.62
		NonRoad Sources	3.53	0.02	4.24	2.31	0.00
		Point Sources	0.28	0.29	1.03	0.18	0.18
		Mobile Sources	4.90	0.13	24.64	11.89	0.49
		Utah County NA Total	**12.61**	**0.72**	**35.52**	**27.40**	**7.29**
	Surrounding Areas	Area Sources	534.89	13.02	214.51	619.93	323.14
		NonRoad Sources	34.53	0.10	60.77	72.57	0.01
		Point Sources	17.64	283.15	538.86	63.96	6.08
		Mobile Sources	22.80	193.52	434.92	6.47	1.67
		Surrounding Areas Total	**609.86**	**489.79**	**1,249.06**	**762.93**	**330.90**
		2011 Total	**653.92**	**500.51**	**1,394.57**	**880.54**	**344.43**

Table IX.A.12[~~11~~]. 8 Salt Lake County Nonattainment Area; Actual Emissions for 2011 and Emission Projections for 2019, 2024, 2028, and 2030.

Year	NA-Area	Source Category	PM10	SO2	NOx	VOC	NH3
2011 Baseline	Utah County NA-Area	Area Sources	~~2.19~~	~~0.02~~	~~0.22~~	~~1.16~~	~~0.83~~
		NonRoad	3.53	0.02	4.24	2.31	0.00
		Point Source	0.28	0.29	1.03	0.18	0.18
		Mobile Sources	4.90	0.13	24.64	11.89	0.49
		2011 Total	~~10.90~~	~~0.46~~	~~30.13~~	~~15.54~~	~~1.50~~
2019	Utah County NA-Area	Area Sources	~~2.19~~	~~0.02~~	~~0.22~~	~~1.16~~	~~0.83~~
		NonRoad	4.80	0.02	3.04	1.95	0.01
		Point Source	0.87	0.44	3.24	0.86	0.43
		Mobile Sources	6.04	0.17	13.77	6.43	0.46
		2019 Total	~~13.90~~	~~0.65~~	~~20.27~~	~~10.40~~	~~1.73~~
2024	Utah County NA-Area	Area Sources	~~2.19~~	~~0.02~~	~~0.22~~	~~1.16~~	~~0.83~~
		NonRoad	5.19	0.02	2.45	1.90	0.01
		Point Source	0.92	0.47	3.42	0.91	0.43
		Mobile Sources	6.37	0.16	9.01	5.22	0.48
		2024 Total	~~14.67~~	~~0.67~~	~~15.10~~	~~9.19~~	~~1.75~~
2028	Utah County NA-Area	Area Sources	~~2.19~~	~~0.02~~	~~0.22~~	~~1.16~~	~~0.83~~
		NonRoad	5.68	0.02	2.17	1.92	0.01
		Point Source	0.96	0.49	~~0.00~~	0.96	0.43
		Mobile Sources	6.97	0.16	7.28	4.60	0.51
		2028 Total	~~15.80~~	~~0.69~~	~~9.67~~	~~8.64~~	~~1.78~~
2030	Utah County NA-Area	Area Sources	~~2.19~~	~~0.02~~	~~0.22~~	~~1.16~~	~~0.83~~
		NonRoad	6.25	0.02	2.07	1.94	0.01
		Point Source	0.99	0.49	3.67	0.98	0.43
		Mobile Sources	7.66	0.16	6.81	4.54	0.54
		2030 Total	~~17.09~~	~~0.69~~	~~12.77~~	~~8.62~~	~~1.81~~

Year	NA-Area	Source Category	PM10	SO2	NOx	VOC	NH3
2011 Baseline	Utah County NA-Area	Area Sources	3.90	0.28	5.61	13.02	6.62
		NonRoad	3.53	0.02	4.24	2.31	0.00
		Point Sources	0.28	0.29	1.03	0.18	0.18
		Mobile Sources	4.90	0.13	24.64	11.89	0.49
		2011 Total	**12.61**	**0.72**	**35.52**	**27.40**	**7.29**
2019	Utah County NA-Area	Area Sources	3.79	0.29	2.15	10.68	6.47
		NonRoad	4.80	0.02	3.04	1.95	0.01
		Point Sources	0.87	0.44	3.24	0.86	0.43
		Mobile Sources	6.04	0.17	13.77	6.43	0.46
		2019 Total	**15.50**	**0.92**	**22.20**	**19.92**	**7.37**
2024	Utah County NA-Area	Area Sources	2.83	0.35	1.80	11.66	5.98
		NonRoad	5.19	0.02	2.45	1.90	0.01
		Point Sources	0.92	0.47	3.42	0.91	0.43
		Mobile Sources	6.37	0.16	9.01	5.22	0.48
		2024 Total	**15.31**	**1.00**	**16.68**	**19.69**	**6.90**
2028	Utah County NA-Area	Area Sources	3.06	0.27	1.81	12.49	5.92
		NonRoad	5.68	0.02	2.17	1.92	0.01
		Point Sources	0.96	0.49	3.58	0.96	0.43
		Mobile Sources	6.97	0.16	7.28	4.60	0.51
		2028 Total	**16.67**	**0.94**	**14.84**	**19.97**	**6.87**
2030	Utah County NA-Area	Area Sources	3.17	0.18	1.78	12.90	5.89
		NonRoad	6.25	0.02	2.07	1.94	0.01
		Point Sources	0.99	0.49	3.67	0.98	0.43
		Mobile Sources	7.66	0.16	6.81	4.54	0.54
		2030 Total	**18.07**	**0.85**	**14.33**	**20.36**	**6.87**

More detail concerning any element of the inventory can be found at the appropriate section of the Technical Support Document (TSD). More detail about the general construction of the inventory may be found in the Inventory Preparation Plan.

(3) Emissions Limitations

As discussed above, the larger sources within the nonattainment areas were individually inventoried and modeled in the analysis.

A subset of these "large" sources was subsequently identified for the purpose of establishing emission limitations as part of the Utah SIP. This subset includes any source located within any of the three current nonattainment areas for PM_{10}: Salt Lake County, Utah County, or Ogden City whose actual emissions of PM_{10}, SO_2, or NOx exceeded 100 tons in 2011, or who had the potential to emit 100 tpy of any of these pollutants. A source might also be included in the subset if it was currently regulated for PM_{10} under section IX, Part H of the Utah SIP. There were several sources in Davis County that were close enough to the border so as to have originally been included in the original PM_{10} SIP.

As discussed before, the emission limits for these sources had already been reflected in the projected emissions inventories used in the modeling analysis. Only those limits for which credit is being taken in the SIP have been incorporated specifically into the SIP. Many of these limits appear in state issued Approval Orders or Title V Operating Permits. Such regulatory documents typically include many emission limits and operating restrictions. However, the limits found in the SIP cannot be changed unless the State provides, and EPA approves, a SIP revision.

These limits are incorporated in the Utah SIP at Section IX, Part H (formerly Sections 1 and 2 of Appendix A to Section IX, Part A), and as such are federally enforceable.

These conditions support a demonstration of maintenance through 2030.

(4) Emission Reduction Credits

Under Utah's new source review rules in R307-403-8, banking of emission reduction credits (ERCs) is permitted to the fullest extent allowed by applicable Federal Law as identified in 40 CFR 51, Appendix S, among other documents. Under Appendix S, Section IV.C.5, a permitting authority may allow banked ERCs to be used under the preconstruction review program (R307-403) as long as the banked ERCs are identified and accounted for in the SIP control strategy.

Existing Emission Reduction Credits, for PM_{10}, SO_2, and NOx, were included in the modeled demonstration of maintenance outlined in Subsection IX.A.12[~~11~~].c(1).

The subsequent crediting of any emission reduction of PM_{10}, or precursors thereto, whether pre-existing or established subsequent to the approval of this SIP revision, remains permissible. In general, credits must be in excess and must be established by actual, verifiable, and enforceable reductions in emissions. Additionally, these ERCs cannot be used to offset major new sources or major modifications at existing sources in $PM_{2.5}$ nonattainment areas.

Once Utah County is redesignated to attainment for PM_{10}, permitting new PM_{10} sources or major modifications to existing PM_{10} sources will be conducted under the rules of the Prevention of Significant Deterioration program.

(5) Additional Controls for Future Years

Since the emission limitations discussed in subsection IX.A.12[~~11~~].c.(3) are federally enforceable and, as demonstrated in IX.A.12[~~10~~].c(1) above, are sufficient to ensure continued attainment of the PM_{10} NAAQS, there is no need to require any additional control measures to maintain the PM_{10} NAAQS.

(6) Mobile Source Budget for Purposes of Conformity

The transportation conformity provisions of section 176(c)(2)(A) of the Clean Air Act (CAA) require regional transportation plans and programs to show that "…emissions expected from implementation of plans and programs are consistent with estimates of emissions from motor vehicles and necessary emissions reductions contained in the applicable implementation plan…" EPA's transportation conformity regulation (40 CFR 93, Subpart A, last amended at 77 FR 14979, March 14 2012) also requires that motor vehicle emission budgets must be established for the last year of the maintenance plan, and may be established for any years deemed appropriate (see 40 CFR 93.118((b)(2)(i)). If the maintenance plan does not establish motor vehicle emissions budgets for any years other than the last year of the maintenance plan, the conformity regulation requires that a "demonstration of consistency with the motor vehicle emissions budget(s) must be accompanied by a qualitative finding that there are not factors which would cause or contribute to a new violation or exacerbate an existing violation in the years before the last year of the maintenance plan." The normal interagency consultation process required by the regulation (40 CFR 93.105) shall determine what must be considered in order to make such a finding.

Thus, for a Metropolitan Planning Organization's (MPO's) Regional Transportation Plan (RTP), analysis years that are after the last year of the maintenance plan (in this case 2030), a conformity determination must show that emissions are less than or equal to the maintenance plan's motor vehicle emissions budget(s) for the last year of the implementation plan.

EPA's MOVES2014 was used to calculate mobile source emissions, and road dust projections were calculated using the January 2011 update to AP-42 Method for Estimating Re-Entrained Road Dust from Paved Roads (Chapter 13, released 76 FR 6329 February 4, 2011).

[~~Utah has determined that mobile sources are not significant contributors of SO_2 for this maintenance plan. As such, this maintenance plan does not establish a motor vehicle emissions budget for SO_2.~~]

(a) Utah County: Mobile Source PM_{10} Emissions Budgets

In this maintenance plan, Utah is establishing transportation conformity motor vehicle emission budgets (MVEB) for PM_{10} (direct) and NOx for 2030.

(i) Direct PM_{10} Emissions Budget

Direct (or "primary") PM_{10} refers to PM_{10} that is not formed via atmospheric chemistry. Rather, direct PM_{10} is emitted straight from a mobile or stationary source. With regard to the emission budget presented herein, direct PM_{10} includes road dust, brake wear, and tire wear as well as PM_{10} from exhaust.

As presented in the Technical Support Document for on-road mobile sources, the estimated on-road mobile source emissions for Utah County, in 2030**,** of direct sources of PM_{10} (road dust, brake wear, tire wear, and exhaust particles) were 7.66 tons per winter-weekday. These mobile source PM_{10} emissions were included in the maintenance demonstration in Subsection

IX.A.12[~~11~~].c.(1) which estimates a maximum PM_{10} concentration of 143.1 µg/m^3 in 2030 within the Utah County portion of the modeling domain. The above PM_{10} mobile source emission figure of 7.66 tons per day (tpd) would traditionally be considered as the MVEB for the maintenance plan. However, and as discussed below, the modeled concentration is 6.9 µg/m^3 below the NAAQS of 150 µg/m^3, and indicates the potential for PM_{10} emissions to be considered [~~represents potential PM_{10} emissions that may be considered~~] for allocation to the PM_{10} MVEB.

EPA's conformity regulation (40 CFR 93.124(a)) allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement. These additional emissions that can be allocated to the applicable MVEB are considered the "safety margin." As defined in 40 CFR 93.101, safety margin represents the amount of emissions by which the total projected emissions from all sources of a given pollutant are less than the total emissions that would satisfy the applicable requirement for demonstrating maintenance. The implementation plan can then allocate some or all of this "safety margin" to the applicable MVEBs for transportation conformity purposes.

The safety margin for the Utah County portion of the domain equates to 6.9 µg/m^3.

To evaluate the portion of safety margin that could be allocated to the PM_{10} MVEB, modeling was re-run for 2030 with additional emissions attributed to the on-road mobile sources.

Using the same emission projections for point and area and non-road mobile sources, the SMOKE 3.6 emissions model was re-run using 12.28 tons of PM_{10} per winter-weekday for mobile sources (and 8.34 tons/winter-weekday of NO_X). The revised maintenance demonstration for 2030 still shows maintenance of the PM_{10} standard.

It estimates a maximum PM_{10} concentration of 148.0 µg/m^3 in 2030 within the Utah County portion of the modeling domain. This value is 2.0 µg/m^3 below the NAAQ Standard of 150 µg/m^3, but 4.9 µg/m^3 higher than the previous value.

This shows that the safety margin is at least 4.62 tons/day of PM_{10} (12.28 tons/day minus 7.66 tons/day) and 1.53 tons/day of NO_X (8.34 tons/day minus 6.81 tons/day). This maintenance plan allocates this portion of the safety margin to the mobile source budgets for Utah County, and thereby sets the direct PM_{10} MVEB for 2030 at 12.28 tons/winter-weekday.

(ii) **NO_X Emissions Budget**

Through atmospheric chemistry, NO_X emissions can substantially contribute to secondary PM_{10} formation. For this reason, NOx is considered a PM10 precursor.

As presented in the Technical Support Document for on-road mobile sources, the estimated on-road mobile source NO_X emissions for Utah County in 2030 were 6.81 tons per winter-weekday. These mobile source PM_{10} emissions were included in the maintenance demonstration in Subsection IX.A.12[~~11~~].c.(1) which estimates a maximum PM_{10} concentration of 143.1 µg/m^3 in 2030 within the Utah County portion of the modeling domain. The above NOx mobile source emission figure of 6.81 tons per day (tpd) would traditionally be considered as the MVEB for the maintenance plan. However, and as discussed below, the modeled concentration is 6.9 µg/m^3 below the NAAQS of 150 µg/m^3, and indicates the potential for NOx emissions to be considered [~~represents potential NOx emissions that may be considered~~] for allocation to the NOx MVEB.

EPA's conformity regulation (40 CFR 93.124(a)) allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement. These additional emissions that can be allocated to the applicable MVEB are considered the "safety margin." As defined in 40 CFR 93.101, safety margin represents the amount of emissions by which the total projected emissions from all sources of a given pollutant are less than the total emissions that would satisfy the applicable requirement for demonstrating maintenance. The implementation plan can then allocate some or all of this "safety margin" to the applicable MVEBs for transportation conformity purposes.

The safety margin for the Utah County portion of the domain equates to 6.9 $\mu g/m^3$.

To evaluate the portion of safety margin that could be allocated to the PM_{10} MVEB, modeling was re-run for 2030 with additional emissions attributed to the on-road mobile sources.

Using the same emission projections for point and area and non-road mobile sources, the SMOKE 3.6 emissions model was re-run using 8.34 tons of NO_X per winter-weekday for on-road mobile sources (and 12.28 tons/winter-weekday of PM_{10}). The revised maintenance demonstration for 2030 still shows maintenance of the PM_{10} standard.

It estimates a maximum PM_{10} concentration of 148.0 $\mu g/m^3$ in 2030 within the Utah County portion of the modeling domain. This value is 2.0 $\mu g/m^3$ below the NAAQ Standard of 150 $\mu g/m^3$, but 4.9 $\mu g/m^3$ higher than the previous value.

This shows that the safety margin is at least 1.53 tons/day of NO_X (8.34 tons/day minus 6.81 tons/day) and 4.62 tons/day of PM_{10} (12.28 tons/day minus 7.66 tons/day). This maintenance plan allocates this portion of the safety margin to the mobile source budgets for Utah County, and thereby sets the NO_X MVEB for 2030 at 8.34 tons/winter-weekday

(b) Net Effect to Maintenance Demonstration

Using the procedure described above, some of the identified safety margin indicated earlier in Subsection IX.A.12[~~11~~].c(6) has been allocated to the mobile vehicle emissions budgets. The results of this modification are presented below.

(i) **Inventory: The emissions inventory was adjusted as shown below:**

in 2030: PM_{10} was adjusted by adding 4.62 ton/day (tpd) of safety margin to 7.66 tpd inventory for a total of 12.28 tpd, and

NO_X was adjusted by adding 1.53 tpd of safety margin to 6.81 tpd inventory for a total of 8.34 tpd,

(ii) **Modeling:**

The effect on the modeling results throughout the domain is summarized in the following Table IX.A.12[~~11~~]. 9 (which shows predicted concentrations in $\mu g/m^3$). It demonstrates that with the allocation of the safety margin, the NAAQS is still maintained through 2030 in all areas.

Table IX.A. IX.A.12[~~11~~]. 9 Modeling of Attainment in 2030, Including the Portion of the Safety Margin Allocated to Motor Vehicles

Air Quality Monitor	Predicted Concentrations in 2030 µg/m3	
	A	B
Lindon	129.2	133.7
North Provo	143.1	148.0

Notes: Column A shows concentrations presented previously as part of the modeled attainment test. Column B shows concentrations resulting from allocation of a portion of the safety margin.

(7) Nonattainment Requirements Applicable Pending Plan Approval

CAA 175A(c) - *Until such plan revision is approved and an area is redesignated as attainment, the requirements of CAA Part D, Plan Requirements for Nonattainment Areas, shall remain in force and effect.* The Act requires the continued implementation of the nonattainment area control strategy unless such measures are shown to be unnecessary for maintenance or are replaced with measures that achieve equivalent reductions. Utah will continue to implement the emissions limitations and measures from the PM_{10} SIP.

(8) Revise in Eight Years

CAA 175A(b) - *Eight years after redesignation, the State must submit an additional plan revision which shows maintenance of the applicable NAAQS for an additional 10 years.* Utah commits to submit a revised maintenance plan eight years after EPA takes final action redesignating the Utah County area to attainment, as required by the Act.

(9) Verification of Continued Maintenance

Implicit in the requirements outlined above is the need for the State to determine whether the area is in fact maintaining the standard it has achieved. There are two complementary ways to measure this: 1) by monitoring the ambient air for PM_{10}, and 2) by inventorying emissions of PM_{10} and its precursors from various sources.

The State will continue to maintain an ambient monitoring network for PM_{10} in accordance with 40 CFR Part 58 and the Utah SIP. The State anticipates that the EPA will continue to review the ambient monitoring network for PM_{10} each year, and any necessary modifications to the network will be implemented.

Additionally, the State will track and document measured mobile source parameters (e.g., vehicle miles traveled, congestion, fleet mix, etc.) and new and modified stationary source permits. If these and the resulting emissions change significantly over time, the State will perform appropriate studies to determine: 1) whether additional and/or re-sited monitors are necessary, and 2) whether mobile and stationary source emission projections are on target.

The State will also continue to collect actual emissions inventory data from all sources of PM_{10}, SO_2, and NO_X in excess of 25 tons (in aggregate) per year, as required by R307-150.

(10) Contingency Measures

CAA 175A(d) - Each maintenance plan shall contain contingency measures to assure that the State will promptly correct any violation of the standard which occurs after the redesignation of the area to attainment. Such provisions shall include a requirement that the State will implement all control measures which were contained in the SIP prior to redesignation.

Utah has implemented all measures contained in the nonattainment plan, however for the purposes of this maintenance plan the list of stationary sources included in SIP Section IX. Part H. was updated. Some of the sources identified in the nonattainment SIP are no longer operational or no longer rise to the emission thresholds established for such inclusion. In such instances, the emission limits belonging specifically to these sources were not carried forward. Where such a source is still operational, the prior SIP limits from the nonattainment plan are identified below as potential contingency measures. Some of the specific limits within may no longer apply and would need to be reevaluated at that time.

This Contingency Plan for Utah County supersedes Subsection IX.A.8, Contingency Measures, which is part of the original PM_{10} SIP.

The contingency plan must also ensure that the contingency measures are adopted expeditiously once triggered. The primary elements of the contingency plan are: 1) the list of potential contingency measures, 2) the tracking and triggering mechanisms to determine when contingency measures are needed, and 3) a description of the process for recommending and implementing the contingency measures.

(a) Tracking

The tracking plan for the Salt Lake County, Utah County, and Ogden City areas consists of monitoring and analyzing PM_{10} concentrations. In accordance with 40 CFR 58, the State will continue to operate and maintain an adequate PM_{10} monitoring network in Salt Lake County, Utah County, and Ogden City.

(b) Triggering

Triggering of the contingency plan does not automatically require a revision to the SIP, nor does it necessarily mean the area will be redesignated once again to nonattainment. Instead, the State will normally have an appropriate timeframe to correct the potential violation with implementation of one or more adopted contingency measures. In the event that violations continue to occur, additional contingency measures will be adopted until the violations are corrected.

Upon notification of a potential violation of the PM_{10} NAAQS, the State will develop appropriate contingency measures intended to prevent or correct a violation of the PM_{10} standard. Information about historical exceedances of the standard, the meteorological conditions related to the recent exceedances, and the most recent estimates of growth and emissions will be reviewed. The possibility that an exceptional event occurred will also be evaluated.

Upon monitoring a potential violation of the PM_{10} NAAQS, including exceedances flagged as exceptional events but not concurred with by EPA, the State will take the following actions.

- The State will identify the source(s) of PM_{10} causing the potential violation, and report the situation to EPA Region VIII within four months of the potential violation.

- The State will identify a means of corrective action within six months after a potential violation. The maintenance plan contingency measures to be considered and selected will be chosen from the following list or any other emission control measures deemed appropriate based on a consideration of cost-effectiveness, emission reduction potential, economic and social considerations, or other factors that the State deems appropriate:

  - Re-evaluate the thresholds at which a red or yellow burn day is triggered, as established in R307-302;

  - Further controls on stationary sources

The State will then hold a public hearing to consider the contingency measures identified to address the violation. The State will require implementation of such corrective action no later than one year after the violation is confirmed. Any contingency measures adopted and implemented will become part of the next revised maintenance plan submitted to the EPA for approval.

It is also possible that contingency measures may be pre-implemented, where no violation of the 2006 PM_{10} NAAQS has yet occurred.

ITEM 6

State of Utah
GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality
Alan Matheson
Executive Director
DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQ-072-15

M E M O R A N D U M

TO: Air Quality Board

THROUGH: Bryce C. Bird, Executive Secretary

FROM: Bill Reiss, Environmental Engineer

DATE: November 20, 2015

SUBJECT: FINAL ADOPTION: Repeal of Existing SIP Subsection IX.A.12 and Re-enact with SIP Subsection IX.A.13: PM_{10} Maintenance Provisions for Ogden City, as amended.

Introduction:

This item concerns a proposed State Implementation Plan (SIP) revision to address Utah's three nonattainment areas for PM_{10}, Salt Lake County, Utah County, and Ogden City.

The revision is structured as a maintenance plan. It demonstrates that these areas will continue to attain the PM_{10} standard through the year 2030 and allows Utah to request that EPA change the area designations back to attainment.

The existing SIP for PM_{10} affecting Salt Lake and Utah Counties was adopted in 1991. It resulted in attainment of the 1987 National Ambient Air Quality Standards (NAAQS) in both areas by 1996. Since that time, $PM_{2.5}$ has supplanted PM_{10} as the indicator of fine particulate matter.

Essentially, this SIP revision would close the book on PM_{10} and allow Utah to focus on meeting the $PM_{2.5}$ standard. All three of the affected areas are currently designated nonattainment for $PM_{2.5}$.

Scope:

There are two parts to the SIP revision. (This) Section IX. Part A is the SIP document itself. It addresses each of the criteria necessary to request redesignation. It includes the actual maintenance plan, which includes the quantitative demonstration of continued attainment.

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Some of the items addressed in Part A include:

- monitored attainment of the PM_{10} NAAQS,
- establishment of motor vehicle emission budgets (MVEB) for purposes of transportation conformity,
- consideration of emission reduction credits, and
- contingency measures.

The second piece is SIP Section IX, Part H. It includes the emission limits for certain specific stationary sources. Inclusion of these limits within the SIP makes them federally enforceable.

The list of stationary sources to be included in Part H was updated as part of this proposal. It includes sources located in any of the nonattainment areas with actual emissions from 2011 that were at least 100 tons per year (tpy) for PM_{10}, SO_2, or NOx. It also includes sources with the potential to emit at least 100 tpy for any of these pollutants.

Using these criteria means that some sources will not be retained in the revised Part H. Other new sources that did not exist when the original SIP was written will be added.

The Board proposed this comprehensive SIP revision for public comment at the September 2, 2015 Utah Air Quality Board meeting.

<u>Re-Numbering and SIP Organization:</u>

You will notice that the proposed Subsection IX.A.10, 11, and 12 have been renumbered to IX.A.11, 12, and 13.

The way the SIP proposal was structured created an unintended problem for Utah County. It would have effectively repealed the existing Mobile Source Emissions Budgets (MVEB) for PM_{10} and NOx, leaving Utah County without any defined budgets until the year 2030, the last year of the new maintenance plan.

The problem arises because of differences between the federally approved SIP and the version of the SIP that resides within State law. To explain:

The original PM_{10} nonattainment SIPs for Salt Lake and Utah Counties created Subsections IX.A. 1 – 9 of the Utah SIP. EPA approved Subsections IX.A. 1 – 9 on July 8, 1994.

Utah County's portion of the SIP was revised in 2002, and a Subsection IX.A.10 was added at that time to address transportation conformity within Utah County. These revisions were also approved by EPA on December 23, 2002.

In 2005, Utah prepared a revision that also was structured as a maintenance plan. Maintenance provisions for Salt Lake County, Utah County, and Ogden City were prepared and located at SIP Subsections IX.A.10, 11, and 12 (respectively.) The MVEB for Utah County was addressed in Subsection IX.A.11, and the pre-existing Subsection IX.A.10 was overwritten.

Subsequently, however, EPA proposed to disapprove the 2005 maintenance plan, and Utah withdrew it from consideration. As a federal matter, Utah County's existing MVEB still resides in Subsection IX.A.10. There is no IX.A.11, or 12.

In September, we recommended repealing the existing Subsections IX.A.10, 11, & 12, (the State-approved, Maintenance Provisions for Salt Lake County, Utah County and Ogden City respectively), and re-enacting with new maintenance provisions for the same three areas at the same respective SIP locations.

Assuming the Board was to approve these revisions, they would then be submitted to EPA for federal approval. At that point, Utah would essentially be asking EPA to over-write existing Subsection IX.A.10 (Utah County's MVEB) with the new maintenance provisions for Salt Lake County.

To prevent this, each of the three maintenance plans will be re-positioned. Rather than using Subsections IX.A.10, 11, and 12, the new maintenance provisions for the three areas should appear in Subsections IX.A.11, 12, and 13. EPA can then approve them into the federal SIP while leaving Subsection IX.A.10 intact.

For this reason, you will notice, in every case, the appropriate re-numbering of the plans that were proposed in September.

Comments Received and Other Amendments:

A 30-day public comment period was held. A summary of each of the comments that was received, along with a response from UDAQ, is attached.

Any recommended revision to SIP Subsection IX.A.11 has been identified in the amended attachment using strikeout and underline. Where these amendments are in response to the comments received, they are highlighted in red color coding.

Some of the comments also directed UDAQ to make revisions to the technical support documentation (TSD.) Since this technical material is not explicitly part of the rulemaking action, these revisions have not been prepared for today's Air Quality Board meeting. They will, however, be completed in time for official submittal to the EPA.

Finally, the reader should still note that blue text is specific to the Salt Lake County nonattainment area, green text is specific to Utah County, and purple text is specific to Ogden City.

Staff Recommendation: Staff recommends that the Board repeal existing (State) SIP Subsection IX.A.12, and re-enact with SIP Subsection IX.A.13: PM_{10} Maintenance Provisions for Ogden City, as amended.

UTAH

PM_{10} Maintenance Provisions for Ogden City

Section IX.A.<u>13</u>[~~12~~]

Adopted by the Air Quality Board

<u>December 2, 2015</u>

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Section IX.A.13[~~12~~]
PM_{10} Maintenance Provisions for Ogden City

IX.A.13[~~12~~].a Introduction

The State of Utah is requesting that the U.S. Environmental Protection Agency (EPA) redesignate the Ogden City nonattainment area to attainment status for the 24-hour PM10 National Ambient Air Quality Standard (NAAQS).

The foregoing Subsections 1-9 of Part IX.A of the Utah State Implementation Plans (SIP) were written in 1991 to address violations of the NAAQS for PM_{10} in both Utah County and Salt Lake County. These areas were each classified as Initial Moderate PM_{10} Nonattainment Areas, and as such required “nonattainment SIPs” to bring them into compliance with the NAAQS by a statutory attainment date. The control measures adopted as part of those plans have proven successful in that regard, and at the time of this writing (2015) each of these areas continues to show compliance with the federal health standards for PM_{10}.

Subsections 11[~~10~~] and 12[~~11~~] of Part IX.A of the Utah SIP represent the second chapter of the PM_{10} story for these areas, and demonstrate that they have achieved compliance with the PM_{10} NAAQS and will continue to maintain that standard through the year 2030[~~17~~]. As such, Subsections 11[~~10~~] and 12[~~11~~] are written in accordance with Section 175A (42 U.S.C. 7505a) of the federal Clean Air Act (the Act), and should serve to satisfy the requirement of Section 107(d)(3)(E)(iv) of the Act.

This Subsection 13[~~12~~] makes the same demonstration with respect to Ogden City, and is structured in the same way. It is hereafter referred to as the “Maintenance Plan” or “the Plan,” and contains the PM_{10} maintenance provisions for Ogden City. This area was effectively designated to nonattainment for PM_{10} on September 26, 1995.

In a similar way, any references to the Technical Support Document (TSD) in this section means actually Supplement IV-15 to the Technical Support Document for the PM_{10} SIP.

Background

The Act requires areas failing to meet the federal ambient PM_{10} standard to develop SIP revisions with sufficient control requirements to expeditiously attain and maintain the standard. On July 1, 1987, EPA promulgated a new NAAQS for particulate matter with a diameter of 10 microns or less (PM_{10}).

Ogden City was designated from unclassifiable to nonattainment on September 26, 1995. This was due to a total of six exceedances of the 24-hour standard recorded between January 1991 and January 1993. Along with redesignation came the requirement for a nonattainment SIP, due in 18 months, and an attainment date of December 31, 2001.

However, in 1997 a new standard for PM_{10} was promulgated by the EPA, and, based on the revised form of this new standard, Ogden City would never have been found to be in noncompliance.

In an effort to transition to the new form of the PM_{10} standard, EPA issued its Interim Implementation Guidance (IIG) on December 23, 1997. This, in conjunction with additional guidance (5/8/98 memorandum from Sally L. Shaver to all Regional Air Directors) identified two steps necessary to revoke the old standard for areas like Ogden City that were presently (as of September 16, 1997) attaining the standard. The State would need to: 1) codify into its SIP any existing controls that were implemented at the state level, and 2) demonstrate the state's capacity to implement the revised PM_{10} standards with respect to the Clean Air Act (CAA) requirements found at Section 110.

By letter of March 27, 1998, Utah declared it could meet the second of these requirements for all areas of the state. A second letter (June 25, 1998) addressed the first requirement, and requested that the old PM_{10} standard be revoked and that the outstanding Part D requirement be waived for Ogden City.

EPA responded in a letter dated August 12, 1999 that the rationale for revoking the old standard would no longer apply because the United States D.C. Circuit Court of Appeals had, on May 14, 1999, vacated the 1997 PM_{10} NAAQS. This meant that Utah's obligation to satisfy the Part D requirements with respect to the pre-1997 NAAQS was still outstanding.

In the wake of the ruling by the D.C. Circuit, EPA (on October 18, 1999) made available its PM_{10} Clean Data Areas Approach, providing areas like Ogden City with another avenue by which to satisfy any outstanding Part D requirements. Under EPA's Clean Data Policy and the regulations that embody it, 40 CFR 51.918 (1997 8-hour ozone) and 51.1004(c) ($PM_{2.5}$), an EPA rulemaking determination that an area is attaining the relevant standard suspends the area's obligations to submit an attainment demonstration, reasonable available control measures (RACM), reasonable further progress, contingency measures and other planning requirements related to attainment for as long as the area continues to attain. EPA's statutory interpretation of the Clean Data Policy is described in the "Final Rule to Implement the 8-hour Ozone National Ambient Air Quality Standard – Phase 2" (Phase 2 Final Rule). 70 FR 71612, 71644-46 (November 29, 2005) (ozone); See also 72 FR 20586, 20665 (April 25, 2007) ($PM_{2.5}$). EPA believes that the legal basis set forth in detail in the Phase 2 final rule, May 10, 1995 memorandum from John S. Seitz, entitled "Reasonable Further Progress, Attainment Demonstrations, and Related Requirements for Ozone Nonattainment Areas Meeting the Ozone National Ambient Air Quality Standard," and the December 14, 2004 memorandum from Stephen D. Page entitled "Clean Data Policy for the Fine Particulate National Ambient Air Quality Standards" are equally pertinent to all NAAQS. EPA has codified the Clean Data Policy for the 1997 8-hour ozone and $PM_{2.5}$ NAAQS and has also applied it in individual rulemakings for PM_{10}.

Under the Clean Data Policy, EPA may issue a determination of attainment (known formally as a Clean Data Determination) after notice and comment rulemaking determining that a specific area is attaining the relevant standard. For such areas the requirement to submit to EPA those SIP elements related to attaining the NAAQS is suspended for so long as the area continues to attain the standard. These planning elements include reasonable further progress (RFP) requirements, attainment demonstrations, RACM, contingency measures, and other state planning requirements related to attainment of the NAAQS. The determination of attainment is not equivalent to a redesignation, and the state must still meet the statutory requirements for redesignation in order to be redesignated to attainment. A determination of attainment for purposes of the Clean Data Policy / regulations is also not linked to any particular attainment deadline, and is not necessarily equivalent to a determination that the area has attained the standard by its applicable attainment deadline. Also any sanction clocks that may have been running would be stopped.

Utah addressed these criteria for Ogden City in a letter dated March 30, 2000. In particular, it identified a number of control measures that applied to nonattainment areas in general and were at least partly responsible for bringing the area into compliance with the PM_{10} NAAQS. Since these measures (open burning rule, visible emissions rule, fugitive dust rule, and vehicle I/M) were incorporated into the Utah SIP, and since the IIG had indicated that it would be inappropriate to require any new control measures, it could be concluded that the Part D planning requirements for Ogden City had been satisfied. The March 30, 2000, letter cited agreement between the respective agencies on these three criteria, and accordingly petitioned EPA to note in the Federal Register that the Part D planning requirements for Ogden City had in fact been satisfied. It also acknowledged that such action would not constitute a redesignation under CAA Section 107, and that if the State wished to request that Ogden City be redesignated to attainment, then subsequent action must be taken under CAA Section 175[A].

Also acknowledged was the obligation to produce a basic emissions inventory for Ogden City to the satisfaction of EPA Region VIII. After a period of public review and comment, the inventory was transmitted to EPA on August 9, 2001. The State identified this inventory as the only remaining element among the criteria outlined in the PM_{10} Clean Data Areas Approach, and again requested that EPA find in the Federal Register that Utah had fulfilled its planning requirements for Ogden City, under Part D of the CAA.

Unfortunately, while the emissions inventory was being developed the PM_{10} monitoring site in Ogden was shut down. Utah had been collecting ambient PM_{10} data at the Ogden site (AIRS # 49-057-0001) since April of 1987, but in February of 2000 the structure on which the monitor was situated was demolished. It was not until July 1, 2001 that collection could resume at a new location (AIRS # 49-057-0002). Unfortunately, this meant that EPA could take no action. Although the data collected from 1994 through February of 2000 showed continued compliance with the NAAQS, Utah did not have data for the three most recent years.

Ultimately EPA did propose to determine that the Ogden City nonattainment area was currently attaining the 24-hour NAAQS for PM_{10}, based on certified, quality assured data for the years 2009 through 2011, and that Utah's obligation to submit certain CAA requirements would be suspended for so long as the area continued to attain the PM $_{10}$ standard (see 77 FR, 44544). The proposal was finalized in a notice dated January 7, 2013 (see FR Vol. 78, 885).

IX.A.13[~~12~~].b Pre-requisites to Area Redesignation

Section 107(d)(3)(E) of the Act outlines five requirements that must be satisfied in order that a state may petition the Administrator to redesignate a nonattainment area back to attainment. These requirements are summarized as follows: 1) the Administrator determines that the area has attained the applicable NAAQS, 2) the Administrator has fully approved the applicable implementation plan for the area under §110(k) of the Act, 3) the Administrator determines that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan … and other permanent and enforceable reductions, 4) the Administrator has fully approved a maintenance plan for the area as meeting the requirements of §175A of the Act, and 5) the State containing such area has met all requirements applicable to the area under §110 and Part D of the Act.

Each of these requirements will be addressed below. Certainly, the central element from this list is the maintenance plan found at Subsection IX.A.13[~~12~~].c below. Section 175A of the Act contains the necessary requirements of a maintenance plan, and EPA policy based on the Act requires additional elements in order that such plan be federally approvable. Table IX.A.13[~~12~~].1 identifies the prerequisites that must be fulfilled before a nonattainment area may be redesignated to attainment under Section 107(d)(3)(E) of the Act.

Table IX.A.13[~~12~~]. 1 Prerequisites to Redesignation in the Federal Clean Air Act (CAA)

Category	**Requirement**	**Reference**	**Addressed in Section**
Attainment of Standard	Three consecutive years of PM_{10} monitoring data must show that violations of the standard are no longer occurring.	CAA §107(d)(3)(E)(i)	IX.A. 13[~~12~~].b(1)
Approved State Implementation Plan	The SIP for the area must be fully approved.	CAA §107(d)(3)(E)(ii)	IX.A. 13[~~12~~].b(2)
Permanent and Enforceable Emissions Reductions	The State must be able to reasonably attribute the improvement in air quality to emission reductions that are permanent and enforceable	CAA §107(d)(3)(E)(iii), Calcagni memo (Sect 3, para 2)	IX.A. 13[~~12~~].b(3)
Section 110 and Part D requirements	The State must verify that the area has met all requirements applicable to the area under section 110 and Part D.	CAA: §107(d)(3)(E)(v), §110(a)(2), Sec 171	IX.A. 13[~~12~~].b(4)
Maintenance Plan	The Administrator has fully approved the Maintenance Plan for the area as meeting the requirements of CAA §175A	CAA: §107(d)(3)(E)(iv)	IX.A. 13[~~12~~].b(5) and IX.A.13[~~12~~].c

(1) The Area Has Attained the PM_{10} NAAQS

CAA 107(d)(3)(E)(i) - *The Administrator determines that the area has attained the national ambient air quality standard.* To satisfy this requirement, the State must show that the area is attaining the applicable NAAQS. According to EPA's guidance concerning area redesignations (Procedures for Processing Requests to Redesignate Areas to Attainment, John Calcagni to Regional Air Directors, September 4, 1992 [or, Calcagni]), there are generally two components involved in making this demonstration. The first relies upon ambient air quality data which should be representative of the area of highest concentration and should be collected and quality assured in accordance with 40 CFR 58. The second component relies upon supplemental air quality modeling. Each will be discussed in turn.

(a) Ambient Air Quality Data (Monitoring)

In 1987 EPA promulgated the National Ambient Air Quality Standard (NAAQS) for PM_{10}. The NAAQS for PM_{10} is listed in 40 CFR 50.6 along with the criteria for attaining the standard. The 24-hour NAAQS is 150 micrograms per cubic meter (ug/m^3) for a 24-hour period, measured from midnight to midnight. The 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 ug/m^3, as determined in accordance with Appendix K to that part, is equal to or less than one. In other words, each monitoring site is allowed up to three expected exceedances of the 24-hour standard within a period of three calendar years. More than three expected exceedances in that three-year period is a violation of the NAAQS.

There also had been an annual standard of 50 ug/m^3. The annual standard was attained if the three-year average of individual annual averages was less than 50 ug/m^3. None of Utah's areas was ever designated nonattainment for the annual NAAQS [~~Utah never violated the annual standard at any of its monitoring stations~~], and the annual average was not retained as a PM_{10} standard when the NAAQS was revised in 2006. Nevertheless, an annual average still provides a useful metric to evaluate long-term trends in PM_{10} concentrations here in Utah where short-term meteorology has such an influence on high 24-hour concentrations during the winter season.

40 CFR 58 Appendix K, Interpretation of the National Ambient Air Quality Standards for Particulate Matter, acknowledges the uncertainty inherent in measuring ambient PM_{10} concentrations by specifying that an *observed exceedance* of the (150 ug/m^3) 24-hour health standard means a daily value that is above the level of the 24-hour standard after rounding to the nearest 10 ug/m^3 (e.g., values ending in 5 or greater are to be rounded up).

The term *expected exceedance* accounts for the possibility of missing data. Missing data can occur when a monitor is being repaired, calibrated, or is malfunctioning, leaving a time gap in the monitored readings. [~~EPA discounts these gaps if the highest recorded PM_{10} reading at the affected monitor on the day before or after the gap is not more than 75 percent of the standard, and no measured exceedance has occurred during the year.~~]

Expected exceedances are calculated from the (AQS) [~~Aerometric Information and Retrieval System (AIRS)~~] data base according to procedures contained in 40 CFR Part 50, Appendix K. The State relied on the expected exceedance values contained in the (AQS) [~~AIRS~~] Quick Look Report (AMP 450) to determine if a violation of the standard had occurred.

Data may also be flagged when circumstances indicate that it would represent an event [~~outlier~~] in the data set and not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within. 40 CFR 50.14 "Treatment of air quality monitoring data influenced by exceptional events" anticipates this, and says that a State may request EPA to exclude data showing exceedances or violations… that are directly due to an event that affects air quality, is not reasonably controllable or preventable, is an event caused by human activity that is unlikely to recur at a particular location or a natural event, from use in determinations. [~~Appendix N to Part 50 – "Interpretation of the National Ambient Air Quality Standards for Particulate Matter" anticipates this and states: "Data resulting from uncontrollable or natural events, for example structural fires or high winds, may require special consideration. In some cases, it may be appropriate to exclude these data because they could result in inappropriate values to compare with the levels of the PM standards."~~] The protocol for data handling dictates that flagging is initiated by the state or local agency, and then the EPA either concurs or indicates that it has not concurred. Some discussion will be provided to help the reader understand the occasional occurrence of wind-blown dust events that affect these nonattainment areas, and how the resulting data should be interpreted with respect to the control measures enacted to address the 24-hour NAAQS.

Using the criteria from 40 CFR 58 Appendix K, data was compiled for all PM_{10} monitors within the Ogden City nonattainment area that recorded a four-year data set comprising the years 2011 – 2014. For each monitor, the number of expected exceedances is reported for each year, and then the average number of expected exceedances is reported for the overlapping three-year periods. If this average number of expected exceedances is less than or equal to 1.0, then that particular monitor is said to be in compliance with the 24-hour standard for PM_{10}. In order for an area to be in compliance with the NAAQS, every monitor within that area must be in compliance.

As illustrated in the table below, the results of this exercise show that the Ogden City PM_{10} nonattainment area is presently attaining the NAAQS.

Table IX.A.13[~~12~~]. 2 PM$_{10}$ Compliance in Ogden City, 1999-2001, and 2011-2014

Ogden 2 49-057-0002	24-hr Standard	3-Year Average
	No. Expected Exceedances	No. Expected Exceedances
1999	0.0[~~ / 0.0*~~]	
2000	0.0[~~ / 0.0*~~]	
2001	0.0[~~ / 0.0*~~]	0.0[~~ / 0.0*~~]
2011	0.0[~~ / 0.0*~~]	
2012	0.0[~~ / 0.0*~~]	
2013	0.0[~~ / 0.0*~~]	0.0[~~ / 0.0*~~]
2014	0.0[~~ / 0.0*~~]	0.0[~~ / 0.0*~~]

[~~* The second set of numbers shows what would be the effect of including all of the data that has been flagged by DAQ and not yet concurred with by EPA.~~]

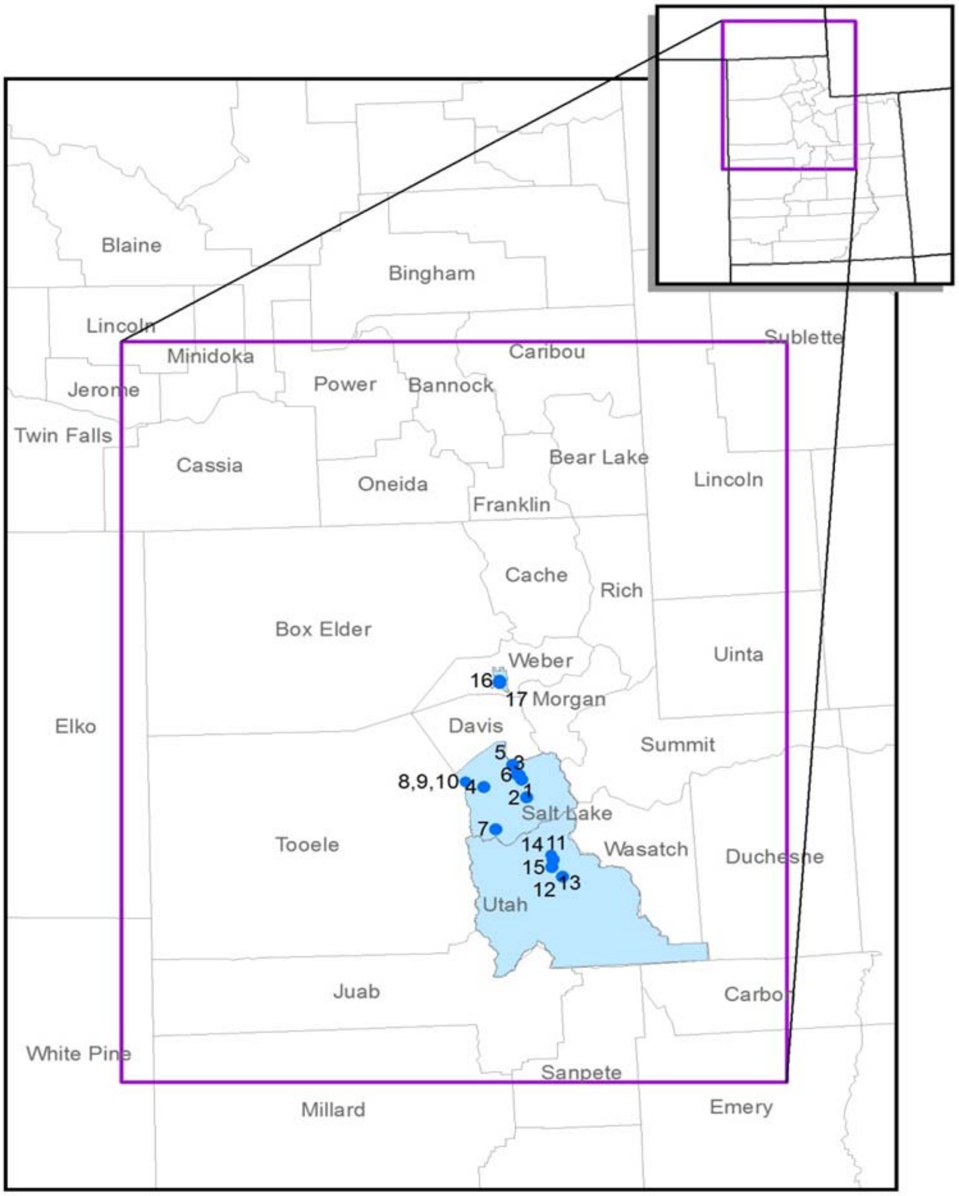
[~~~~] Data from 1999 and 2000 was collected at Ogden 1 49-057-0001

(b) PM10 Monitoring Network

The overall assessments made in the preceding paragraph were based on data collected at monitoring stations located throughout the nonattainment area. The Utah DAQ maintains a network of PM$_{10}$ monitoring stations in accordance with 40 CFR 58. These stations are referred to as SLAMS sites, meaning that they are State and Local Air Monitoring Stations. In consultation with EPA, an Annual Monitoring Network Plan is developed to address the adequacy of the monitoring network for all criteria pollutants. Within the network, individual stations may be situated so as to monitor large sources of PM$_{10}$, capture the highest concentrations in the area, represent residential areas, or assess regional concentrations of PM$_{10}$. Collectively, these monitors make up Utah's PM$_{10}$ monitoring network. The following paragraphs describe the network in each of Utah's three nonattainment areas for PM$_{10}$.

Provided in Figure IX.A.13[~~12~~]. 1 is a map of the modeling domain that shows the existing PM$_{10}$ nonattainment areas and the locations of the monitors therein. Some of the monitors at these locations are no longer operational, but they have been included for informational purposes.

Figure IX.A.13[~~12~~]. 1 Modeling Domain



The following PM_{10} monitoring stations operated in the Salt Lake County PM_{10} nonattainment area from 1985 through 2015. They are numbered as they appear on the map:

1. Air Monitoring Center (AMC) (AIRS number 49-035-0010): This site was located in an urban city center, near an area of high vehicle use. It was closed in 1999 when DAQ lost its lease on the building.

2. Cottonwood (AIRS number 49-035-0003): This site was located in a suburban residential area. It collected data from 1986 - 2011. It was closed in 2011 due to siting criteria violations as well as safety concerns.

3. Hawthorne (AIRS number 49-035-3006): This site is located in a suburban residential area. It began collecting data in 1997, and is the NCORE site for Utah.

4. Magna (AIRS number 49-035-1001): This site is located in a suburban residential area. It was historically impacted periodically by blowing dust from a large tailings impoundment, and as such is anomalous with respect to the typical wintertime scenario that otherwise characterizes the nonattainment area. It has been collecting data since 1987.

5. North Salt Lake (AIRS number 49-035-0012): This site was located in an industrial area that is impacted by sand and gravel operations, freeway traffic, and several refineries. It was near a residential area as well. It collected data from 1985 - 2013. The monitor was situated over a sewer main, and service of that main required its removal in September 2013 and following the service, the site owner did not allow the monitor to return.

6. Salt Lake City (AIRS number 49-035-3001): This site was situated in an urban city center. It was discontinued in 1994 because of modifications that were made to the air conditioning on the roof-top.

7. Herriman #3 (AIRS number 49-035-3012): This site is located in a suburban residential area. It began collecting data in 2015.

8. Beach #2 (AQS number 49-035-0005): This site, from 1988-1990, was located near the Great Salt Lake.

9. Beach #3 (AQS number 49-035-2003): This site, from 1991-1992, was located at the Great Salt Lake Marina.

10. Beach #4 (AQS number 49-035-2004): This site, from 1991-1997, was located at the Great Salt Lake Marina.

The following PM_{10} monitoring stations operated in the Utah County PM_{10} nonattainment area from 1985 through 2015. They are numbered as they appear on the map:

11[~~8~~]. Lindon (AIRS number 49-049-4001): This site is designed to measure population exposure to PM_{10}. It is located in a suburban residential area affected by both industrial and vehicle emissions. PM_{10} has been measured at this site since 1985, and the readings taken here have consistently been the highest in Utah County. Area source emissions, primarily wood smoke, also affect the site.

12[~~9~~]. North Provo (AIRS number 49-049-0002): This is a neighborhood site in a mixed residential-commercial area in Provo, Utah. It began collecting data in 1986.

13[~~10~~]. West Orem (AIRS number 49-049-5001): This site was originally located in a residential area adjacent to a large steel mill which has since closed. It is a neighborhood site. It was situated based on computer modeling, and has historically reported high PM_{10} values, but not consistently as high as those observed at the Lindon site. The site was closed at the end of 1997 for this reason.

14. Pleasant Grove (AQS number 49-049-2001): This site, from 1985-1987, was located in a suburban area.

15. Orem (AQS number 49-049-5004): This site, from 1991-1993, was located next to a through highway in a business area.

The following PM_{10} monitoring stations operated in the Ogden City PM_{10} nonattainment area from 1986 through 2015. They are numbered as they appear on the map:

16[~~11~~]. Ogden 1 (AIRS number 49-057-0001): This site was situated in an urban city center. It was discontinued in 2000 because DAQ lost its lease on the building.

17[~~12~~]. Ogden 2 (AIRS number 49-057-0002): This site began collecting data in 2001, as a replacement for the Ogden 1 location. It, too, is situated in an urban city center.

(c) Modeling Element

EPA guidance concerning redesignation requests and maintenance plans (Calcagni) discusses the requirement that the area has attained the standard, and notes that air quality modeling may be necessary to determine the representativeness of the monitored data.

Information concerning PM_{10} monitoring in Utah is included in the Annual Monitoring Plan [~~Annual Monitoring Network Review~~] and the 5-Year Monitoring Network Assessment [~~The 5 Year Network Plan~~]. Since the early 1980's, the network review has been updated annually and submitted to EPA for approval. EPA has concurred with the annual network reviews and agreed that the PM_{10} network is adequate. EPA personnel have also visited the monitor sites on several occasions to verify compliance with federal siting requirements. Therefore, additional modeling will not be necessary to determine the representativeness of the monitored data.

The Calcagni memo goes on to say that areas that were designated nonattainment based on modeling will generally not be redesignated to attainment unless an acceptable modeling analysis indicates attainment.

Though none of Utah's three PM_{10} nonattainment areas was designated based on modeling, Calcagni also states that (when dealing with PM_{10}) dispersion modeling will generally be necessary to evaluate comprehensively sources' impacts and to determine the areas of expected high concentrations based upon current conditions. Air quality modeling was conducted for the purpose of this maintenance demonstration. It shows that all three nonattainment areas are presently in compliance, and will continue to comply with the PM_{10} NAAQS through the year 2030.

(d) EPA Acknowledgement

Ogden City was designated a moderate nonattainment area for the PM10 standard on September 26, 1995. From CAA 188(c)(1), the moderate area attainment date for Ogden City "shall be as expeditiously as practicable but no later than the end of the sixth calendar year after the area's designation as nonattainment." Thus Ogden City's attainment date would be December 31, 2001.

Based on the data provided for 1999-2001, Ogden City attained the moderate area attainment date. Additionally, the data presented in the preceding paragraphs shows quite clearly that the Ogden City PM_{10} nonattainment area continues to attain the PM_{10} NAAQS. EPA earlier acknowledged that Ogden City was attaining the PM_{10} NAAQS based on certified, quality assured data for the years 2009 through 2011 (see FR Vol. 78, No. 4, January 7, 2013; pp. 885.)

(2) Fully Approved Attainment Plan for PM_{10}

CAA 107(d)(3)(E)(ii) - *The Administrator has fully approved the applicable implementation plan for the area under section 110(k).*

There is no applicable implementation plan for the Ogden City PM_{10} nonattainment area. Rather, EPA made a determination of Clean Data, stating that Ogden City was attaining the 24-hour PM_{10} NAAQS based on certified ambient air monitoring data for the years 2009 – 2011 (see FR Vol.78, pp. 885, Monday, January 7, 2013). Under such Clean Data Area Determination, Utah's obligation to make submissions to meet certain Clean Air Act requirements related to attainment of the NAAQS is not applicable for as long as the Ogden City nonattainment area continues to attain the NAAQS.

There has been no violation of the PM_{10} NAAQS in Ogden City since the determination was made, so Utah's obligation to submit a nonattainment SIP still does not apply.

States are not precluded from seeking redesignation in cases where a Clean Data Area Determination has suspended the need for an implementation plan. Further discussion concerning some of the Section 110 and Part D requirements normally addressed in a nonattainment SIP is provided in section (4).

(3) Improvements in Air Quality Due to Permanent and Enforceable Reductions in Emissions

CAA 107(d)(3)(E)(iii) - *The Administrator determines that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan and applicable Federal air pollutant control regulations and other permanent and enforceable reductions.* Speaking further on the issue, EPA guidance (Calcagni) reads that the State must be able to reasonably attribute the improvement in air quality to emission reductions which are permanent and enforceable. In the following sections, both the improvement in air quality and the emission reductions themselves will be discussed.

(a) Improvement in Air Quality

The improvement in air quality with respect to PM_{10} can be shown in a number of ways. Improvement, in this case, is relative to the various control strategies that affected the airshed.

Expected Exceedances – Referring back to the discussion of the PM_{10} NAAQS in Subsection IX.A.13[~~12~~].b(1), it is apparent that the number of expected exceedances of the 24-hour standard is an important indicator. As such, this information has been tabulated for each of the monitors located in each of the nonattainment areas. The data in Table IX.A.13[~~12~~]. 3 below reveals a marked decline in the number of these expected exceedances, and therefore that the Ogden City PM_{10} nonattainment area has experienced significant improvements in air quality. The gray cells indicate that the monitor was not in operation. This improvement is especially revealing in light of the significant growth experienced during this same period in time.

Table IX.A._13[~~12~~]. 3 Ogden City: Expected Exceedances Per-Year, 1986-2014

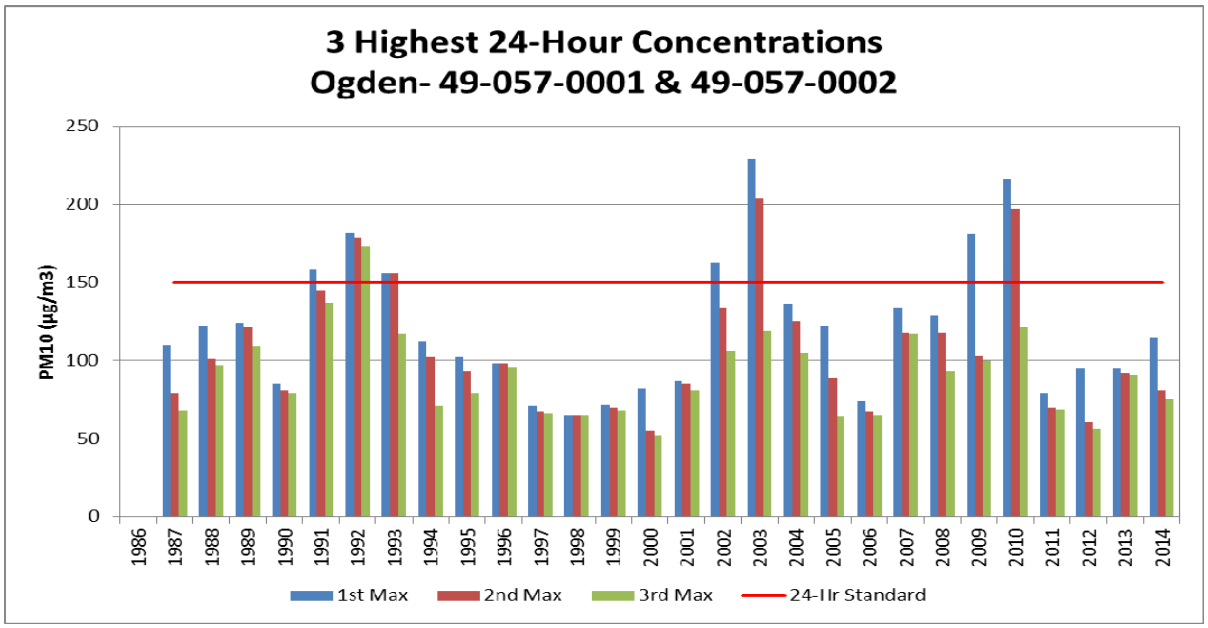
Ogden City nonattainment area		
Monitor:	**Ogden**	**Ogden 2**
1986		
1987	0.0	
1988	0.0	
1989	0.0	
1990	0.0	
1991	2.1	
1992	3.1	
1993	2.1	
1994	0.0	
1995	0.0	
1996	0.0	
1997	0.0	
1998	0.0	
1999	0.0	
2000	0.0	
2001		0.0
2002		1.0
2003		2.1
2004		0.0
2005		0.0
2006		0.0
2007		0.0
2008		0.0
2009		1.0
2010		2.0
2011		0.0
2012		0.0
2013		0.0
2014		0.0

As discussed before in section IX.A.13[~~12~~].b(1), the number of expected exceedances may include data which had been flagged by DAQ as being influenced by an exceptional event; most typically, a wind-blown dust event. Data is flagged when circumstances indicate that it would [~~represent an outlier in the data set and~~] not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within.

As such two things should be noted with regard to the control measures cited under the Clean Data Policy as attributable to improving air quality in Ogden City: 1) The focus of the vehicle I/M control strategy, implemented in Weber County by 1992, was directed at precursors to fine particulate matter. These precursors react to become secondary PM during episodes characterized by wintertime temperature inversions, elevated concentrations of secondary aerosol, and low wind speed. Under these conditions, blowing dust is generally nonexistent. Therefore, in evaluating the effectiveness of these types of controls, the inclusion of several high wind events may bias the conclusion. 2) Even with the inclusion of these values, the conclusion remains essentially the same; that with the implementation of the open burning rule, visible emissions rule, fugitive dust rule, and vehicle I/M, there has been a marked improvement in monitored air quality.

Highest Values – Also indicative of improvement in air quality with respect to the 24-hour standard, is the magnitude of the excessive concentrations that are observed. This is illustrated in Figure IX.A.13[~~12~~]. 2, which shows the three highest 24-hour concentrations observed in a particular year.

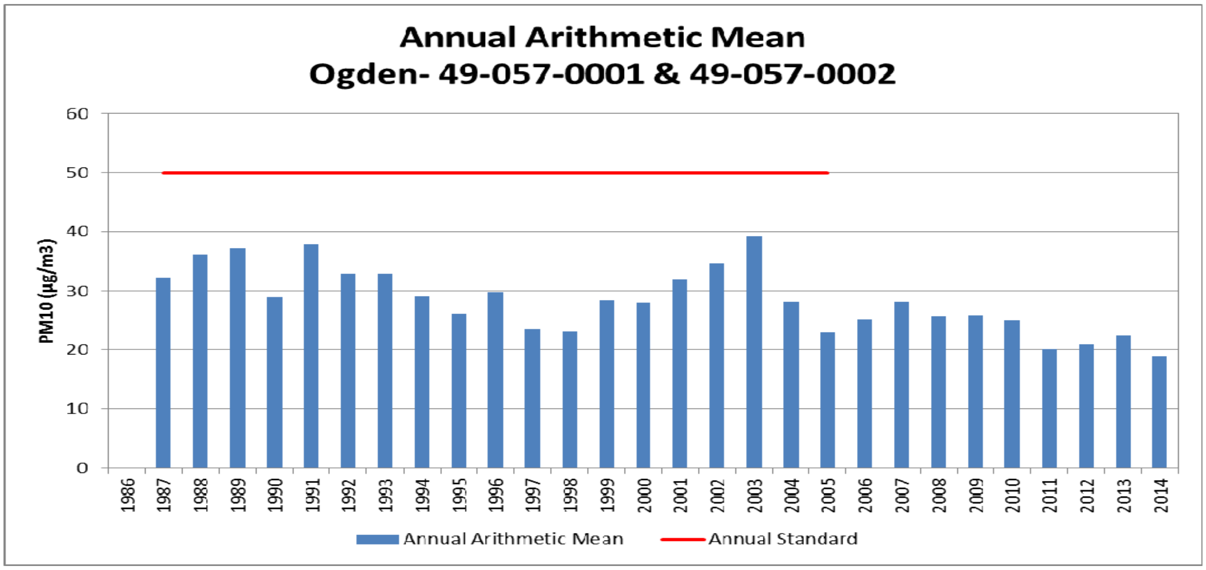
Figure IX.A.13[~~12~~]. 2 3 Highest 24-hr PM_{10} Concentrations; Ogden



Again there is a noticeable improvement in the magnitude of these concentrations. It must be kept in mind, however, that some of these concentrations may have resulted from windblown dust events that occur outside of the typical scenario of wintertime air stagnation. As such, the effectiveness of any control measures directed at the precursors to PM_{10} would not be evident.

Annual Mean – Although there is no longer an annual PM_{10} standard, the annual arithmetic mean is also a significant parameter to consider. Annual arithmetic means have been plotted in Figure IX.A.13[~~12~~]. 3, and the data reveals a noticeable decline in the values of these annual means.

Figure IX.A.13[~~12~~]. 3 Annual Arithmetic Mean; Ogden



As with the number of expected exceedances and the three highest values, the data in Figure IX.A.13[~~12~~]. 3 may include data which had been flagged by DAQ as being influenced by wind-blown dust events. Nevertheless, the annual averaging period tends to make these data points less significant. The downward trend of these annual mean values is truly indicative of improvements in air quality, particularly during the winter inversion season.

(b) Reduction in Emissions

As stated above, EPA guidance (Calcagni) says that the State must be able to reasonably attribute the improvement in air quality to emission reductions that are permanent and enforceable. In making this showing, the State should estimate the percent reduction (from the year that was used to determine the design value) achieved by Federal measures such as motor vehicle control, as well as by control measures that have been adopted and implemented by the State.

Ogden City was designated nonattainment based on data collected in 1991 through 1993.

As mentioned before, the ambient air quality data presented in Subsection IX.A.12.b(3)(a) above includes values prior to these dates in order to give a representation of the air quality prior to the application of any control measures. It then includes data collected from then until the present time to illustrate the lasting effect of these controls. In discussing the effect of the controls, as well as the control measures themselves, however, it is important to keep in mind the time necessary for their implementation.

For Ogden City, the statutory date for RACM implementation was four years after designation, or September 26, 1999. Its attainment date was December 31, 2001. As discussed earlier, there was no nonattainment SIP for Ogden City, but there were a number of control measures that applied to nonattainment areas in general and were at least partly responsible for bringing the area into compliance with the PM_{10} NAAQS.

Since these control measures (open burning rule, visible emissions rule, fugitive dust rule, and vehicle I/M) were incorporated into the Utah SIP, the emission reductions that resulted are consistent with the notion of permanent and enforceable improvements in air quality. Taken together, the trends in ambient air quality illustrated in the preceding paragraph, along with the continued implementation of these control measures, provide a reliable indication that these improvements in air quality reflect the application of permanent steps to improve the air quality in the region, rather than just temporary economic or meteorological changes.

Additionally, a downturn in the economy is clearly not responsible for the improvement in ambient particulate levels in Salt Lake County, Utah County, and Ogden City areas. From 2001 to present, the areas have experienced strong growth while at the same time achieving continuous attainment of the 24-hour and annual PM_{10} NAAQS. Data was analyzed for the Salt Lake City Metropolitan Statistical Area from the US Department of Commerce, Bureau of Economic Analysis. According to this data, job growth from 2011 through 2013 increased by 5.5 percent, population increased by 3 percent, and personal income increased by approximately 10 percent. The estimated VMT increase was 12 percent from 2011 to present.

(4) State has Met Requirements of Section 110 and Part D

CAA 107(d)(3)(E)(v) - The State containing such area has met all requirements applicable to the area under section 110 and part D. Section 110(a)(2) of the Act deals with the broad scope of state implementation plans and the capacity of the respective state agency to effectively administer such a plan. Sections I through VIII of Utah's SIP contain information relevant to these criteria. Part D deals specifically with plan requirements for nonattainment areas, and includes the requirements for a maintenance plan in Section 175A.

Utah currently has an approved SIP that meets the requirements of section 110(a)(2) of the Act. Many of these elements have been in place for several decades. In the March 9, 2001 approval of Utah's Ogden City Maintenance Plan for Carbon Monoxide, EPA stated:

> On August 15, 1984, we approved revisions to Utah's SIP as meeting the requirements of section 110(a)(2) of the CAA (see 45 FR 32575). Although section 110 of the CAA was amended in 1990, most of the changes were not substantial. Thus, we have determined that the SIP revisions approved in 1984 continue to satisfy the requirements of section 110(a)(2). For further detail, see 45 FR 32575 dated August 15, 1984 (Volume 49, No. 159) or 66 FR 14079 dated March 9, 2001 (Volume 66, No. 47.)

Part D of the Act addresses "Plan Requirements for Nonattainment Areas". Subpart 1 of Part D includes the general requirements that apply to all areas designated nonattainment based on a violation of the NAAQS. Section 172(c) of this subpart contains a list of generally required elements for all nonattainment plans. Subpart 1 is followed by a series of subparts (2-5) specific to various criteria pollutants. Subpart 4 contains the provisions specific to PM_{10} nonattainment areas. The general requirements for nonattainment plans in Section 172(c) may be subsumed within or superseded by the more specific requirements of Subpart 4, but each element must be addressed in the respective nonattainment plan.

One of the pre-conditions for a maintenance plan is a fully approved (non)attainment plan for the area. This is also discussed in section IX.A.13[~~12~~].b(2).

Other Part D requirements that are applicable in nonattainment and maintenance areas include the general and transportation conformity provisions of Section 176(c) of the Act. These provisions ensure that federally funded or approved projects and actions conform to the PM_{10} SIPs and Maintenance Plans prior to the projects or actions being implemented. The State has already submitted to EPA a SIP revision implementing the requirement of Section 176(c).

For Ogden City, the requirement to prepare and submit a nonattainment plan was suspended by EPA's Clean Data Area Determination (FR Vol.78, pp. 885). Thus, the specific Part D elements from Subparts 1 and 4 were not addressed in a comprehensive plan that can be referenced herein. Instead, what follows is a brief summary of the required plan elements (not otherwise covered by Section 110(a)(2) and an assessment of how each of these elements is to be treated in a maintenance plan for this area.

(a) Implementation of Reasonably Available Control Measures (RACM)

(b) Other Control Measures – including enforceable emission limits and schedules for compliance to provide for attainment of the NAAQS by the applicable attainment date

(c) Attainment of the NAAQS – including air quality modeling

(d) Reasonable Further Progress (RFP) – toward attainment of the standard (section 172(c))

(e) Milestones – to be achieved every three years, and which demonstrate RFP (section 189(c))

(f) Contingency Measures – to be undertaken if the area fails to make RFP or to attain the NAAQS

(g) Emissions Inventory – a current inventory from all sources

(h) Permits – (in accordance with Section 173) for the construction and operation of new and modified major stationary sources within the nonattainment area

EPA guidance concerning redesignation requests and maintenance plans (Calcagni) differentiates among these elements and notes that "*The requirements for reasonable further progress, identification of certain emissions increases, and other measures needed for attainment will not apply for redesignations because they only have meaning for areas not attaining the standard.* The requirements for an emission inventory will be satisfied by the inventory requirements of the maintenance plan. The requirements of the Part D new source review program will be replaced by the prevention of significant deterioration (PSD) program once the area has been redesignated", provided the State "make any needed modifications to its rules to have the approved PSD program apply to the affected area upon redesignation."

Calcagni earlier stated that the "EPA anticipates that areas will already have met most or all of these [Section 172(c)] requirements," presumably because areas eligible to redesignate would in all likelihood also have nonattainment SIPs. Following the logic expressed later regarding areas that are attaining the standard, there are also elements on this list of Part D elements that only have meaning within the context of a nonattainment plan.

Such plans are built around quantitative demonstrations of attainment which include air quality modeling and identify rates of progress and milestones to be achieved. Such plans also identify contingency measures to be triggered if the area fails to make RFP or attain the NAAQS.

For areas like Ogden City to which the Clean Data Policy has been applied, these Part D elements are not required so long as the area continues to show attainment to the particular standard for which the area is designated nonattainment. EPA's January 7, 2013 determination speaks directly to this point, stating: "EPA is taking final action to determine that Utah's obligation to make SIP submissions to meet the following CAA requirements is not applicable for as long as the Ogden City nonattainment area continues to attain the PM10 NAAQS: the part D, subpart 4 obligation to provide an attainment demonstration pursuant to section 189(a)(1)(B); the RACM requirements of section 189(a)(1)(B); the RACM requirements of section 189(a)(1)(C); the RFP requirements of section 189(c); and the attainment demonstration, RACM, RFP, and contingency measure requirements of part D subpart 1 contained in section 172."

(5) Maintenance Plan for PM_{10} Areas

As stated in the Act, an area may not request redesignation to attainment without first submitting, and then receiving EPA approval of, a maintenance plan. The plan is basically a quantitative showing that the area will continue to attain the NAAQS for an additional 10 years (from EPA approval), accompanied by sufficient assurance that the terms of the numeric demonstration will be administered by the State and by the EPA in an oversight capacity. The maintenance plan is the central criterion for redesignation. It is contained in the following subsection.

IX.A.13[~~12~~].c Maintenance Plan

CAA 107(d)(3)(E)(iv) - The Administrator has fully approved a maintenance plan for the area as meeting the requirements of section 175A. An approved maintenance plan is one of several criteria necessary for area redesignation as outlined in Section 107(d)(3)(E) of the Act. The maintenance plan itself, as described in Section 175A of the Act and further addressed in EPA guidance (Procedures for Processing Requests to Redesignate Areas to Attainment, John Calcagni to Regional Air Directors, September 4, 1992; or for the purpose of this document, simply "Calcagni"), has its own list of required elements. The following table is presented to summarize these requirements. Each will then be addressed in turn.

Table IX.A. 13[~~12~~]. 4 Requirements of a Maintenance Plan in the Clean Air Act (CAA)

Category	Requirement	Reference	Addressed in Section
Maintenance demonstration	Provide for maintenance of the relevant NAAQS in the area for at least 10 years after redesignation.	CAA: Sec 175A(a)	IX.A. 13[~~12~~].c(1)
Revise in 8 Years	The State must submit an additional revision to the plan, 8 years after redesignation, showing an additional 10 years of maintenance.	CAA: Sec 175A(b)	IX.A. 13[~~12~~].c(8)
Continued	The Clean Air Act requires continued	CAA: Sec	IX.A.

Implementation of Nonattainment Area Control Strategy	implementation of the nonattainment area control strategy unless such measures are shown to be unnecessary for maintenance or are replaced with measures that achieve equivalent reductions.	175A(c), CAA Sec 110(l), Calcagni memo	13[~~12~~].c(7)
Contingency Measures	Areas seeking redesignation from nonattainment to attainment are required to develop contingency measures that include State commitments to implement additional control measures in response to future violations of the NAAQS.	CAA: Sec 175A(d)	IX.A. 13[~~12~~].c(10)
Verification of Continued Maintenance	The maintenance plan must indicate how the State will track the progress of the maintenance plan.	Calcagni memo	IX.A. 13[~~12~~].c(9)

(1) Demonstration of Maintenance - Modeling Analysis

CAA 175A(a) - Each State which submits a request under section 107(d) for redesignation of a nonattainment area as an area which has attained the NAAQS shall also submit a revision of the applicable implementation plan to provide for maintenance of the NAAQS for at least 10 years after the redesignation. The plan shall contain such additional measures, if any, as may be required to ensure such maintenance. The maintenance demonstration is discussed in EPA guidance (Calcagni) as one of the core provisions that should be considered by states for inclusion in a maintenance plan.

According to Calcagni, a State may generally demonstrate maintenance of the NAAQS by either showing that future emissions of a pollutant or its precursors will not exceed the level of the attainment inventory (discussed below) or by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS. Utah has elected to make its demonstration based on air quality modeling.

(a) Introduction

The following chapter presents an analysis using observational datasets to detail the chemical regimes of Utah's Nonattainment areas.

Prior to the development of this PM_{10} maintenance plan, UDAQ conducted a technical analysis to support the development of Utah's 24-hr State Implementation Plan for $PM_{2.5}$. That analysis included preparation of emissions inventories and meteorological data, and the evaluation and application of a regional photochemical model.

Outside of the springtime high wind events and wildfires, the Wasatch Front experiences high 24-hr PM_{10} concentrations under stable conditions during the wintertime (e.g., temperature inversion). These are the same episodes where the Wasatch Front sees its highest concentrations of 24-hr $PM_{2.5}$ that sometimes exceed the 24-hr $PM_{2.5}$ NAAQS. Most (60% to 90%) of the PM_{10} observed during high wintertime pollution days consists of $PM_{2.5}$. The dominant species of the wintertime PM_{10} is secondarily formed particulate nitrate, which is also the dominant species of $PM_{2.5}$.

Given these similarities, the $PM_{2.5}$ modeling analysis was utilized as the foundation for this PM_{10} Maintenance Plan.

The CMAQ model performance for the PM_{10} Maintenance Plan adds to the detailed model performance that was part of the UDAQ's previous $PM_{2.5}$ SIP process. Utah DAQ used the same modeling episode that was used in the $PM_{2.5}$ SIP, which is the 45-day modeling episode from the winter of 2009-2010. The modeled meteorology datasets from the Weather Research and Forecasting (WRF) model for the PM_{10} Plan are the same datasets used for the $PM_{2.5}$ SIP. Also, the CMAQ version (4.7.1) and CMAQ model setup (i.e., vertical advection module turned off) for the PM_{10} modeling matches the $PM_{2.5}$ SIP setup.

For this reason, much of the information presented below pertains specifically to the $PM_{2.5}$ evaluation. This is supplemented with information pertaining to PM_{10}, most notably with respect to the PM_{10} model performance evaluation.

The additional PM_{10} analysis is also presented in the Technical Support Document.

(b) Photochemical Modeling

Photochemical models are relied upon by federal and state regulatory agencies to support their planning efforts. Used properly, models can assist policy makers in deciding which control programs are most effective in improving air quality, and meeting specific goals and objectives. The air quality analyses were conducted with the Community Multiscale Air Quality (CMAQ) Model version 4.7.1, with emissions and meteorology inputs generated using SMOKE and WRF, respectively. CMAQ was selected because it is the open source atmospheric chemistry model co-sponsored by EPA and the National Oceanic Atmospheric Administration (NOAA), and thus approved by EPA for this plan.

(c) Domain/Grid Resolution

UDAQ selected a high resolution 4-km modeling domain to cover all of northern Utah including the portion of southern Idaho extending north of Franklin County and west to the Nevada border (Figure IX.A.13[~~12~~]. 4). This 97 x 79 horizontal grid cell domain was selected to ensure that all of the major emissions sources that have the potential to impact the nonattainment areas were included. The vertical resolution in the air quality model consists of 17 layers extending up to 15 km, with higher resolution in the boundary layer.

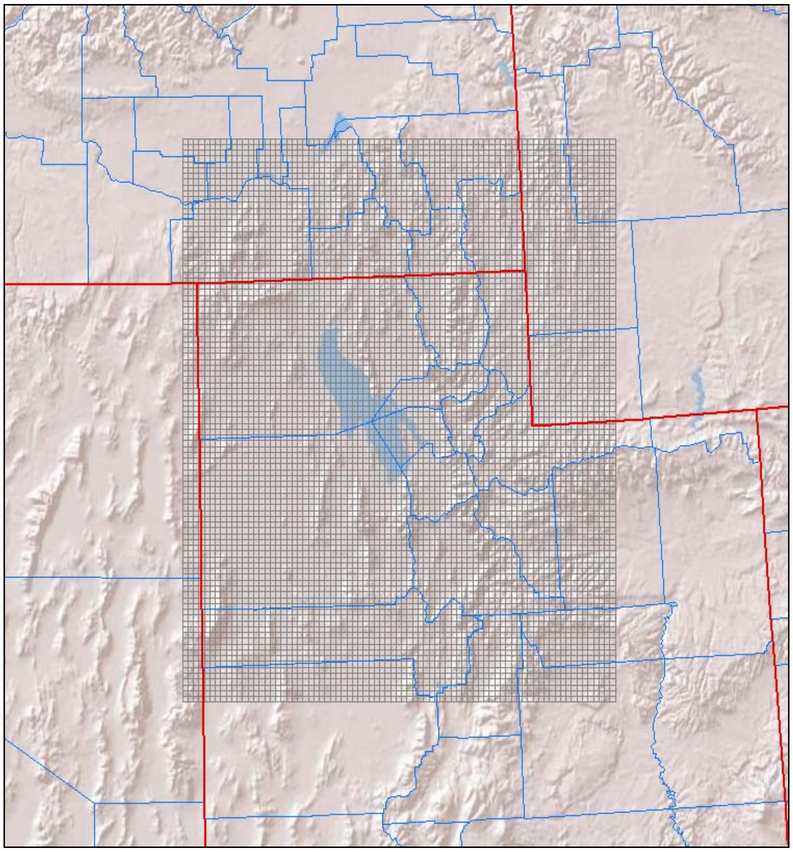


Figure IX.A.13[~~12~~]. 4 Northern Utah photochemical modeling domain.

(d) Episode Selection

According to EPA's April 2007 "Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, $PM_{2.5}$, and Regional Haze," the selection of SIP episodes for modeling should consider the following 4 criteria:

1. Select episodes that represent a variety of meteorological conditions that lead to elevated $PM_{2.5}$.

2. Select episodes during which observed concentrations are close to the baseline design value.

3. Select episodes that have extensive air quality data bases.

4. Select enough episodes such that the model attainment test is based on multiple days at each monitor violating NAAQS.

In general, UDAQ wanted to select episodes with hourly $PM_{2.5}$ concentrations that are reflective of conditions that lead to 24-hour NAAQS exceedances. From a synoptic meteorology point of view, each selected episode features a similar pattern. The typical pattern includes a deep trough over the eastern United States with a building and eastward moving ridge over the western United States. The episodes typically begin as the ridge begins to build eastward, near surface winds weaken, and rapid stabilization due to warm advection and subsidence dominate. As the ridge centers over Utah and subsidence peaks, the atmosphere becomes extremely stable and a subsidence inversion descends towards the surface. During this time, weak insolation, light winds, and cold temperatures promote the development of a persistent cold air pool. Not until the ridge moves eastward or breaks down from north to south is there enough mixing in the atmosphere to completely erode the persistent cold air pool.

From the most recent 5-year period of 2007-2011, UDAQ developed a long list of candidate $PM_{2.5}$ wintertime episodes. Three episodes were selected. An episode was selected from January 2007, an episode from February 2008, and an episode during the winter of 2009-2010 that features multi-event episodes of $PM_{2.5}$ buildup and washout.

As noted in the introduction, these episodes were also ideal from the standpoint of characterizing PM_{10} buildup and formation.

Further detail of the episodes is below:

- **Episode 1: January 11-20, 2007**

A cold front passed through Utah during the early portion of the episode and brought very cold temperatures and several inches of fresh snow to the Wasatch Front. The trough was quickly followed by a ridge that built north into British Columbia and began expanding east into Utah. This ridge did not fully center itself over Utah, but the associated light winds, cold temperatures, fresh snow, and subsidence inversion produced very stagnant conditions along the Wasatch Front. High temperatures in Salt Lake City throughout the episode were in the high teens to mid-20's Fahrenheit.

Figure IX.A.13[~~12~~]. 5 shows hourly $PM_{2.5}$ concentrations from Utah's 4 $PM_{2.5}$ monitors for January 11-20, 2007. The first 6 to 8 days of this episode are suited for modeling. The episode becomes less suited after January 18 because of the complexities in the meteorological conditions leading to temporary $PM_{2.5}$ reductions.

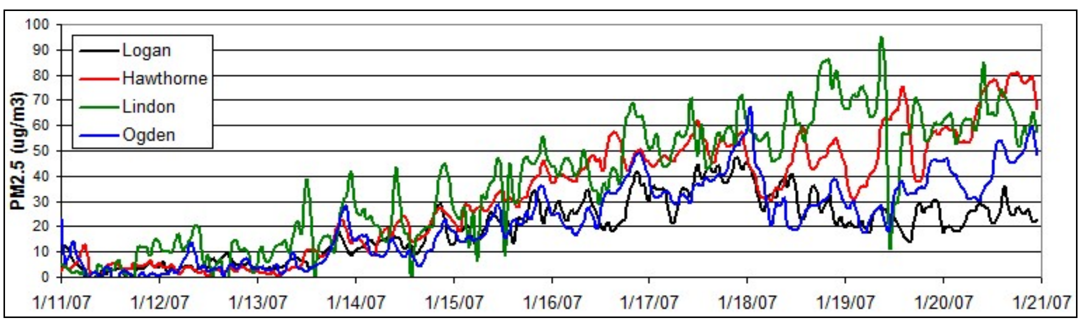


Figure IX.A.13[~~12~~]. 5 Hourly $PM_{2.5}$ concentrations for January 11-20, 2007

- **Episode 2: February 14-18, 2008**

The February 2008 episode features a cold front passage at the start of the episode that brought significant new snow to the Wasatch Front. A ridge began building eastward from the Pacific Coast and centered itself over Utah on Feb 20th. During this time a subsidence inversion lowered significantly from February 16 to February 19. Temperatures during this episode were mild with high temperatures at SLC in the upper 30's and lower 40's Fahrenheit.

The 24-hour average $PM_{2.5}$ exceedances observed during the proposed modeling period of February 14-19, 2008 were not exceptionally high. What makes this episode a good candidate for modeling are the high hourly values and smooth concentration build-up. The first 24-hour exceedances occurred on February 16 and were followed by a rapid increase in $PM_{2.5}$ through the first half of February 17 (Figure IX.A.13[~~12~~]. 6). During the second half of February 17, a subtle meteorological feature produced a mid-morning partial mix-out of particulate matter and forced 24-hour averages to fall. After February 18, the atmosphere began to stabilize again and resulted in even higher $PM_{2.5}$ concentrations during February 20, 21, and 22. Modeling the 14th through the 19th of this episode should successfully capture these dynamics. The smooth gradual build-up of hourly $PM_{2.5}$ is ideal for modeling.

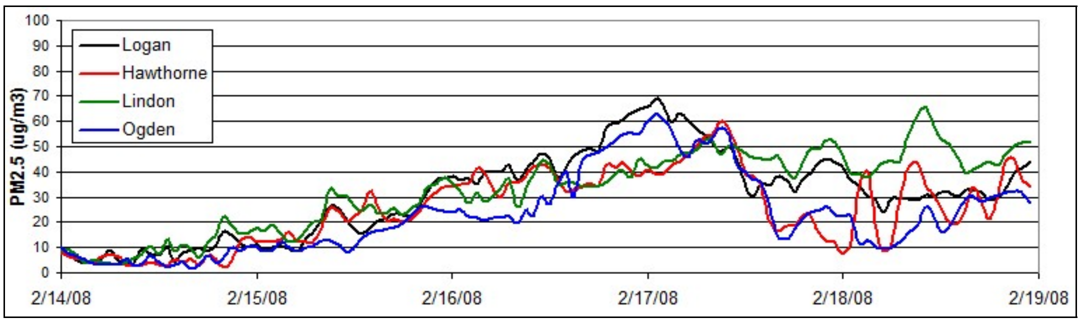


Figure IX.A.13[~~12~~]. 6 Hourly $PM_{2.5}$ concentrations for February 14-19, 2008

- **Episode 3: December 13, 2009 – January 18, 2010**

The third episode that was selected is more similar to a "season" than a single $PM_{2.5}$ episode (Figure IX.A.13[~~12~~]. 7). During the winter of 2009 and 2010, Utah was dominated by a semi-permanent ridge of high pressure that prevented strong storms from crossing Utah. This 35 day period was characterized by 4 to 5 individual $PM_{2.5}$ episodes each followed by a partial $PM_{2.5}$ mix out when a weak weather system passed through the ridge. The long length of the episode and repetitive $PM_{2.5}$ build-up and mix-out cycles makes it ideal for evaluating model strengths and weaknesses and $PM_{2.5}$ control strategies.

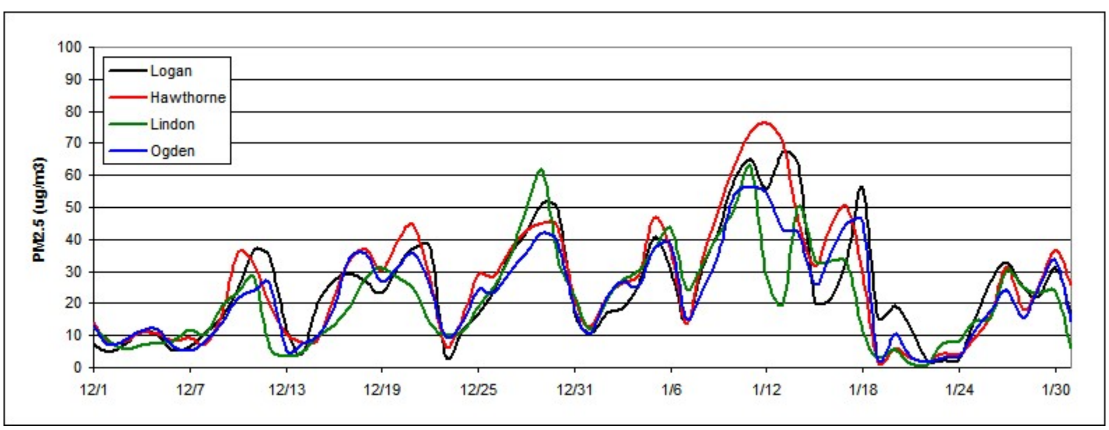


Figure IX.A.13[~~12~~]. 7 24-hour average $PM_{2.5}$ concentrations for December-January, 2009-10

(e) Meteorological Data

Meteorological inputs were derived using the Advanced Research WRF (WRF-ARW) model version 3.2. WRF contains separate modules to compute different physical processes such as surface energy budgets and soil interactions, turbulence, cloud microphysics, and atmospheric radiation. Within WRF, the user has many options for selecting the different schemes for each type of physical process. There is also a WRF Preprocessing System (WPS) that generates the initial and boundary conditions used by WRF, based on topographic datasets, land use information, and larger-scale atmospheric and oceanic models.

Model performance of WRF was assessed against observations at sites maintained by the Utah Air Monitoring Center. A summary of the performance evaluation results for WRF are presented below:

- The biggest issue with meteorological performance is the existence of a warm bias in surface temperatures during high $PM_{2.5}$ episodes. This warm bias is a common trait of WRF modeling during Utah wintertime inversions.

- WRF does a good job of replicating the light wind speeds (< 5 mph) that occur during high $PM_{2.5}$ episodes.

- WRF is able to simulate the diurnal wind flows common during high $PM_{2.5}$ episodes. WRF captures the overnight downslope and daytime upslope wind flow that occurs in Utah valley basins.

- WRF has reasonable ability to replicate the vertical temperature structure of the boundary layer (i.e., the temperature inversion), although it is difficult for WRF to reproduce the inversion when the inversion is shallow and strong (i.e., an 8 degree temperature increase over 100 vertical meters).

(f) Photochemical Model Performance Evaluation

$PM_{2.5}$ Results

The model performance evaluation focused on the magnitude, spatial pattern, and temporal variation of modeled and measured concentrations. This exercise was intended to assess whether, and to what degree, confidence in the model is warranted (and to assess whether model improvements are necessary).

CMAQ model performance was assessed with observed air quality datasets at UDAQ-maintained air monitoring sites (Figure IX.A.13[~~12~~]. 8). Measurements of observed $PM_{2.5}$ concentrations along with gaseous precursors of secondary particulate (e.g., NO_x, ozone) and carbon monoxide are made throughout winter at most of the locations in the figure. $PM_{2.5}$ speciation performance was assessed using the three Speciation Monitoring Network Sites (STN) located at the Hawthorne site in Salt Lake City, the Bountiful site in Davis County, and the Lindon site in Utah County.

PM_{10} data is also collected at Logan, Bountiful, Ogden2, Magna, Hawthorne, North Provo, and Lindon.

PM_{10} filters were collected at Bountiful, Hawthorne and Lindon, and analyzed with the goal comparing CMAQ modeled speciation to the collected PM_{10} filters. While analyzing the PM_{10} filters, most of the secondarily chemically formed particulate nitrate had been volatized, and thus could not be accounted for. This is most likely due to the age of the filters, which were collected over five years ago. Thus, a robust comparison of CMAQ modeled PM_{10} speciation to PM_{10} filter speciation could not be made for this modeling period.

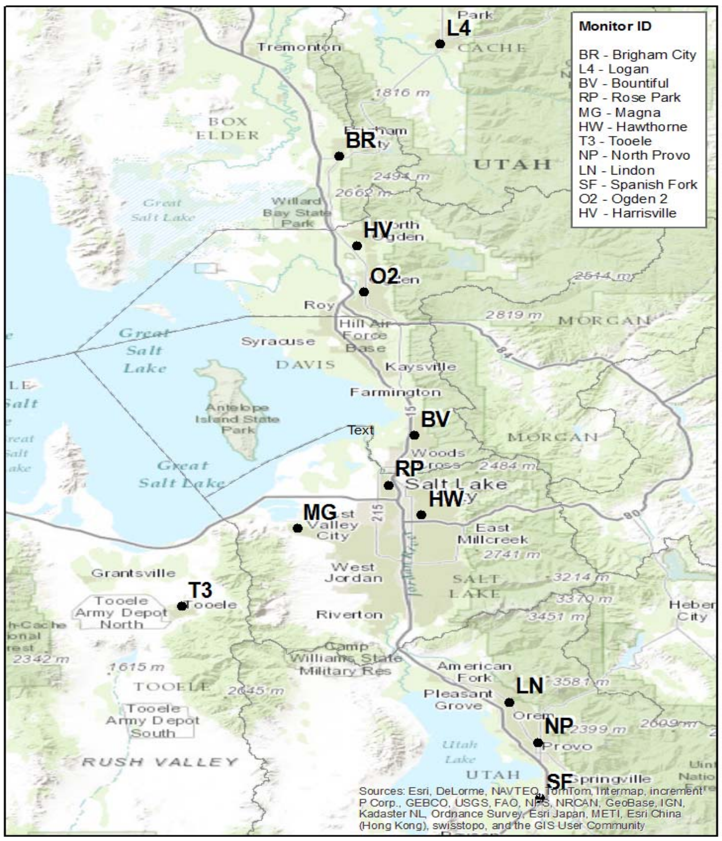


Figure IX.A.13[~~12~~]. 8 UDAQ monitoring network.

A spatial plot is provided for modeled 24-hr $PM_{2.5}$ for 2010 January 03 in Figure IX.A.13[~~12~~]. 9. The spatial plot shows the model does a reasonable job reproducing the high $PM_{2.5}$ values, and keeping those high values confined in the valley locations where emissions occur.

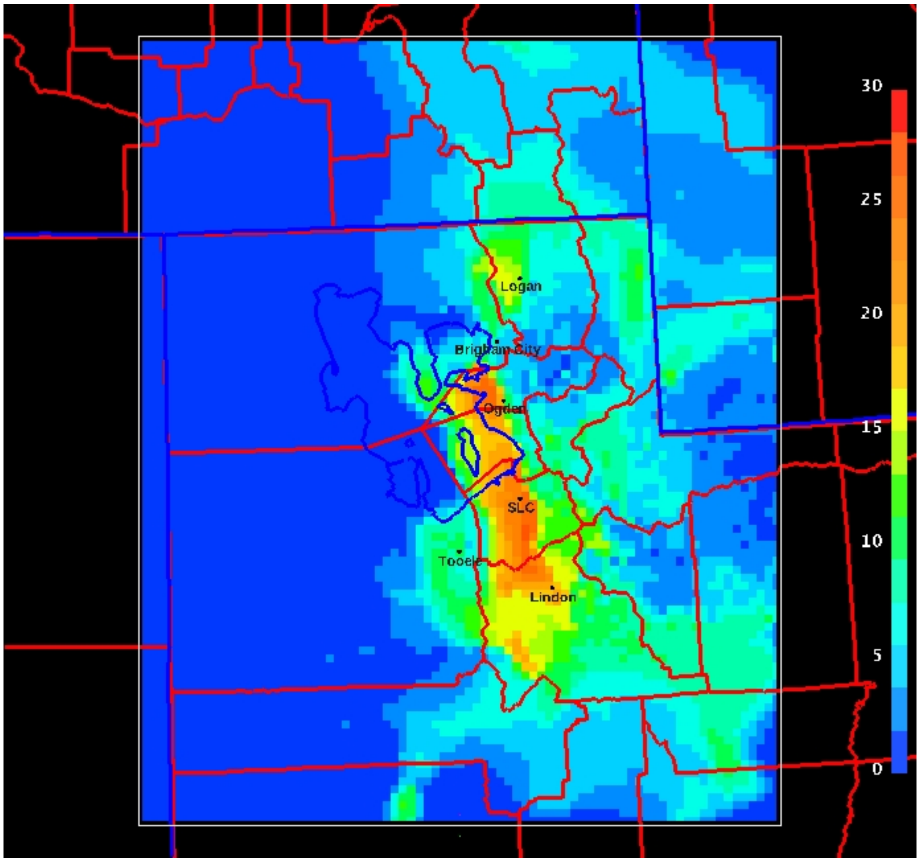


Figure IX.A.13[~~12~~]. 9 Spatial plot of CMAQ modeled 24-hr $PM_{2.5}$ ($\mu g/m^3$) for 2010 Jan. 03.

Time series of 24-hr $PM_{2.5}$ concentrations for the 13 Dec. 2009 – 15 Jan. 2010 modeling period are shown in Figs. IX.A.13[~~12~~]. 10 - 13 at the Hawthorne site in Salt Lake City, the Ogden site in Weber County, the Lindon site in Utah County, and the Logan site in Cache County. For the most part, CMAQ replicates the buildup and washout of each individual episode. While CMAQ builds 24-hr $PM_{2.5}$ concentrations during the 08 Jan. – 14 Jan. 2010 episode, it was not able to produce the > 60 $\mu g/m^3$ concentrations observed at the monitoring locations.

It is often seen that CMAQ "washes" out the $PM_{2.5}$ episode a day or two earlier than that seen in the observations. For example, on the day 21 Dec. 2009, the concentration of $PM_{2.5}$ continues to build while CMAQ has already cleaned the valley basins of high $PM_{2.5}$ concentrations. At these times, the observed cold pool that holds the $PM_{2.5}$ is often very shallow and winds just above this cold pool are southerly and strong before the approaching cold front. This situation is very difficult for a meteorological and photochemical model to reproduce. An example of this situation is shown in Fig. IX.A.13[~~12~~]. 14, where the lowest part of the Salt Lake Valley is still under a very shallow stable cold pool, yet higher elevations of the valley have already been cleared of the high $PM_{2.5}$ concentrations.

During the 24 – 30 Dec. 2009 episode, a weak meteorological disturbance brushes through the northernmost portion of Utah. It is noticeable in the observations at the Ogden monitor on 25 Dec. as $PM_{2.5}$ concentrations drop on this day before resuming an increase through Dec. 30. The meteorological model and thus CMAQ correctly pick up this disturbance, but completely clears out the building $PM_{2.5}$; and thus performance suffers at the most northern Utah monitors (e.g. Ogden, Logan). The monitors to the south (Hawthorne, Lindon) are not influence by this disturbance and building of $PM_{2.5}$ is replicated by CMAQ. This highlights another challenge of modeling $PM_{2.5}$ episodes in Utah. Often during cold pool events, weak disturbances will pass through Utah that will de-stabilize the valley inversion and cause a partial clear out of $PM_{2.5}$. However, the $PM_{2.5}$ is not completely cleared out, and after the disturbance exits, the valley inversion strengthens and the $PM_{2.5}$ concentrations continue to build. Typically, CMAQ completely mixes out the valley inversion during these weak disturbances.

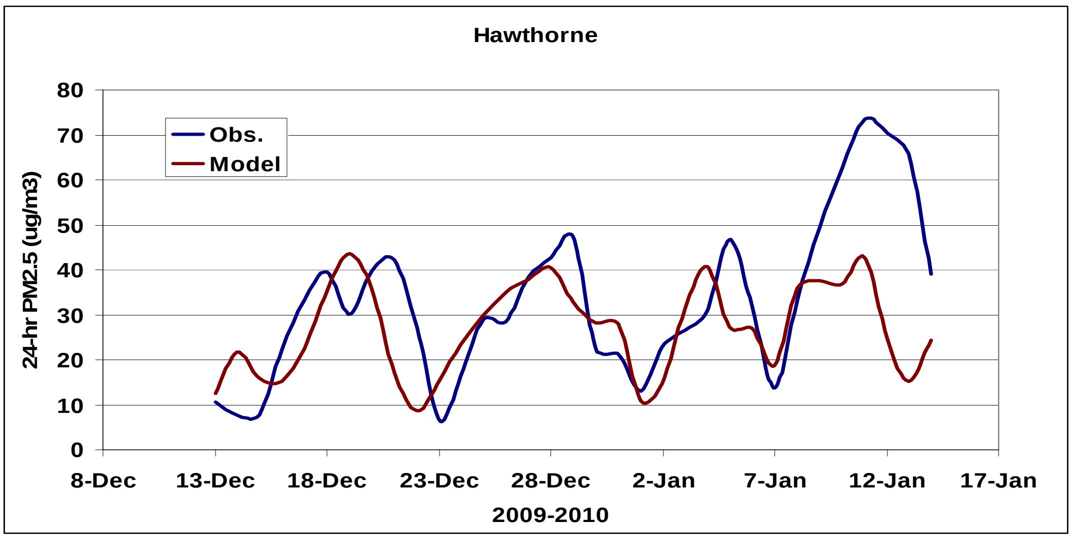


Figure IX.A.13[~~12~~]. 10 24-hr $PM_{2.5}$ time series (Hawthorne). Observed 24-hr $PM_{2.5}$ (blue trace) and CMAQ modeled 24-hr $PM_{2.5}$ (red trace).

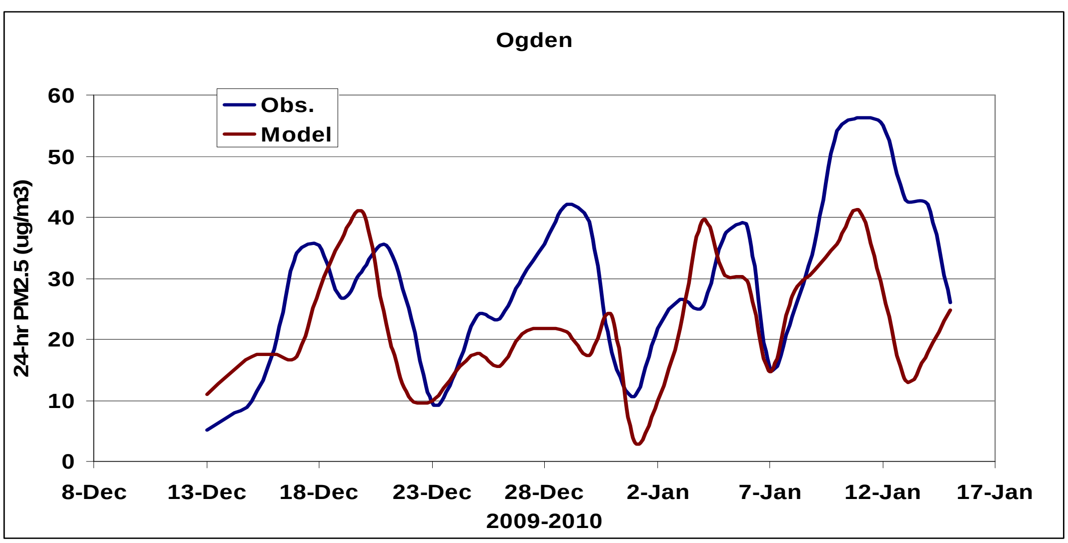


Figure IX.A.13[~~12~~]. 11 24-hr $PM_{2.5}$ time series (Ogden). Observed 24-hr $PM_{2.5}$ (blue trace) and CMAQ modeled 24-hr $PM_{2.5}$ (red trace).

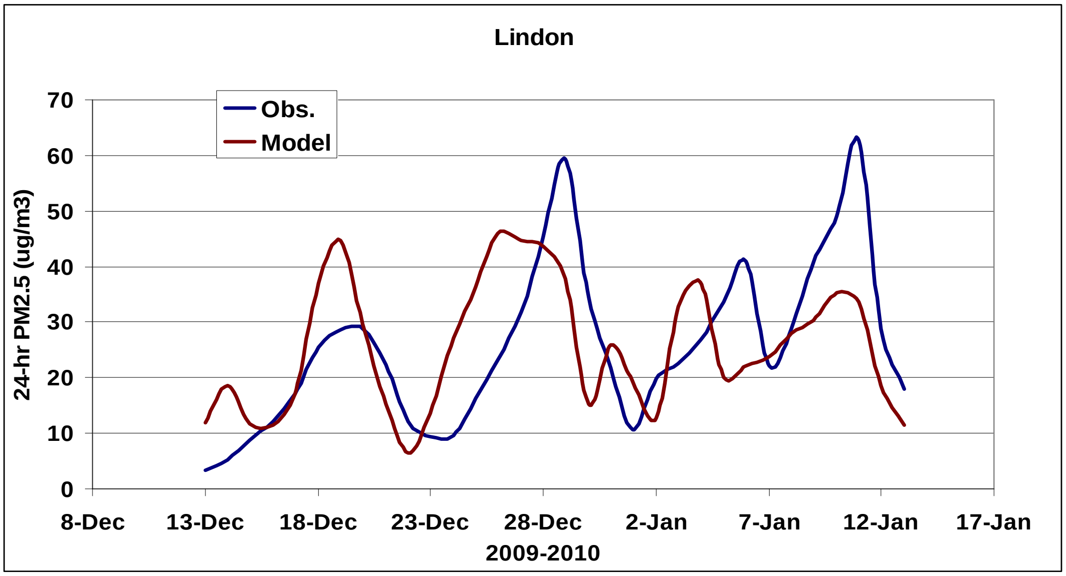


Figure IX.A.13[~~12~~]. 12 24-hr $PM_{2.5}$ time series (Lindon). Observed 24-hr $PM_{2.5}$ (blue trace) and CMAQ modeled 24-hr $PM_{2.5}$ (red trace).

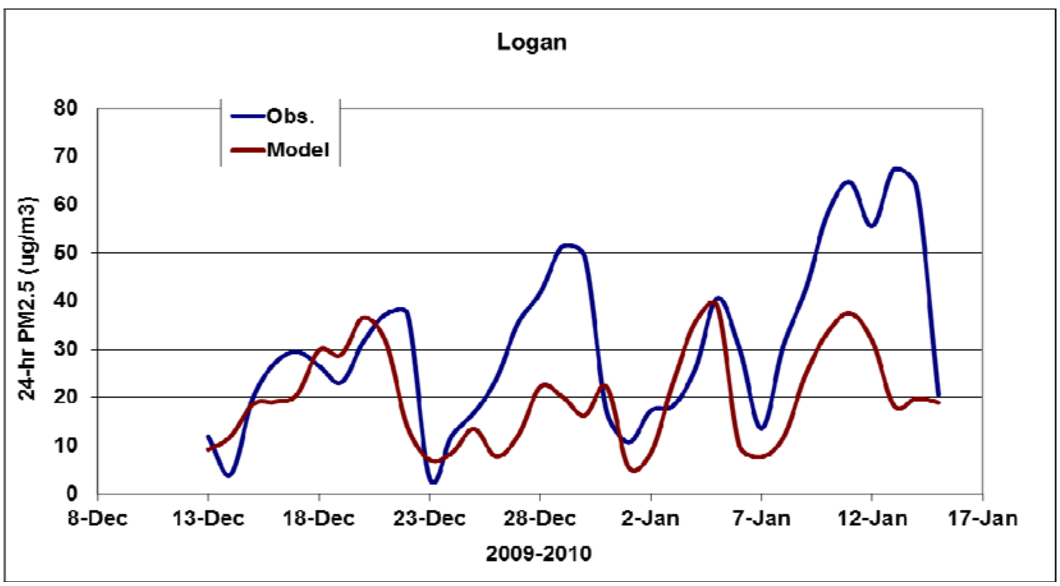


Figure IX.A.13[~~12~~]. 13 24-hr $PM_{2.5}$ time series (Logan). Observed 24-hr $PM_{2.5}$ (blue trace) and CMAQ modeled 24-hr $PM_{2.5}$ (red trace).

Figure IX.A.13[~~12~~]. 14 An example of the Salt Lake Valley at the end of a high $PM_{2.5}$ episode. The lowest elevations of the Salt Lake Valley are still experiencing an inversion and elevated $PM_{2.5}$ concentrations while the $PM_{2.5}$ has been 'cleared out' throughout the rest of the valley. These 'end of episode' clear out periods are difficult to replicate in the photochemical model.

Generally, the performance of CMAQ to replicate the buildup and clear out of $PM_{2.5}$ is good. However, it is important to verify that CMAQ is replicating the components of $PM_{2.5}$ concentrations. $PM_{2.5}$ simulated and observed speciation is shown at the 3 STN sites in Figures IX.A.13[~~12~~]. 15-17. The observed speciation is constructed using days in which the STN filter 24-hr $PM_{2.5}$ concentration was > 35 µg/m^3. For the 2009-2010 modeling period, the observed speciation pie charts were created using 8 filter days at Hawthorne, 6 days at Lindon, and 4 days at Bountiful.

The simulated speciation is constructed using modeling days that produced 24-hr $PM_{2.5}$ concentrations > 35 µg/m^3. Using this criterion, the simulated speciation pie chart is created from 18 modeling days for Hawthorne, 14 days at Lindon, and 14 days at Bountiful. At all 3 STN sites, the percentage of simulated nitrate is greater than 40%, while the simulated ammonium percentage is at ~15%. This indicates that the model is able to replicate the secondarily formed particulates that typically make up the majority of the measured $PM_{2.5}$ on the STN filters during wintertime pollution events.

The percentage of model simulated organic carbon is ~13% at all STN sites, which is in agreement with the observed speciation of organic carbon at Hawthorne and slightly overestimated (by ~3%) at Lindon and Bountiful.

There is no STN site in the Logan nonattainment area, and very little speciation information available in the Cache Valley. Figure IX.A.13[~~12~~]. 18 shows the model simulated speciation at Logan. Ammonium (17%) and nitrate (56%) make up a higher percentage of the simulated $PM_{2.5}$ at Logan when compared to sites along the Wasatch Front.

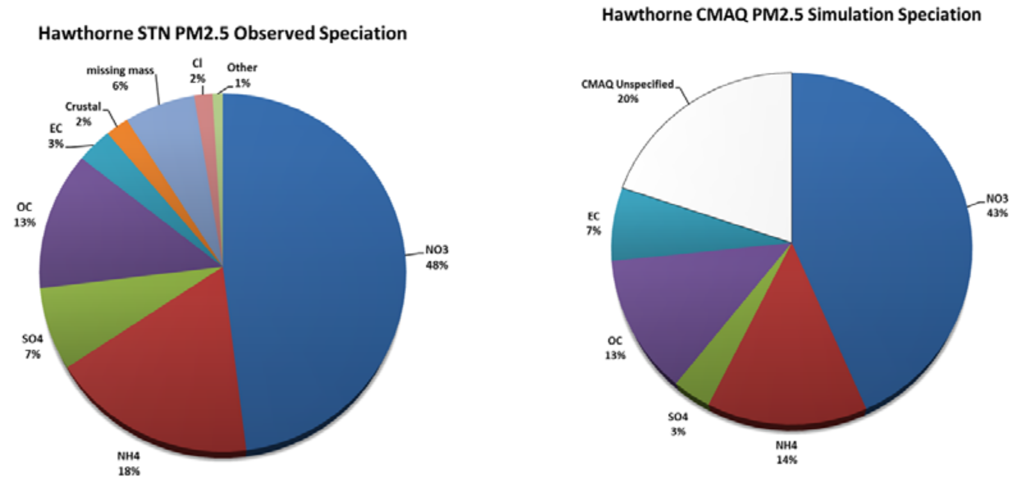


Figure IX.A.13[~~12~~]. 15 The composition of observed and model simulated average 24-hr $PM_{2.5}$ speciation averaged over days when an observed and modeled day had 24-hr concentrations > 35 µg/m^3 at the Hawthorne STN site.

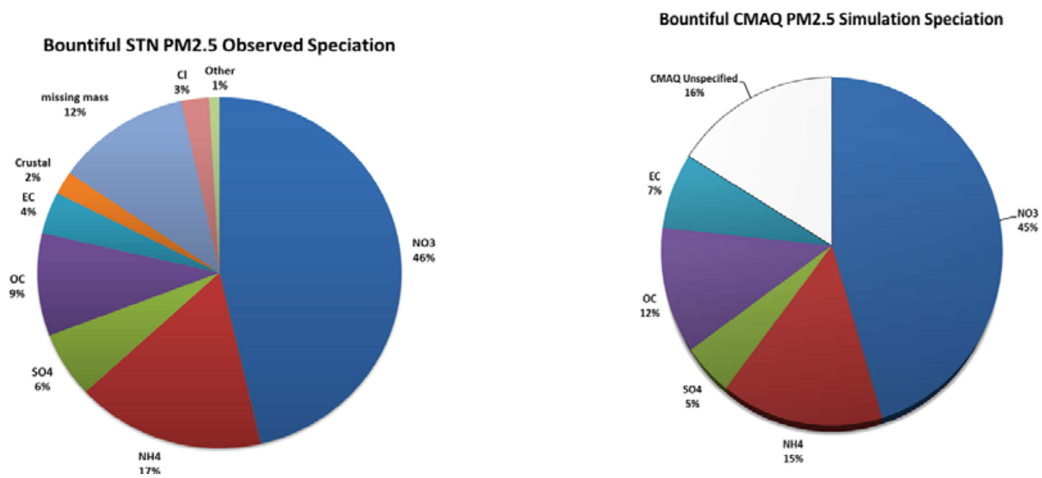


Figure IX.A.13[~~12~~]. 16 The composition of observed and model simulated average 24-hr $PM_{2.5}$ speciation averaged over days when an observed and modeled day had 24-hr concentrations > 35 µg/m^3 at the Bountiful STN site.

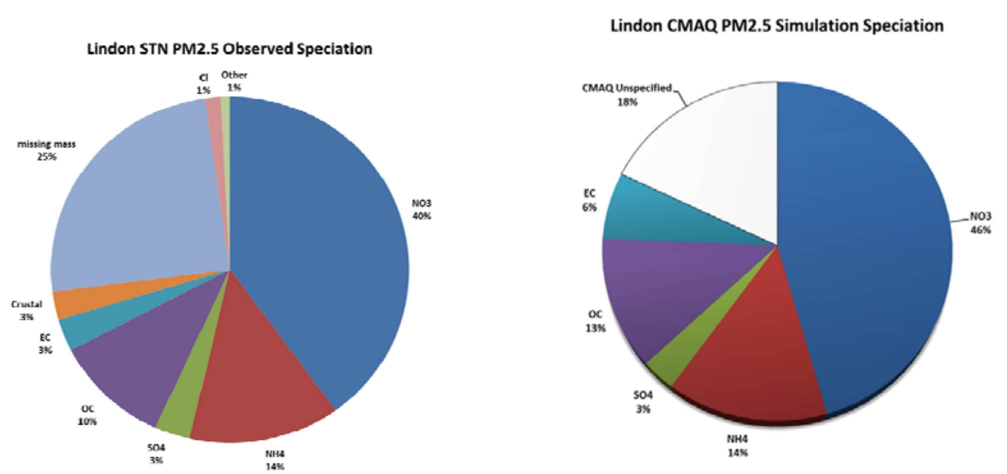


Figure IX.A.13[~~12~~]. 17 The composition of observed and model simulated average 24-hr $PM_{2.5}$ speciation averaged over days when an observed and modeled day had 24-hr concentrations > 35 µg/m^3 at the Lindon STN site.

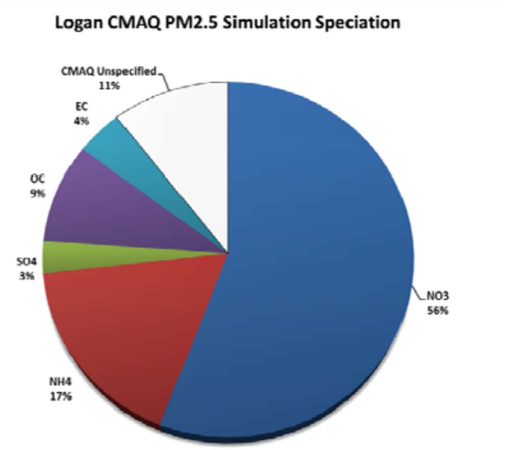


Figure IX.A.13[~~12~~]. 18 The composition of model simulated average 24-hr $PM_{2.5}$ speciation averaged over days when a modeled day had 24-hr concentrations > 35 µg/m^3 at the Logan monitoring site. No observed speciation data is available for Logan.

PM_{10} Results

As mentioned previously, the bulk of the performance for CMAQ modeled Particulate Matter (PM) for the 2009 – 2010 episode was done for the 24-hr $PM_{2.5}$ SIP. The detailed model performance was shown using time series, statistical metrics, and pie charts. For the CMAQ performance of PM_{10} in particular, UDAQ has updated the model versus observations time series plots to show PM_{10}, in addition to the prior times series using $PM_{2.5}$. For the 2009 – 2010 episode, UDAQ collected PM_{10} observational data at Hawthorne and Magna in Salt Lake County; Lindon and North Provo in Utah County; and for Ogden City.

The PM_{10} model versus observation time series is shown in Figures IX.A.13[~~12~~]. 19-24 .

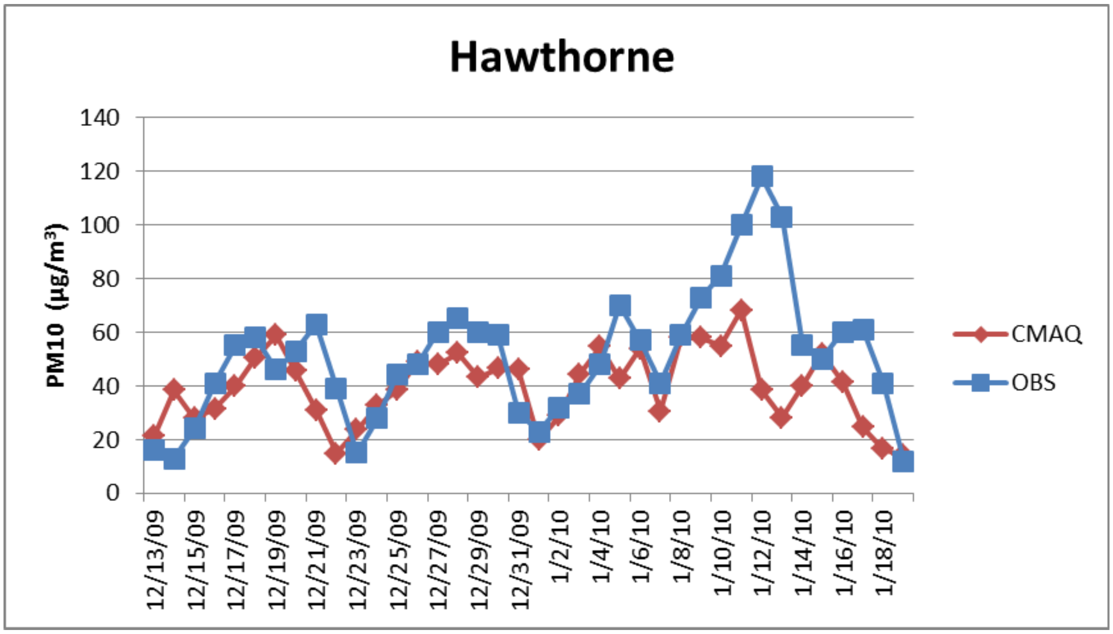


Figure IX.A.13[~~12~~]. 19 Time Series of total PM_{10} (ug/m3) for Hawthorne for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

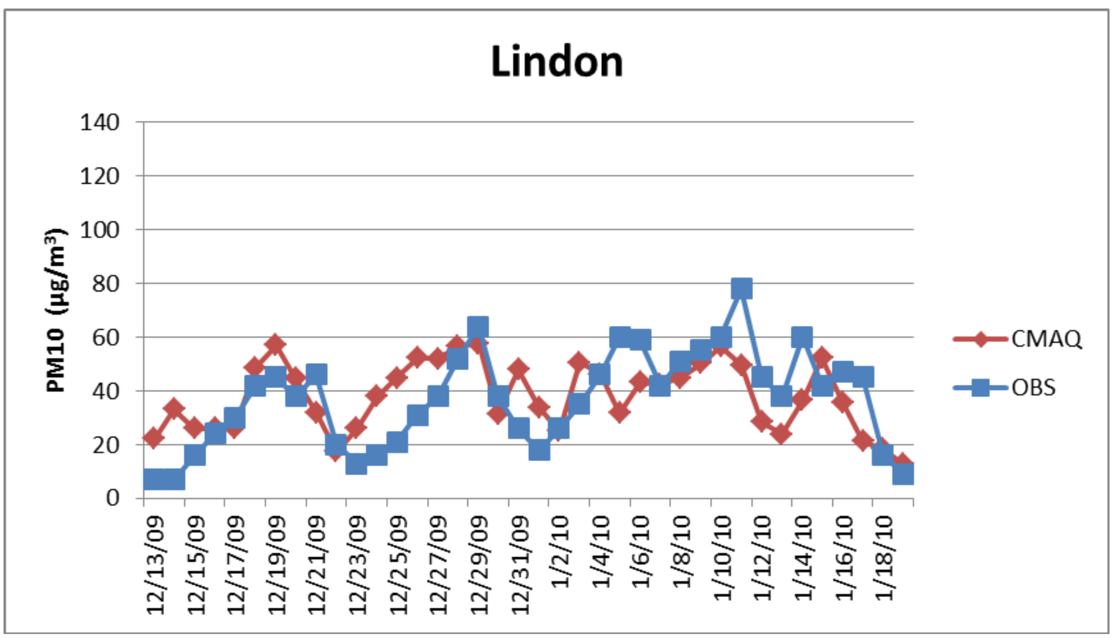


Figure IX.A.13[~~12~~]. 20 Time Series of total PM_{10} (ug/m3) for Lindon for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

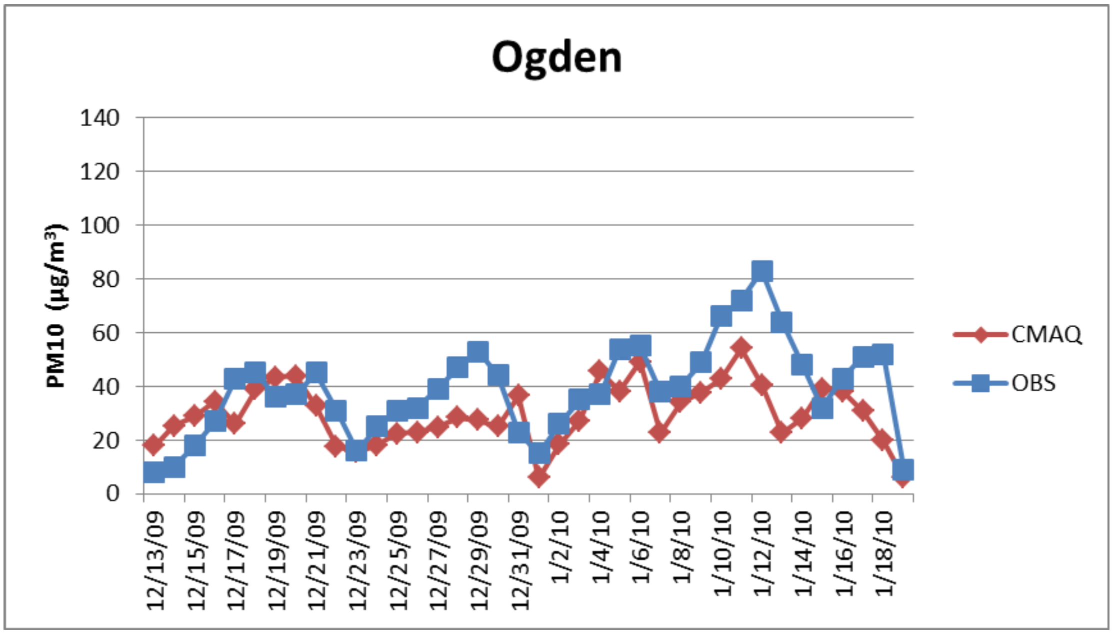


Figure IX.A.13[~~12~~]. 21 Time Series of total PM_{10} (ug/m3) for Ogden for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

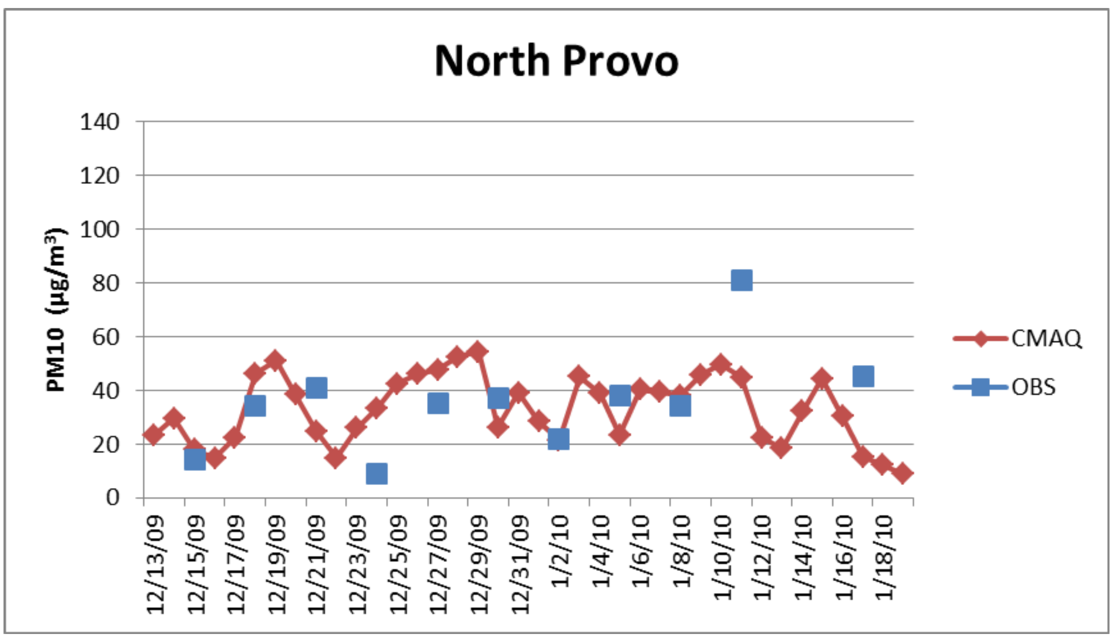


Figure IX.A.13[~~12~~]. 22 Time Series of total PM_{10} (ug/m3) for North Provo for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

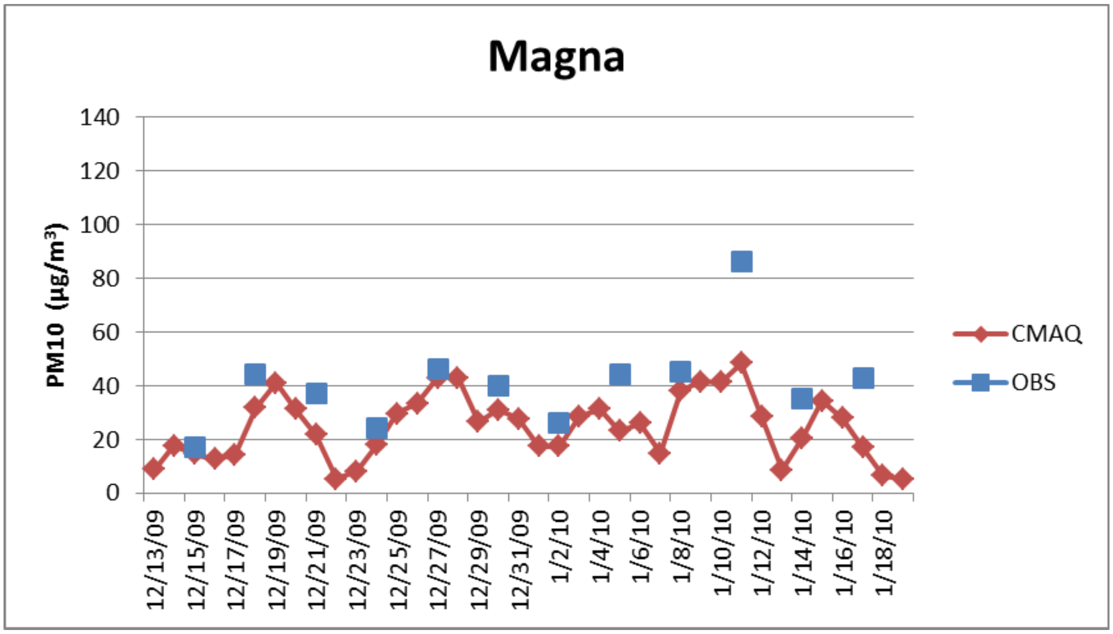


Figure IX.A.13[~~12~~]. 23 Time Series of total PM_{10} (ug/m3) for Magna for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

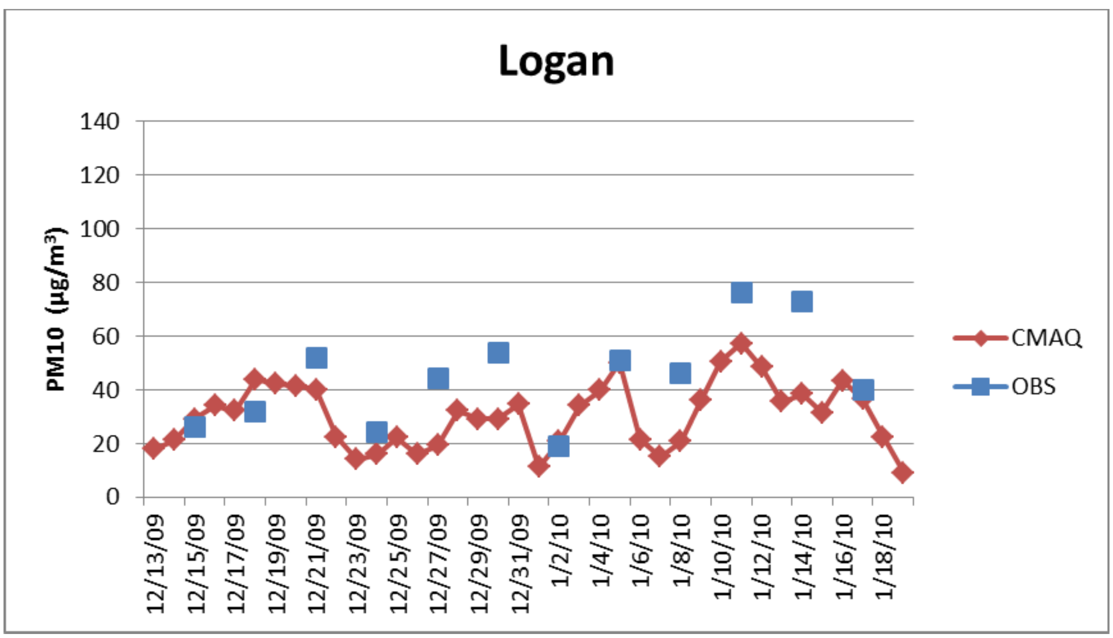


Figure IX.A.13[~~12~~]. 24 Time Series of total PM_{10} (ug/m3) for Logan for the 2009-2010 modeling. CMAQ results are shown in the red trace and the observations are the blue trace.

As noted before, a robust comparison of CMAQ modeled PM_{10} speciation to PM_{10} filter speciation could not be made for this modeling period because most of the secondarily chemically formed particulate nitrate had been volatized from the PM_{10} filters and thus could not be accounted for. It should be noted that CMAQ was able to produce the secondarily formed nitrate

when compared to $PM_{2.5}$ filters during the previous $PM_{2.5}$ SIP work. Therefore, UDAQ feels CMAQ shows good replication of the species that make up PM_{10} during wintertime pollution events.

(g) Summary of Model Performance

Model performance for 24-hr $PM_{2.5}$ is good and generally acceptable and can be characterized as follows:

- Good replication of the episodic buildup and clear out of $PM_{2.5}$. Often the model will clear out the simulated $PM_{2.5}$ a day too early at the end of an episode. This clear out time period is difficult to model (i.e., Figure IX.A.13[~~12~~]. 14).

- Good agreement in the magnitude of $PM_{2.5}$, as the model can consistently produce the high concentrations of $PM_{2.5}$ that coincide with observed high concentrations.

- Spatial patterns of modeled 24-hr $PM_{2.5}$, show for the most part, that the $PM_{2.5}$ is being confined in the valley basins, consistent to what is observed.

- Speciation and composition of the modeled $PM_{2.5}$ matches the observed speciation quite well. Modeled and observed nitrate are between 40% and 50% of the $PM_{2.5}$. Ammonium is between 15% and 20% for both modeled and observed $PM_{2.5}$, while modeled and observed organic carbon falls between 10% to 13% of the total $PM_{2.5.}$

For PM_{10} the CMAQ model performance is quite good at all locations along Northern Utah. CMAQ is able to re-produce the buildup and washout of the pollution episodes during the 2009 – 2010 winter. CMAQ is also able to re-produce the peak PM_{10} concentrations during most episodes. The exception being the 2010 Jan. 08 – 14 episode, where CMAQ fails to build to the extremely high PM_{10} concentration (>80 ug/m3) seen at the monitors. This episode in particular featured an "early model washout," and these results are similar to the results found in $PM_{2.5}$ modeling.

Several observations should be noted on the implications of these model performance findings on the attainment modeling presented in the following section. First, it has been demonstrated that model performance overall is acceptable and, thus, the model can be used for air quality planning purposes. Second, consistent with EPA guidance, the model is used in a relative sense to project future year values. EPA suggests that this approach "should reduce some of the uncertainty attendant with using absolute model predictions alone."

(h) Modeled Attainment Test

- **Introduction**

With acceptable performance, the model can be utilized to make future-year attainment projections. For any given (future) year, an attainment projection is made by calculating a concentration termed the Future Design Value (FDV). This calculation is made for each monitor included in the analysis, and then compared to the NAAQS (150 µg/m^3). If the FDV at every monitor located within a nonattainment area is smaller than the NAAQS, this would demonstrate attainment for that area in that future year.

A maintenance plan must demonstrate continued attainment of the NAAQS for a span of ten years. This span is measured from the time EPA approves the plan, a date which is somewhat uncertain during plan development. To be conservative, attainment projections were made for 2019, 2028, and 2030. An assessment was also made for 2024 as a "spot-check" against emission trends within the ten year span.

- **PM_{10} Baseline Design Values**

For any monitor, the FDV is greatly influenced by existing air quality at that location. This can be quantified and expressed as a Baseline Design Value (BDV). The BDV is consistent with the form of the 24-hour PM_{10} NAAQS; that is, that the probability of exceeding the standard should be no greater than once per calendar year. Quantification of the BDV for each monitor is included in the TSD, and is consistent with EPA guidance.

Hourly PM_{10} observations are taken from FRM filters spanning five monitors in three maintenance areas: Salt Lake County, Utah County, and the city of Ogden.

In Table IX.A.13[~~12~~]. 5, baseline design values are given for Ogden, Hawthorne, Magna, Lindon, and North Provo. These values were calculated based on data collected during the 2011-2014 time period.

Table IX.A.13[~~12~~]. 5 Baseline design values listed for each monitor.

Site	Maintenance Area	2011-2014 BDV
Ogden	Ogden City	88.2 µg/m^3
Hawthorne	Salt Lake County	100.9 µg/m^3
Magna	Salt Lake County	70.5 µg/m^3
Lindon	Utah County	111.4 µg/m^3
North Provo	Utah County	124.4 µg/m^3

- **Relative Response Factors**

In making future-year predictions, the output from the CMAQ 4.7.1 model is not considered to be an absolute answer. Rather, the model is used in a relative sense. In doing so, a comparison is made using the predicted concentrations for both the year in question and a pre-selected base-year, which for this plan is 2011. This comparison results in a Relative Response Factor (RRF). RRFs are calculated as follows:

1) Modeled PM_{10} concentrations are calculated for each grid cell in the modeling domain over the 39-day wintertime 2009-2010 episode. Of particular interest are the nine grid cells (3x3 window) that are collocated with each monitor. The monitor, itself is located in the window's center cell.

2) For every simulated day, the maximum daily PM_{10} concentration for each of these nine-cell windows is identified.

3) For each monitor, the top 20% of these 39 values are averaged to formulate a modeled PM_{10} peak concentration value (PCV).

4) At each monitor, the RRF is calculated as the ratio between future-year PCV and base-year PCV: **RRF = FPCV / BPCV**

- **Future Design Values and Results**

Finally, for each monitor, the FDV is calculated by multiplying the baseline design value by the relative response factor: **FDV = RRF * BDV**. These FDV's are compared to the NAAQS in order to determine whether attainment is predicted at that location or not. The results for each of the monitors are shown below in Table IX.A.13[~~12~~]. 6.

Table IX.A.13[~~12~~]. 6 Baseline design values, relative response factors, and future design values for all monitors and future years. Units of design values are µg/m^3, while RRF's are dimensionless.

Monitor	2011 BDV	2019 RRF	2019 FDV	2024 RRF	2024 FDV	2028 RRF	2028 FDV	2030 RRF	2030 FDV
Ogden	88.2	1.05	92.6	1.04	91.7	1.04[~~02~~]	91.7[~~90.0~~]	1.05	92.6
Hawthorne	100.9	1.09	110.0	1.09	110.0	1.11[~~09~~]	112.0[~~110.0~~]	1.12	113.0
Magna	70.5	1.14	80.4	1.13	79.7	1.14[~~11~~]	80.4[~~78.3~~]	1.15	81.1
Lindon	111.4	1.16	129.2	1.12	124.8	1.14[~~11~~]	127.0[~~123.7~~]	1.16	129.2
North Provo	124.4	1.15	143.1	1.12	139.3	1.13[~~10~~]	140.6[~~136.8~~]	1.15	143.1

For all future-years and monitors, no FDV exceeds the NAAQS. Therefore continued attainment is demonstrated for all three maintenance areas.

(2) Attainment Inventory

The attainment inventory is discussed in EPA guidance (Calcagni) as another one of the core provisions that should be considered by states for inclusion in a maintenance plan.

According to Calcagni, the stated purpose of the attainment inventory is to establish the level of emissions during the time periods associated with monitoring data showing attainment.

In cases such as this, where a maintenance demonstration is founded on a modeling analysis that is used in a relative sense, the baseline inventory modeled as the basis for comparison with every projection year model run is best suited to act as the attainment inventory. For this analysis, a baseline inventory was compiled for the year 2011. This year also falls within the span of data representing current attainment of the PM_{10} NAAQS.

Calcagni speaks about the projection inventory as well, and notes that it should consider future growth, including population and industry, should be consistent with the base-year attainment inventory, and should document data inputs and assumptions. Any assumptions concerning emission rates must reflect permanent, enforceable measures.

Utah compiled projection inventories for use in the quantitative modeling demonstration. The years selected for projection included 2019, 2024, 2028, and 2030. The emissions contained in the inventories include sources located within a regional area called a modeling domain. The modeling domain encompasses all three areas within the state that were designated as nonattainment areas for PM_{10}: Salt Lake County, Utah County, and Ogden City, as well as a bordering region see Figure IX.A.13[~~12~~]. 1.

Since this bordering region is so large (owing to its creation to assess a much larger region of $PM_{2.5}$ nonattainment), a "core area" within this domain was identified wherein a higher degree of accuracy would be important. Within this core area (which includes Weber, Davis, Salt Lake, and Utah Counties), SIP-specific inventories were prepared to include seasonal adjustments and forecasting to represent each of the projection years. In the bordering regions away from this core, the 2011 National Emissions Inventory was downloaded from EPA and inserted to the analysis. It remained unchanged throughout the analysis period.

There are four general categories of sources included in these inventories: large stationary sources, smaller area sources, on-road mobile sources, and off-road mobile sources.

For each of these source categories, the pollutants that were inventoried included: particulate matter with an aerodynamic diameter of ten microns or less (PM_{10}), sulfur dioxide (SO_2), oxides of nitrogen (NO_X), volatile organic compounds (VOC), and ammonia. SO_2 and NO_X are specifically defined as PM_{10} precursors, that is, compounds that, after being emitted to the atmosphere, undergo chemical or physical change to become PM_{10}. Any PM_{10} that is created in this way is referred to as secondary aerosol. The CMAQ model also considers ammonia and VOC to be contributing factors in the formation of secondary aerosol.

The unit of measure for point and area sources is the traditional tons per year, but the CMAQ model includes a pre-processor that converts these emission rates to hourly increments throughout each day for each episode. Mobile source emissions are reported in terms of tons per day, and are also pre-processed by the model.

The basis for the point source and area inventories, for the base-year attainment inventory as well as all future-year projection inventories, was the 2011 tri-annual inventory of actual emissions that had already been compiled by the Division of Air Quality.

Area sources, off-road mobile sources, and generally also the large point sources were projected forward from 2011, using population and economic forecasts from the Governor's Office of Management and Budget.

Mobile source emissions were calculated for each year using MOVES2010 in conjunction with the appropriate estimates for vehicle miles traveled (VMT). VMT estimates for the urban counties were based on a travel demand model that is only run periodically for specific projection years. VMT for intervening years were estimated by interpolation.

Since this SIP subsection takes the form of a maintenance plan, it must demonstrate that the area will continue to attain the PM_{10} NAAQS throughout a period of ten years from the date of EPA approval. It is also necessary to "spot check" this ten-year interval. Hence, projection inventories were prepared for the following years: 2019, 2024, 2028, (the ten-year mark from anticipated EPA approval), and 2030. 2011 was established as the baseline period.

The following tables are provided to summarize these inventories. As described, they represent point, area, on-road mobile, and off-road mobile sources in the modeling domain. They include PM_{10}, SO_2, NO_X, VOC, and ammonia.

The first Table IX.A.13[~~12~~]. 7 shows the baseline emissions for each of the areas within the modeling domain. The second Table IX.A.13[~~12~~]. 8 is specific to this nonattainment area, and shows the emissions from the baseline through the projection years.

Table IX.A.13[~~12~~]. 7 Baseline Emissions throughout the Modeling Domain

2011 Baseline	NA-Area	Source Category	PM10	SO2	NOx	VOC	NH3
2011 Baseline Sum of Emissions (tpd)	Ogden City NA-Area	Area Sources	0.85	0.08	2.12	5.67	0.86
		NonRoad	0.90	0.00	1.32	0.91	0.00
		Point Source	0.00	0.00	0.00	0.00	0.00
		Mobile Sources	2.09	0.05	12.18	8.58	0.22
		Provo NA Total	**3.84**	**0.13**	**15.62**	**15.16**	**1.08**
	Salt Lake County NA-Area	Area Sources	~~4.61~~	~~0.05~~	~~0.73~~	~~32.62~~	~~1.53~~
		NonRoad	7.12	0.32	11.71	6.38	0.00
		Point Source	4.04	8.90	15.56	2.97	0.20
		Mobile Sources	10.95	0.28	57.96	35.35	1.14
		Salt Lake City NA Total	**~~26.72~~**	**~~9.55~~**	**~~85.96~~**	**~~77.32~~**	**~~2.87~~**
	Utah County NA-Area	Area Sources	~~2.19~~	~~0.02~~	~~0.22~~	~~1.16~~	~~0.83~~
		NonRoad	3.53	0.02	4.24	2.31	0.00
		Point Source	0.28	0.29	1.03	0.18	0.18
		Mobile Sources	4.90	0.13	24.64	11.89	0.49
		Surrounding Areas Total	**~~10.90~~**	**~~0.46~~**	**~~30.13~~**	**~~15.54~~**	**~~1.50~~**
	Surrounding Areas	Area Sources	~~537.49~~	~~13.60~~	~~228.31~~	~~629.52~~	~~331.22~~
		NonRoad	34.53	0.10	60.77	72.57	0.01
		Point Source	17.64	283.15	538.86	63.96	6.08
		Mobile Sources	22.80	193.52	434.92	6.47	1.67
		Surrounding Areas Total	**~~612.46~~**	**~~490.37~~**	**~~1262.86~~**	**~~772.52~~**	**~~338.98~~**
		2011 Total	**653.92**	**500.51**	**1394.57**	**880.54**	**344.43**

2011 Baseline	NA-Area	Source Category	PM10	SO2	NOx	VOC	NH3
2011 Baseline Sum of Emissions (tpd)	Ogden City NA-Area	Area Sources	0.85	0.08	2.12	5.67	0.86
		NonRoad Sources	0.90	0.00	1.32	0.91	0.00
		Point Sources	0.00	0.00	0.00	0.00	0.00
		Mobile Sources	2.09	0.05	12.18	8.58	0.22
		Ogden City NA Total	**3.84**	**0.13**	**15.62**	**15.16**	**1.08**
	Salt Lake County NA-Area	Area Sources	5.50	0.37	9.14	30.35	3.82
		NonRoad Sources	7.12	0.32	11.71	6.38	0.00
		Point Sources	4.04	8.90	15.56	2.97	0.20
		Mobile Sources	10.95	0.28	57.96	35.35	1.14
		Salt Lake County NA Total	**27.61**	**9.87**	**94.37**	**75.05**	**5.16**
	Utah County NA-Area	Area Sources	3.90	0.28	5.61	13.02	6.62
		NonRoad Sources	3.53	0.02	4.24	2.31	0.00
		Point Sources	0.28	0.29	1.03	0.18	0.18
		Mobile Sources	4.90	0.13	24.64	11.89	0.49
		Utah County NA Total	**12.61**	**0.72**	**35.52**	**27.40**	**7.29**
	Surrounding Areas	Area Sources	534.89	13.02	214.51	619.93	323.14
		NonRoad Sources	34.53	0.10	60.77	72.57	0.01
		Point Sources	17.64	283.15	538.86	63.96	6.08
		Mobile Sources	22.80	193.52	434.92	6.47	1.67
		Surrounding Areas Total	**609.86**	**489.79**	**1,249.06**	**762.93**	**330.90**
		2011 Total	**653.92**	**500.51**	**1,394.57**	**880.54**	**344.43**

Table IX.A.13[~~12~~]. 8 Salt Lake County Nonattainment Area; Actual Emissions for 2011 and Emission Projections for 2019, 2024, 2028, and 2030.

Year	NA-Area	Source Category	PM10	SO2	NOx	VOC	NH3
2011 Baseline	Ogden City NA-Area	Area Sources	0.85	0.08	2.12	5.67	0.86
		NonRoad	0.90	0.00	1.32	0.91	0.00
		Point Source	0.00	0.00	0.00	0.00	0.00
		Mobile Sources	2.09	0.05	12.18	8.58	0.22
		2011 Total	**3.84**	**0.13**	**15.62**	**15.16**	**1.08**
2019	Ogden City NA-Area	Area Sources	0.61	0.08	1.21	3.87	0.88
		NonRoad	1.00	0.00	0.84	0.77	0.00
		Point Source	0.00	0.00	0.00	0.00	0.00
		Mobile Sources	2.07	0.06	6.68	5.26	0.17
		2019 Total	**3.68**	**0.14**	**8.73**	**9.90**	**1.05**
2024	Ogden City NA-Area	Area Sources	0.65	0.12	1.16	4.18	0.95
		NonRoad	1.05	0.00	0.70	0.77	0.00
		Point Source	0.00	0.00	0.00	0.00	0.00
		Mobile Sources	2.11	0.06	4.50	4.19	0.17
		2024 Total	**3.81**	**0.18**	**6.36**	**9.14**	**1.12**
2028	Ogden City NA-Area	Area Sources	0.71	0.10	1.21	4.38	0.99
		NonRoad	1.13	0.00	0.66	0.78	0.00
		Point Source	0.00	0.00	0.00	0.00	0.00
		Mobile Sources	2.17	0.05	3.12	3.42	0.17
		2028 Total	**4.01**	**0.15**	**4.99**	**8.58**	**1.16**
2030	Ogden City NA-Area	Area Sources	0.71	0.08	1.21	4.50	0.99
		NonRoad	1.17	0.00	0.64	0.80	0.00
		Point Source	0.00	0.00	0.00	0.00	0.00
		Mobile Sources	2.22	0.05	2.83	3.26	0.17
		2030 Total	**4.10**	**0.13**	**4.68**	**8.56**	**1.16**

More detail concerning any element of the inventory can be found at the appropriate section of the Technical Support Document (TSD). More detail about the general construction of the inventory may be found in the Inventory Preparation Plan.

(3) Emissions Limitations

As discussed above, the larger sources within the nonattainment areas were individually inventoried and modeled in the analysis.

A subset of these "large" sources was subsequently identified for the purpose of establishing emission limitations as part of the Utah SIP. This subset includes any source located within any of the three current nonattainment areas for PM_{10}: Salt Lake County, Utah County, or Ogden City whose actual emissions of PM_{10}, SO_2, or NOx exceeded 100 tons in 2011, or who had the potential to emit 100 tpy of any of these pollutants. A source might also be included in the subset if it was currently regulated for PM_{10} under section IX, Part H of the Utah SIP. There were several sources in Davis County that were close enough to the border so as to have originally been included in the original PM_{10} SIP.

As discussed before, the emission limits for these sources had already been reflected in the projected emissions inventories used in the modeling analysis. Only those limits for which credit is being taken in the SIP have been incorporated specifically into the SIP. Many of these limits appear in state issued Approval Orders or Title V Operating Permits. Such regulatory documents typically include many emission limits and operating restrictions. However, the limits found in the SIP cannot be changed unless the State provides, and EPA approves, a SIP revision.

These limits are incorporated in the Utah SIP at Section IX, Part H (formerly Sections 1 and 2 of Appendix A to Section IX, Part A), and as such are federally enforceable.

These conditions support a demonstration of maintenance through 2030.

(4) Emission Reduction Credits

Under Utah's new source review rules in R307-403-8, banking of emission reduction credits (ERCs) is permitted to the fullest extent allowed by applicable Federal Law as identified in 40 CFR 51, Appendix S, among other documents. Under Appendix S, Section IV.C.5, a permitting authority may allow banked ERCs to be used under the preconstruction review program (R307-403) as long as the banked ERCs are identified and accounted for in the SIP control strategy.

Existing Emission Reduction Credits, for PM_{10}, SO_2, and NOx, were included in the modeled demonstration of maintenance outlined in Subsection IX.A.13[~~12~~].c(1).

The subsequent crediting of any emission reduction of PM_{10}, or precursors thereto, whether pre-existing or established subsequent to the approval of this SIP revision, remains permissible. In general, credits must be in excess and must be established by actual, verifiable, and enforceable reductions in emissions. Additionally, these ERCs cannot be used to offset major new sources or major modifications at existing sources in $PM_{2.5}$ nonattainment areas.

Once Ogden City is redesignated to attainment for PM_{10}, permitting new PM_{10} sources or major modifications to existing PM_{10} sources will be conducted under the rules of the Prevention of Significant Deterioration program.

(5) Additional Controls for Future Years

Since the emission limitations discussed in subsection IX.A.13[~~12~~].c.(3) are federally enforceable and, as demonstrated in IX.A.13[~~10~~].c(1) above, are sufficient to ensure continued attainment of the PM_{10} NAAQS, there is no need to require any additional control measures to maintain the PM_{10} NAAQS.

(6) Mobile Source Budget for Purposes of Conformity

The transportation conformity provisions of section 176(c)(2)(A) of the Clean Air Act (CAA) require regional transportation plans and programs to show that "…emissions expected from implementation of plans and programs are consistent with estimates of emissions from motor vehicles and necessary emissions reductions contained in the applicable implementation plan…" EPA's transportation conformity regulation (40 CFR 93, Subpart A, last amended at 77 FR 14979, March 14 2012) also requires that motor vehicle emission budgets must be established for the last year of the maintenance plan, and may be established for any years deemed appropriate (see 40 CFR 93.118((b)(2)(i)). If the maintenance plan does not establish motor vehicle emissions budgets for any years other than the last year of the maintenance plan, the conformity regulation requires that a "demonstration of consistency with the motor vehicle emissions budget(s) must be accompanied by a qualitative finding that there are not factors which would cause or contribute to a new violation or exacerbate an existing violation in the years before the last year of the maintenance plan." The normal interagency consultation process required by the regulation (40 CFR 93.105) shall determine what must be considered in order to make such a finding.

Thus, for a Metropolitan Planning Organization's (MPO's) Regional Transportation Plan (RTP), analysis years that are after the last year of the maintenance plan (in this case 2030), a conformity determination must show that emissions are less than or equal to the maintenance plan's motor vehicle emissions budget(s) for the last year of the implementation plan.

EPA's MOVES2014 was used to calculate mobile source emissions, and road dust projections were calculated using the January 2011 update to AP-42 Method for Estimating Re-Entrained Road Dust from Paved Roads (Chapter 13, released 76 FR 6329 February 4, 2011).

[~~Utah has determined that mobile sources are not significant contributors of SO_2 for this maintenance plan. As such, this maintenance plan does not establish a motor vehicle emissions budget for SO_2.~~]

(a) Ogden City Mobile Source PM_{10} Emissions Budgets

In this maintenance plan, Utah is establishing transportation conformity motor vehicle emission budgets (MVEB) for PM_{10} (direct) and NOx for 2030.

(i) Direct PM_{10} Emissions Budget

Direct (or "primary") PM_{10} refers to PM_{10} that is not formed via atmospheric chemistry. Rather, direct PM_{10} is emitted straight from a mobile or stationary source. With regard to the emission budget presented herein, direct PM_{10} includes road dust, brake wear, and tire wear as well as PM_{10} from exhaust.

As presented in the Technical Support Document for on-road mobile sources, the estimated on-road mobile source emissions for Ogden City [~~Salt Lake County~~], in 2030**,** of direct sources of PM_{10} (road dust, brake wear, tire wear, and exhaust particles) were 0.71 tons per winter-weekday. These mobile source PM_{10} emissions were included in the maintenance demonstration in Subsection IX.A.13[~~10~~].c.(1) which estimates a maximum PM_{10} concentration of 92.6 $\mu g/m^3$ in 2030 within the Ogden City [~~Salt Lake County~~] portion of the modeling domain. The above PM_{10} mobile source emission figure of 0.71 tons per day (tpd) would traditionally be considered as the MVEB for the maintenance plan. However, and as discussed below, the modeled concentration is 57.4 $\mu g/m^3$ below the NAAQS of 150 $\mu g/m^3$, and indicates the potential for PM_{10} emissions to be considered [~~represents potential PM_{10} emissions that may be considered~~] for allocation to the PM_{10} MVEB.

EPA's conformity regulation (40 CFR 93.124(a)) allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement. These additional emissions that can be allocated to the applicable MVEB are considered the "safety margin." As defined in 40 CFR 93.101, safety margin represents the amount of emissions by which the total projected emissions from all sources of a given pollutant are less than the total emissions that would satisfy the applicable requirement for demonstrating maintenance. The implementation plan can then allocate some or all of this "safety margin" to the applicable MVEBs for transportation conformity purposes.

The safety margin for the Ogden City portion of the domain equates to 57.4 $\mu g/m^3$.

To evaluate the portion of safety margin that could be allocated to the PM_{10} MVEB, modeling was re-run for 2030 with additional emissions attributed to the on-road mobile sources.

Using the same emission projections for point and area and non-road mobile sources, the SMOKE 3.6 emissions model was re-run using 1.50 tons of PM_{10} per winter-weekday for mobile sources (and 1.00 tons/winter-weekday of NO_X). The revised maintenance demonstration for 2030 still shows maintenance of the PM_{10} standard.

It estimates a maximum PM_{10} concentration of 97.0 µg/m^3 in 2030 within the Ogden City portion of the modeling domain. This value is 53.0 µg/m^3 below the NAAQ Standard of 150 µg/m^3, but 4.4 µg/m^3 higher than the previous value.

This shows that the safety margin is at least 0.79 tons/day of PM_{10} (1.50 tons/day minus 0.71 tons/day) and 0.30 tons/day of NO_X (1.00 tons/day minus 0.70 tons/day). This maintenance plan allocates this portion of the safety margin to the mobile source budgets for Ogden City, and thereby sets the direct PM_{10} MVEB for 2030 at 1.50 tons/winter-weekday.

(ii) NO_X Emissions Budget

Through atmospheric chemistry, NO_X emissions can substantially contribute to secondary PM_{10} formation. For this reason, NOx is considered a PM10 precursor.

As presented in the Technical Support Document for on-road mobile sources, the estimated on-road mobile source NO_X emissions for Ogden City in 2030 were 0.70 tons per winter-weekday. These mobile source PM_{10} emissions were included in the maintenance demonstration in Subsection IX.A.13[~~10~~].c.(1) which estimates a maximum PM_{10} concentration of 92.6 µg/m^3 in 2030 within the Ogden City portion of the modeling domain. The above NOx mobile source emission figure of 0.70 tons per day (tpd) would traditionally be considered as the MVEB for the maintenance plan. However, and as discussed below, the modeled concentration is 57.4 µg/m^3 below the NAAQS of 150 µg/m^3, and indicates the potential for NOx emissions to be considered [~~represents potential NOx emissions that may be considered~~] for allocation to the NOx MVEB.

EPA's conformity regulation (40 CFR 93.124(a)) allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement. These additional emissions that can be allocated to the applicable MVEB are considered the "safety margin." As defined in 40 CFR 93.101, safety margin represents the amount of emissions by which the total projected emissions from all sources of a given pollutant are less than the total emissions that would satisfy the applicable requirement for demonstrating maintenance. The implementation plan can then allocate some or all of this "safety margin" to the applicable MVEBs for transportation conformity purposes.

The safety margin for the Ogden City portion of the domain equates to 57.4 µg/m^3.

To evaluate the portion of safety margin that could be allocated to the PM_{10} MVEB, modeling was re-run for 2030 with additional emissions attributed to the on-road mobile sources.

Using the same emission projections for point and area and non-road mobile sources, the SMOKE 3.6 emissions model was re-run using 1.00 tons of NO_X per winter-weekday for on-road mobile sources (and 1.50 tons/winter-weekday of PM_{10}). The revised maintenance demonstration for 2030 still shows maintenance of the PM_{10} standard.

It estimates a maximum PM_{10} concentration of 97.0 µg/m^3 in 2030 within the Ogden City portion of the modeling domain. This value is 53.0 µg/m^3 below the NAAQ Standard of 150 µg/m^3, but 4.4 µg/m^3 higher than the previous value.

This shows that the safety margin is at least 0.30 tons/day of NO_X (1.00 tons/day minus 0.70 tons/day) and 0.79 tons/day of PM_{10} (1.50 tons/day minus 0.71 tons/day). This maintenance plan allocates this portion of the safety margin to the mobile source budgets for Ogden City, and thereby sets the NO_X MVEB for 2030 at 1.00 tons/winter-weekday

(b) Net Effect to Maintenance Demonstration

Using the procedure described above, some of the identified safety margin indicated earlier in Subsection IX.A.13[~~12~~].c(6) has been allocated to the mobile vehicle emissions budgets. The results of this modification are presented below.

(i) Inventory: The emissions inventory was adjusted as shown below:

in 2030: PM_{10} was adjusted by adding 0.79 ton/day (tpd) of safety margin to 0.71 tpd inventory for a total of 1.50 tpd, and

NO_X was adjusted by adding 0.30 tpd of safety margin to 0.70 tpd inventory for a total of 1.00 tpd,

(ii) Modeling:

The effect on the modeling results throughout the domain is summarized in the following Table IX.A.13[~~12~~]. 9 (which shows predicted concentrations in µg/m^3). It demonstrates that with the allocation of the safety margin, the NAAQS is still maintained through 2030 in all areas.

Table IX.A. 13[~~12~~]. 9 Modeling of Attainment in 2030, Including the Portion of the Safety Margin Allocated to Motor Vehicles

Air Quality Monitor	Predicted Concentrations in 2030 µg/m3	
	A	B
Ogden	92.6	97.0

Notes: Column A shows concentrations presented previously as part of the modeled attainment test. Column B shows concentrations resulting from allocation of a portion of the safety margin.

(7) Nonattainment Requirements Applicable Pending Plan Approval

CAA 175A(c) - *Until such plan revision is approved and an area is redesignated as attainment, the requirements of CAA Part D, Plan Requirements for Nonattainment Areas, shall remain in force and effect.* The Act requires the continued implementation of the nonattainment area control strategy unless such measures are shown to be unnecessary for maintenance or are replaced with measures that achieve equivalent reductions. Utah will continue to implement the control measures identified under the Clean Data Policy.

(8) Revise in Eight Years

CAA 175A(b) - *Eight years after redesignation, the State must submit an additional plan revision which shows maintenance of the applicable NAAQS for an additional 10 years.* Utah commits to submit a revised maintenance plan eight years after EPA takes final action redesignating the Ogden City area to attainment, as required by the Act.

(9) Verification of Continued Maintenance

Implicit in the requirements outlined above is the need for the State to determine whether the area is in fact maintaining the standard it has achieved. There are two complementary ways to measure this: 1) by monitoring the ambient air for PM_{10}, and 2) by inventorying emissions of PM_{10} and its precursors from various sources.

The State will continue to maintain an ambient monitoring network for PM_{10} in accordance with 40 CFR Part 58 and the Utah SIP. The State anticipates that the EPA will continue to review the ambient monitoring network for PM_{10} each year, and any necessary modifications to the network will be implemented.

Additionally, the State will track and document measured mobile source parameters (e.g., vehicle miles traveled, congestion, fleet mix, etc.) and new and modified stationary source permits. If these and the resulting emissions change significantly over time, the State will perform appropriate studies to determine: 1) whether additional and/or re-sited monitors are necessary, and 2) whether mobile and stationary source emission projections are on target.

The State will also continue to collect actual emissions inventory data from all sources of PM_{10}, SO_2, and NO_X in excess of 25 tons (in aggregate) per year, as required by R307-150.

(10) Contingency Measures

CAA 175A(d) - Each maintenance plan shall contain contingency measures to assure that the State will promptly correct any violation of the standard which occurs after the redesignation of the area to attainment. Such provisions shall include a requirement that the State will implement all control measures which were contained in the SIP prior to redesignation.

For Ogden City there was no nonattainment SIP. Therefore this revision need only address such contingency measures as may be necessary to mitigate any future violation of the standard.

The contingency plan must also ensure that the contingency measures are adopted expeditiously once triggered. The primary elements of the contingency plan are: 1) the list of potential contingency measures, 2) the tracking and triggering mechanisms to determine when contingency measures are needed, and 3) a description of the process for recommending and implementing the contingency measures.

(a) Tracking

The tracking plan for the Salt Lake County, Utah County, and Ogden City areas consists of monitoring and analyzing PM_{10} concentrations. In accordance with 40 CFR 58, the State will continue to operate and maintain an adequate PM_{10} monitoring network in Salt Lake County, Utah County, and Ogden City.

(b) Triggering

Triggering of the contingency plan does not automatically require a revision to the SIP, nor does it necessarily mean the area will be redesignated once again to nonattainment. Instead, the State will normally have an appropriate timeframe to correct the potential violation with implementation of one or more adopted contingency measures. In the event that violations continue to occur, additional contingency measures will be adopted until the violations are corrected.

Upon notification of a potential violation of the PM_{10} NAAQS, the State will develop appropriate contingency measures intended to prevent or correct a violation of the PM_{10} standard. Information about historical exceedances of the standard, the meteorological conditions related to the recent exceedances, and the most recent estimates of growth and emissions will be reviewed. The possibility that an exceptional event occurred will also be evaluated.

Upon monitoring a potential violation of the PM_{10} NAAQS, including exceedances flagged as exceptional events but not concurred with by EPA, the State will take the following actions.

- The State will identify the source(s) of PM_{10} causing the potential violation, and report the situation to EPA Region VIII within four months of the potential violation.

- The State will identify a means of corrective action within six months after a potential violation. The maintenance plan contingency measures to be considered and selected will be chosen from the following list or any other emission control measures deemed appropriate based on a consideration of cost-effectiveness, emission reduction potential, economic and social considerations, or other factors that the State deems appropriate:

  - Re-evaluate the thresholds at which a red or yellow burn day is triggered, as established in R307-302;

  - Expand the road salting and sanding program in R307-307 to include Weber County.

The State will then hold a public hearing to consider the contingency measures identified to address the potential violation. The State will require implementation of such corrective action no later than one year after a violation is confirmed. Any contingency measures adopted and implemented will become part of the next revised maintenance plan submitted to the EPA for approval.

It is also possible that contingency measures may be pre-implemented, where no violation of the 2006 PM_{10} NAAQS has yet occurred.

ITEM 7

State of Utah
GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQ-073-15

M E M O R A N D U M

TO: Air Quality Board

THROUGH: Bryce C. Bird, Executive Secretary

FROM: Bill Reiss, Environmental Engineer

DATE: November 23, 2015

SUBJECT: FINAL ADOPTION: Repeal Existing SIP Subsections IX. Part H. 1, 2, 3, and 4 and Re-enact with SIP Subsections IX. Part H. 1, 2, 3, and 4: Control Measures for Area and Point Sources, Emission Limits and Operating Practices, PM_{10} Requirements, as Amended.

Introduction:

This item supports a proposed maintenance plan for Utah's three PM_{10} nonattainment areas, Salt Lake County, Utah County, and Ogden City.

The existing PM_{10} State Implementation Plan (SIP) for Salt Lake and Utah Counties was adopted in 1991 and included numerous controls on specific stationary sources of PM_{10}, SO_2 and NOx. Emission limits reflecting controls at these sources were included in the SIP, thus making them federally enforceable.

SIP limits affecting Utah County were revised in 2002, and effectively approved into the SIP by EPA in 2003.

As part of this maintenance plan, the list of stationary sources to be included in the SIP was reconsidered, particularly as it applies to Salt Lake County. Criteria were established to include sources located in any of the nonattainment areas with actual emissions (in 2011), or with potentials to emit, that are at least 100 tons per year for PM_{10}, SO_2, or NOx.

Using these criteria means that some sources will not be retained in the revised Part H, while other new sources that did not exist when the original SIP was written will be added.

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There are no SIP sources in the Ogden City nonattainment area.

SIP Organization:

As originally written in 1991, the PM_{10} nonattainment SIP for Salt Lake and Utah counties included an Appendix A wherein the emission limits for specific stationary sources were included in the SIP. This Appendix A was later reorganized as SIP Section IX Part H.

In 2005, Utah prepared a revision to the PM_{10} plan that also was structured as a maintenance plan. It included the changes to Part H that gave it its present form. The PM_{10} provisions of Part H are contained in Subsections 1 – 4, while the $PM_{2.5}$ provisions are contained in Subsections 11, 12, and 13.

As presently structured, Subsections 1 – 3 contain:

- H.1. – General Requirements that apply to all listed sources
- H.2. – Source-Specific Limitations in Salt Lake and Davis Counties
- H.3. – Source-Specific Limitations in Utah County

As proposed, the focus of these three Subsections will remain the same.

Existing Subsection H.4, Establishment of Alternative Requirements, is not part of the proposal. Rather, H.4 is being re-purposed to include Interim Emission Limits and Operating Practices.

These interim limits are intended to cover sources that are phasing-in control measures implemented as part of the $PM_{2.5}$ SIP. The end of the phase-in period will be January 1, 2019. As the control technology at these sources becomes operational, these interim limits will be superseded by the limits appearing in Subsections H. 1 – 3.

Comments Received and Resulting Amendments:

A 30-day public comment period was held. A summary of each of the comments that was received, along with a response from UDAQ, is attached.

Any recommended revision to SIP Subsection IX Part H has been identified in the amended attachment using strikeout and underline.

Some of the comments also directed UDAQ to make revisions to the technical support documentation (TSD.) Since this technical material is not explicitly part of the rulemaking action, these revisions have not been prepared for the December 2015 Air Quality Board meeting. They will, however, be completed in time for official submittal to the EPA.

Staff Recommendation: Staff recommends that the Board repeal existing SIP Subsections IX Part H 1, 2, 3, and 4 and re-enact with SIP Subsections IX Part H 1, 2, 3, and 4: Control Measures for Area and Point Sources, Emission Limits and Operating Practices, PM_{10} Requirements, as amended.

H.1 General Requirements: Control Measures for Area and Point Sources, Emission Limits and Operating Practices, PM10 Requirements

a. Except as otherwise outlined in individual conditions of this Subsection IX.H.1 listed below, the terms and conditions of this Subsection IX.H.1 shall apply to all sources subsequently addressed in Subsection IX.H.2 and IX.H.3. Should any inconsistencies exist between these two subsections, the source specific conditions listed in IX.H.2 and IX.H.3 shall take precedence.

b. Definitions.

i. The definitions contained in R307-101-2, Definitions, apply to Section IX, Part H.

ii. Natural gas curtailment means a period of time during which the supply of natural gas to an affected facility is halted for reasons beyond the control of the facility. The act of entering into a contractual agreement with a supplier of natural gas established for curtailment purposes does not constitute a reason that is under the control of a facility for the purposes of this definition. An increase in the cost or unit price of natural gas does not constitute a period of natural gas curtailment.~~b. The definitions contained in R307-101-2, Definitions, apply to Section IX, Part H.~~

c. Recordkeeping and Reporting

i. Any information used to determine compliance shall be recorded for all periods when the source is in operation, and such records shall be kept for a minimum of five years. Any or all of these records shall be made available to the Director upon request, and shall include a period of two years ending with the date of the request.

ii. Each source shall comply with all applicable sections of R307-150 Emission Inventories.

iii. Each source shall submit a report of any deviation from the applicable requirements of this Subsection IX.H, including those attributable to upset conditions, the probable cause of such deviations, and any corrective actions or preventive measures taken. The report shall be submitted to the Director no later than 24-months following the deviation or earlier if specified by an underlying applicable requirement. Deviations due to breakdowns shall be reported according to the breakdown provisions of R307-107.)~~c. Any information used to determine compliance shall be recorded for all periods when the source is in operation, and such records shall be kept for a minimum of five years. Any or all of these records shall be made available to the Director upon request, and shall include a period of two years ending with the date of the request.~~

d.

Emission Limitations.

i. All emission limitations listed in Subsections IX.H.2 and IX.H.3 apply at all times, unless otherwise specified in the source specific conditions listed in IX.H.2 and IX.H.3.

ii. All emission limitations of PM10 listed in Subsections IX.H.2 and IX.H.3 include both filterable and condensable PM, unless otherwise specified in the source specific conditions listed in IX.H.2 and IX.H.3.~~All emission limitations listed in Subsections IX.H.2 and IX.H.3 apply at all times, unless otherwise specified in the source specific conditions listed in IX.H.2 and IX.H.3.~~

e. Stack Testing.

i. As applicable, stack testing to show compliance with the emission limitations for the sources in Subsection IX.H.2 and I.X.H.3 shall be performed in accordance with the following:

A. Sample Location: The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved methods acceptable to the Director.

B. Volumetric Flow Rate: 40 CFR 60, Appendix A, Method 2 or other EPA-approved testing methods acceptable to the Director.

C. PM10:

The following methods shall be used to measure filterable particulate emissions: 40 CFR 51, Appendix M, Method 201 or 201A, or other EPA-approved testing method, as acceptable to the Director. If other approved testing methods are used which cannot measure the PM10 fraction of the filterable particulate emissions, all of the filterable particulate emissions shall be considered PM10.

The following methods shall be used to measure condensable particulate emissions: 40 CFR 51, Appendix M, Method 202, or other EPA-approved testing method, as acceptable to the Director.~~PM10: 40 CFR 51, Appendix M, Methods 201a and 202, or other EPA approved testing methods acceptable to the Director. If a method other than 201a is used, the portion of the front half of the catch considered PM10 shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.~~

D. SO2: 40 CFR 60 Appendix A, Method 6C or other EPA-approved testing methods acceptable to the Director.

E. NOx: 40 CFR 60 Appendix A, Method 7E or other EPA-approved testing methods acceptable to the Director.

F. Calculations: To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors to give the results in the specified units of the emission limitation.

G. A stack test protocol shall be provided at least 30 days prior to the test. A pretest conference shall be held if directed by the Director. The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, and Occupational Safety and Health Administration (OSHA) approvable access shall be provided to the test location.

H. The production rate during all compliance testing shall be no less than 90% of the maximum production rate achieved in the previous three (3) years. If the desired production rate is not achieved at the time of the test, the maximum production rate shall be 110% of the tested achieved rate, but not more than the maximum allowable production rate. This new allowable maximum production rate shall remain in effect until successfully tested at a higher rate. The owner/operator shall request a higher production rate when necessary. Testing at no less than 90% of the higher rate shall be conducted. A new maximum production rate (110% of the new rate) will then be allowed if the test is successful. This process may be repeated until the maximum allowable production rate is achieved.

f. Continuous Emission and Opacity Monitoring.

i. For all continuous monitoring devices, the following shall apply:

A. Except for system breakdown, repairs, calibration checks, and zero and span adjustments required under paragraph (d) 40 CFR 60.13, the owner/operator of an affected source shall continuously operate all required continuous monitoring systems and shall meet minimum frequency of operation requirements as outlined in R307-170 and 40 CFR 60.13. Flow measurement shall be in accordance with the requirements of 40 CFR 52, Appendix E; 40 CFR 60 Appendix B; or 40 CFR 75, Appendix A.

B. The monitoring system shall comply with all applicable sections of R307-170; 40 CFR 13; and 40 CFR 60, Appendix B – Performance Specifications.

ii. Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9.

g. Petroleum Refineries.

i. Limits at Fluid Catalytic Cracking Units (FCCU)

A. FCCU SO2 Emissions

I. By no later than January 1, 2018, each owner or operator of an FCCU shall comply with an SO2 emission limit of 25 ppmvd @ 0% excess air on a 365-day rolling average basis and 50 ppmvd @ 0% excess air on a 7-day rolling average basis.

II. Compliance with this limit shall be determined by following 40 C.F.R. §60.105a(g).

B. FCCU PM Emissions

I. By no later than January 1, 2018, each owner or operator of an FCCU shall comply with an emission limit of 1.0 pounds PM per 1000 pounds coke burned on a 3-hour average basis.

II. Compliance with this limit shall be determined by following the stack test protocol specified in 40 C.F.R. §60.106(b) or 40 C.F.R. §60.104a(d) to measure PM emissions on the FCCU. Each owner operator shall conduct stack tests once every three (3) years at each FCCU.

III. By no later than January 1, 2019, each owner or operator of an FCCU shall install, operate and maintain a continuous parameter monitor system (CPMS) to measure and record operating parameters from the FCCU for determination of source-wide PM10 emissions.

ii. Limits on Refinery Fuel Gas.

A. All petroleum refineries in or affecting any PM2.5 nonattainment area or any PM10 nonattainment or maintenance area shall reduce the H2S content of the refinery plant gas to 60 ppm or less as described in 40 CFR 60.102a. Compliance shall be based on a rolling average of 365 days. The owner/operator shall comply with the fuel gas monitoring requirements of 40 CFR 60.107a and the related recordkeeping and reporting requirements of 40 CR 60.108a. As used herein, refinery "plant gas" shall have the meaning of "fuel gas" as defined in 40 CFR 60.101a, and may be used interchangeably.

B. For natural gas, compliance is assumed while the fuel comes from a public utility.

iii. Sulfur Removal Units

A. All petroleum refineries in or affecting any PM10 nonattainment or maintenance area shall require:

I. Sulfur removal units/plants (SRUs) that are at least 95% effective in removing sulfur from the streams fed to the unit; or

II. SRUs that meet the SO2 emission limitations listed in 40 CFR 60.102a(f)(1) or 60.102a(f)(2) as appropriate.

B. The amine acid gas and sour water stripper acid gas shall be processed in the SRU(s).

C. Compliance shall be demonstrated by daily monitoring of flows to the SRU(s). Continuous monitoring of SO2 concentration in the exhaust stream shall be conducted via CEM as outlined in IX.H.1.f above. Compliance shall be determined on a rolling 30-day average.

iv. No Burning of Liquid Fuel Oil in Stationary Sources

A. No petroleum refineries in or affecting any PM10 nonattainment or maintenance area shall be allowed to burn liquid fuel oil in stationary sources except during natural gas curtailments or as specified in the individual subsections of Section IX, Part H.

B. The use of diesel fuel meeting the specifications of 40 CFR 80.510 in standby or emergency equipment is exempt from the limitation of IX.H.1.g.iv.A above.

v. Requirements on Hydrocarbon Flares.

A. Beginning January 1, 2018, all hydrocarbon flares at petroleum refineries located in or affecting a designated PM10 nonattainment area or maintenance area within the State shall be subject to the flaring requirements of NSPS Subpart Ja (40 CFR 60.100a–109a), if not already subject under the flare applicability provisions of Subpart Ja.~~A. Beginning January 1, 2018, all hydrocarbon flares at petroleum refineries located in or affecting a designated PM10 nonattainment area within the State shall be subject to the flaring requirements of NSPS Subpart Ja (40 CFR 60.100a–109a), if not already subject under the flare applicability provisions of Subpart Ja.~~

~~B. By no later than January 1, 2019, all major source petroleum refineries in or affecting a designated PM10 nonattainment area within the State shall install and operate a flare gas recovery system or equivalent flare gas minimization process(es) designed to limit hydrocarbon flaring from each affected flare to levels below the values listed in 40 CFR 60.103a(c), except during periods when one or more process units, connected to the affected flare, are undergoing startup, shutdown or experiencing malfunction. Flare gas recovery is not required for dedicated SRU flare and header systems, or HF flare and header systems.~~

H.2 Source Specific Emission Limitations in Salt Lake County PM10 Nonattainment/Maintenance Area

a. Big West Oil Company

i. Source-wide PM10 Cap
By no later than January 1, 2019, combined emissions of PM10 shall not exceed 1.037 tons per day (tpd).

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.2.a.i.B below, the default emission factors to be used are as follows:

Natural gas:
Filterable PM10: 1.9 lb/MMscf
Condensable PM10: 5.7 lb/MMscf

Plant gas:
Filterable PM10: 1.9 lb/MMscf
Condensable PM10: 5.7 lb/MMscf

Fuel Oil: The PM10 emission factor shall be determined from the latest edition of AP-42

Cooling Towers: The PM10 emission factor shall be determined from the latest edition of AP-42

FCC Stacks: The PM10 emission factor shall be established by stack test.

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. The default emission factors listed in IX.H.2.a.i.A above apply until such time as stack testing is conducted as outlined below:

PM10 stack testing on the FCC shall be ~~conducted~~ performed initially no later than January 1, 2019 and at least once every three (3) years thereafter. Stack testing shall be performed as outlined in IX.H.1.e.

C. Compliance with the source-wide PM10 Cap shall be determined for each day as follows:

Total 24-hour PM10 emissions for the emission points shall be calculated by adding the daily results of the PM10 emissions equations listed below for natural gas, plant gas, and fuel oil combustion. These emissions shall be added to the emissions from the cooling towers, and the FCCs to arrive at a combined daily PM10 emission total. For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Daily gas consumption shall be measured by meters that can delineate the flow of gas to the boilers, furnaces and the SRU incinerator.

The equation used to determine emissions ~~for the boilers and furnaces~~from these units shall be as follows:

Emission Factor (lb/MMscf) * Gas Consumption (MMscf/24 hrs)/(2,000 lb/ton)

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

The daily PM10 emissions from the ~~Catalyst Regeneration System~~FCC shall be calculated using the following equation:

E = FR * EF

Where:
E = Emitted PM10
FR = Feed Rate to Unit (kbbls/day)
EF = emission factor (lbs/kbbl), established by the most recent stack test

Results shall be tabulated for each day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.

ii. Source-wide NOx Cap
By no later than January 1, 2019, combined emissions of NOx shall not exceed 0.80 tons per day (tpd).

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.2.a.ii.B below, the default emission factors to be used are as follows:

Natural gas: shall be determined from the latest edition of AP-42
Plant gas: assumed equal to natural gas
Diesel fuel: shall be determined from the latest edition of AP-42

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. The default emission factors listed in IX.H.2.a.ii.A above apply until such time as stack testing is conducted as outlined below:

Initial NOx stack testing on natural gas/refinery fuel gas combustion equipment above 40 MMBtu/hr ~~shall be conducted at least once every three (3) years~~has been performed and the next stack test shall be performed within 3 years of the next stack test. At that time a new flow-weighted average emission factor in terms of: lbs/MMbtu shall be derived for each combustion type listed in IX.H.2.a.ii.A above. Stack testing shall be performed as outlined in IX.H.1.e.

C. Compliance with the source-wide NOx Cap shall be determined for each day as follows:

Total 24-hour NOx emissions shall be calculated by adding the emissions for each emitting unit. The emissions for each emitting unit shall be calculated by multiplying the hours of operation of a unit, feed rate to a unit, or quantity of each fuel combusted at each affected unit by the associated emission factor, and summing the results.

Daily plant gas consumption at the furnaces, boilers and SRU incinerator shall be measured by flow meters. The equations used to determine emissions shall be as follows:

NOx = Emission Factor (lb/MMscf)*Gas Consumption (MMscf/24 hrs)/(2,000 lb/ton)

Where the emission factor is derived from the fuel used, as listed in IX.H.2.a.ii.A above

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

The daily NOx emissions from the ~~Catalyst Regeneration System~~FCC shall be calculated using ~~the following equation:~~

~~NOx = (Flue Gas, moles/hr) x (ADV ppm /10^6) x (30.006 lb/mole) x (operating hr/day)/(2000 lb/ton)~~

~~Where ADV = average daily value from NOx~~a CEM as outlined in IX.H.1.f

Total daily NOx emissions shall be calculated by adding the results of the above NOx equations for natural gas and plant gas combustion to the estimate for the ~~Catalyst Regeneration System~~FCC.

For purposes of this subsection a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Results shall be tabulated for each day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.

iii. Source-wide SO2 Cap

By no later than January 1, 2019, combined emissions of SO2 shall not exceed 0.60 tons per day (tpd).

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. The default emission factors to be used are as follows:

Natural Gas - 0.60 lb SO2/MMscf gas

Plant Gas - The emission factor to be used in conjunction with plant gas combustion shall be determined through the use of a CEM as outlined in IX.H.1.f. ~~continuous emissions monitor, which shall measure the H2S content of the fuel gas in ppmv. Daily emission factors shall be calculated using average daily H2S content data from the CEM~~. ~~The emission factor shall be calculated as follows:~~

~~Emission Factor (lb SO2/MMscf gas) = [(24 hr avg. ppmv H2S)/10^6]*(64 lb SO2/lb mole)*[(10^6 scf/MMscf)/(379 scf/lb mole)]~~

SRUs: The emission rate shall be determined by multiplying the sulfur dioxide concentration in the flue gas by the ~~mass flow~~flow rate of the flue gas. The sulfur dioxide concentration in the flue gas shall be determined by CEM as outlined in IX.H.1.f.

Fuel oil: The emission factor to be used for combustion shall be calculated based on the weight percent of sulfur, as determined by ASTM Method D-4294-89 or EPA-approved equivalent acceptable to the Director, and the density of the fuel oil, as follows:

EF (lb SO2/k gal) = density (lb/gal) * (1000 gal/k gal) * wt. % S/100 * (64 lb SO2/32 lb S)

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. Compliance with the source-wide SO2 Cap shall be determined for each day as follows:

Total daily SO2 emissions shall be calculated by adding the daily SO2 emissions for natural gas and plant fuel gas combustion, to those from the FCC and SRU stacks.

The daily SO2 emission from the FCC ~~Catalyst Regeneration System~~ shall be calculated using the following equation:

SO2 = FG * (ADV/1,000,000) * (64 lb/mole) * (operating hours/day) / (2000 lb/ton)

Where:

FG = Flue Gas in moles/hour
ADV = average daily value from SO2 CEM as outlined in IX.H.1.f

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

Results shall be tabulated for each day, and records shall be kept which include CEM readings for H2S (averaged for each one-hour period), all meter reading (in the appropriate units), fuel oil parameters (density and wt% sulfur for each day any fuel oil is burned), and the calculated emissions.~~Results shall be tabulated for each day, and records shall be kept which include the CEM readings for H2S (averaged for each one-hour period), all meter readings (in the appropriate units), and the calculated emissions.~~

iv. Emergency and Standby Equipment

A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed in standby or emergency equipment at all times.

v. Alternate Startup and Shutdown Requirements

A. During any day which includes startup or shutdown of the FCCU, combined emissions of SO2 shall not exceed 1.2 tons per day (tpd). For purposes of this subsection, a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

B. The total number of days which include startup or shutdown of the FCCU shall not exceed ten (10) per 12-month rolling period.

b. Bountiful City Light and Power: Power Plant

i. Emissions to the atmosphere shall not exceed the following rates and concentrations:

A. GT #1 (5.3 MW Turbine)
Exhaust Stack: 0.6 g NOx / kW-hr

B. GT #2 and GT #3 (each TITAN Turbine)
Exhaust Stack: 7.5 lb NOx / hr

ii. Compliance to the above emission limitations shall be determined by stack test. Stack testing shall be performed as outlined in IX.H.1.e.

A. Initial stack tests have been performed. Each turbine shall be tested at least once per year.

iii. Combustion Turbine Startup / Shutdown Emission Minimization Plan

A. Startup begins when natural gas is supplied to the combustion turbine(s) with the intent of combusting the fuel to generate electricity. Startup conditions end within sixty (60) minutes of natural gas being supplied to the turbine(s).

B. Shutdown begins with the initiation of the stop sequence of a turbine until the cessation of natural gas flow to the turbine.

C. Periods of startup or shutdown shall not exceed two (2) hours per combustion turbine per day.

c. Central Valley Water Reclamation Facility: Wastewater Treatment Plant

i NOx emissions from the operation of all engines at the plant shall not exceed 0.648 tons per day.

ii. Compliance with the emission limitation shall be determined by summing the emissions from all the engines. Emission from each engine shall be calculated from the following equation:

Emissions (tons/day) = (Power production in kW-hrs/day) x (Emission factor in grams/kW- hr) x (1 lb/453.59 g) x (1 ton/2000 lbs)

A. Stack tests shall be performed in accordance with IX.H.1.e. Each engine shall be tested at least every three years from the previous test.

B. The NOx emission factor for each engine shall be derived from the most recent stack test.

C. NOx emissions shall be calculated on a daily basis.

D. A day is equivalent to the time period from midnight to the following midnight.

E. The number of kilowatt hours generated by each engine shall be determined by examination of electrical meters, which shall record electricity production on a continuous basis.

d. Chevron Products Company

i. Source-wide PM10 Cap
By no later than January 1, 2019, combined emissions of PM10 shall not exceed 0.715 tons per day (tpd).

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.2.d.i.B below, the default emission factors to be used are as follows:

Natural gas:
Filterable PM10: 1.9 lb/MMscf
Condensable PM10: 5.7 lb/MMscf

Plant gas:
Filterable PM10: 1.9 lb/MMscf
Condensable PM10: 5.7 lb/MMscf

HF alkylation polymer: shall be determined from the latest edition of AP-42 (HF alkylation polymer treated as fuel oil #6)

Diesel fuel: shall be determined from the latest edition of AP-42

Cooling Towers: shall be determined from the latest edition of AP-42

FCC Stack:
The PM10 emission factors shall be based on the most recent stack test and verified by parametric monitoring as outlined in IX.H.1.g.i.B.III

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. The default emission factors listed in IX.H.2.d.i.A above apply until such time as stack testing is conducted as outlined below:

Initial PM10 stack testing on the FCC stack has been performed and shall be conducted at least once every three (3) years from the date of the last stack test. Stack testing shall be performed as outlined in IX.H.1.e.

C. Compliance with the source-wide PM10 Cap shall be determined for each day as follows:

Total 24-hour PM10 emissions for the emission points shall be calculated by adding the daily results of the PM10 emissions equations listed below for natural gas, plant gas, and fuel oil combustion. These emissions shall be added to the emissions from the cooling towers, and the FCC ~~and the SRUs~~ to arrive at a combined daily PM10 emission total. For purposes of this subsection a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

The equation used to determine emissions for the boilers and furnaces shall be as follows:

Emission Factor (lb/MMscf) * Gas Consumption (MMscf/24 hrs)/(2,000 lb/ton)

Results shall be tabulated for each day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.

ii. Source-wide NOx Cap
By no later than January 1, 2019, combined emissions of NOx shall not exceed 2.1 tons per day (tpd).

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.2.d.ii.B below, the default emission factors to be used are as follows:

Natural gas: shall be determined from the latest edition of AP-42
Plant gas: assumed equal to natural gas
Alkylation polymer: shall be determined from the latest edition of AP-42 (as fuel oil #6)
Diesel fuel: shall be determined from the latest edition of AP-42

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. The default emission factors listed in IX.H.2.d.ii.A above apply until such time as stack testing is conducted as outlined below:

Initial NOx stack testing on natural gas/refinery fuel gas combustion equipment above 100 MMBtu/hr has been performed and shall be conducted at least once every three (3) years from the date of the last stack test. At that time a new flow-weighted average emission factor in terms of: lbs/MMbtu shall be derived for each combustion type listed in IX.H.2.d.ii.A above. Stack testing shall be performed as outlined in IX.H.1.e.

C. Compliance with the source-wide NOx Cap shall be determined for each day as follows:

Total 24-hour NOx emissions shall be calculated by adding the emissions for each emitting unit. The emissions for each emitting unit shall be calculated by multiplying the hours of operation of a unit, feed rate to a unit, or quantity of each fuel combusted at each affected unit by the associated emission factor, and summing the results.

A NOx CEM shall be used to calculate daily NOx emissions from the FCC~~U~~. Emissions shall be determined by multiplying the nitrogen dioxide concentration in the flue gas by the ~~mass flow~~flow rate of the flue gas. The NOx concentration in the flue gas shall be determined by a CEM as outlined in IX.H.1.f.

For purposes of this subsection a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

Results shall be tabulated for each day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.

iii. Source-wide SO2 Cap
By no later than January 1, 2019, combined emissions of SO2 shall not exceed 1.05 tons per day (tpd).

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. The default emission factors to be used are as follows:

FCC~~ Regenerator~~: The emission rate shall be determined by the FCC ~~Regenerator ~~SO2 CEM as outlined in IX.H.1.f

SRUs: The emission rate shall be determined by multiplying the sulfur dioxide concentration in the flue gas by the ~~mass flow~~flow rate of the flue gas. The sulfur dioxide concentration in the flue gas shall be determined by CEM as outlined in IX.H.1.f.

Natural gas: EF = 0.60 lb/MMscf

Fuel oil & HF Alkylation polymer: The emission factor to be used for combustion shall be calculated based on the weight percent of sulfur, as determined by ASTM Method D-4294-89 or EPA-approved equivalent acceptable to the Director, and the density of the fuel oil, as follows:

EF (lb SO2/k gal) = density (lb/gal) * (1000 gal/k gal) * wt.% S/100 * (64 lb SO2/32 lb S)

Plant gas: the emission factor shall be calculated from the H2S measurement obtained from the H2S CEM. ~~The emission factor shall be calculated as follows:~~

~~EF (lb SO2/MMscf gas) = (24 hr avg. ppmdv H2S) /10^6 * (64 lb SO2/lb-mole) * (10^6 scf/MMscf)/(379 scf/lb mole)~~

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. Compliance with the source-wide SO2 Cap shall be determined for each day as follows:

Total daily SO2 emissions shall be calculated by adding the daily SO2 emissions for natural gas and plant fuel gas combustion, to those from the FCC and SRU stacks.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

Results shall be tabulated for each day, and records shall be kept which include CEM readings for H2S (averaged for each one-hour period), all meter reading (in the appropriate units), fuel oil parameters (density and wt% sulfur for each day any fuel oil is burned), and the calculated emissions.~~Results shall be tabulated for each day, and records shall be kept which include the CEM readings for H2S (averaged for each one-hour period), all meter readings (in the appropriate units), and the calculated emissions.~~

iv. Emergency and Standby Equipment and Alternative Fuels

A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed in standby or emergency equipment at all times.

B. HF alkylation polymer may be burned in the Alky Furnace (F-36017).

C. Plant coke may be burned in the FCC Catalyst Regenerator.

e. Hexcel Corporation: Salt Lake Operations

i. The following limits shall not be exceeded for fiber line operations:

A. 5.50~~4.42~~ MMscf of natural gas consumed per day.

B. 0.061 MM pounds of carbon fiber produced per day.

C. Compliance with each limit shall be determined by the following methods:

I. Natural gas consumption shall be determined by examination of natural gas billing records for the plant and onsite pipe-line metering.

II. Fiber production shall be determined by examination of plant production records.

III. Records of consumption and production shall be kept on a daily basis for all periods when the plant is in operation.

ii. After a shutdown and prior to startup of fiber lines 13, 14, 15, or 16, the line's baghouse(s) shall be started and remain in operation during production.

A. During fiber line production, the static pressure differential across the filter media shall be within the manufacturer's recommended range and shall be recorded daily.

B. The manometer or the differential pressure gauge shall be calibrated according to the manufacturer's instructions at least once every 12 months.

iii. ~~After a shutdown and prior to startup of a fiber line, all control equipment shall be started and remain in operation during production. Control equipment on each fiber line may consist of incinerators, baghouses, and regenerative thermal oxidizers.~~

~~A. The proper operation of control equipment shall be determined by maintaining records of control equipment that is not operating while the fiber line(s) in production.~~

f. Holly Refining and Marketing Company

i. Source-wide PM10 Cap

By no later than January 1, 2019, PM10 emissions ~~(filterable + condensable)~~ from all sources shall not exceed 0.416 tons per day (tpd).

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.2.g.i.B below, the default emission factors to be used are as follows:

Natural gas or Plant gas:
non-NSPS combustion equipment: 7.65 lb PM10/MMscf
NSPS combustion equipment: 0.52 lb PM10/MMscf

Fuel oil:
The filterable PM10 emission factor for fuel oil combustion shall be determined based on the sulfur content of the oil as follows:

PM10 (lb/1000 gal) = (10 * wt. % S) + 3.22

The condensable PM10 emission factor for fuel oil combustion shall be determined from the latest edition of AP-42.

Cooling Towers: The PM10 emission factor shall be determined from the latest edition of AP-42.

FCC Wet Scrubbers:
The PM10 emission factors shall be based on the most recent stack test and verified by parametric monitoring as outlined in IX.H.1.g.i.B.III

B. The default emission factors listed in IX.H.2.g.i.A above apply until such time as stack testing is conducted as outlined below:

Initial ~~Stack~~ stack testing on all NSPS combustion equipment shall be conducted no later than January 1, 2019 and at least once every three (3) years thereafter. At that time a new flow-weighted average emission factor in terms of: lb PM10/MMBtu shall be derived. Stack testing shall be performed as outlined in IX.H.1.e.

C. Compliance with the source-wide PM10 Cap shall be determined for each day as follows:

Total 24-hour PM10 emissions for the emission points shall be calculated by adding the daily results of the PM10 emissions equations listed below for natural gas, plant gas, and fuel oil combustion. These emissions shall be added to the emissions from the cooling towers and wet scrubbers to arrive at a combined daily PM10 emission total. For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters on all gas-fueled combustion equipment.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply fuel oil to combustion sources.

The equations used to determine emissions for the boilers and furnaces shall be as follows:

Emissions (tons/day) = Emission Factor (lb/MMscf) * Natural/Plant Gas Consumption (MMscf/day)/(2,000 lb/ton)

Emissions (tons/day) = Emission Factor (lb/kgal) * Fuel Oil Consumption (kgal/day)/(2,000 lb/ton)

Results shall be tabulated for each day, and records shall be kept which include all meter readings (in the appropriate units), ~~fuel oil parameters (wt. %S),~~ and the calculated emissions.

ii. Source-wide NOx Cap
By no later than January 1, 2019, NOx emissions into the atmosphere from all emission points shall not exceed 2.09 tons per day (tpd).

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.2.g.ii.B below, the default emission factors to be used are as follows:

Natural gas/refinery fuel gas combustion using:
Low NOx burners (LNB): 41 lbs/MMscf
Ultra-Low NOx (ULNB) burners: 0.04 lbs/MMbtu
Next Generation Ultra Low NOx burners (NGULNB): 0.10 lbs/MMbtu
Selective catalytic reduction (SCR): 0.02 lbs/MMbtu
All other combustion burners: 100 lb/MMscf

Where:
"Natural gas/refinery fuel gas" shall represent any combustion of natural gas, refinery fuel gas, or combination of the two in the associated burner.

All fuel oil combustion: 120 lbs/Kgal

B. The default emission factors listed in IX.H.2.f.ii.A above apply until such time as stack testing is conducted as outlined in IX.H.1.e or by NSPS.

C. Compliance with the Source-wide NOx Cap shall be determined for each day as follows:

Total daily NOx emissions for emission points shall be calculated by adding the results of the NOx equations for plant gas, fuel oil, and natural gas combustion listed below. For purposes of this subsection a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

The equations used to determine emissions for the boilers and furnaces shall be as follows:

Emissions (tons/day) = Emission Factor (lb/MMscf) * Natural Gas Consumption (MMscf/day)/(2,000 lb/ton)

Emissions (tons/day) = Emission Factor (lb/MMscf) * Plant Gas Consumption (MMscf/day)/(2,000 lb/ton)

Emissions (tons/day) = Emission Factor (lb/MMBTU) * Burner Heat Rating (BTU/hr) * 24 hours per day /(2,000 lb/ton)

Emissions (tons/day) = Emission Factor (lb/kgal) * Fuel Oil Consumption (kgal/day)/(2,000 lb/ton)

Results shall be tabulated for each day; and records shall be kept which include the meter readings (in the appropriate units), emission factors, and the calculated emissions.

iii. Source-wide SO2 Cap
By no later than January 1, 2019, the emission of SO2 from all emission points shall not exceed 0.31 tons per day (tpd).

A. Setting of emission factors:
The emission factors listed below shall be applied to the relevant quantities of fuel combusted:

Natural gas - 0.60 lb SO2/MMscf

Plant gas - The emission factor to be used in conjunction with plant gas combustion shall be determined through the use of a CEM which will measure the H2S content of the fuel gas ~~in parts per million by volume (ppmv). Daily emission factors shall be calculated using average daily H2S content data from the CEM. The emission factor shall be calculated as follows:~~. The CEM shall operate as outlined in IX.H.1.f.

~~(lb SO2/MMscf gas) = (24 hr avg. ppmv H2S)/10^6 * (64 lb SO2/lb-mole) * (10^6 scf/MMscf)/(379 scf / lb mole)~~

Fuel oil - The emission factor to be used in conjunction with fuel oil combustion shall be calculated based on the weight percent of sulfur, as determined by ASTM Method D-4294-89 or EPA-approved equivalent, and the density of the fuel oil, as follows:

(lb of SO2/kgal) = (density lb/gal) * (1000 gal/kgal) * (wt. %S)/100 * (64 g SO2/32 g S)

The weight percent sulfur and the fuel oil density shall be recorded for each day any fuel oil is combusted.

B. Compliance with the Source-wide SO2 Cap shall be determined for each day as follows:

Total daily SO2 emissions shall be calculated by adding daily results of the SO2 emissions equations listed below for natural gas, plant gas, and fuel oil combustion. For purposes of this subsection a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

The equations used to determine emissions are:

Emissions (tons/day) = Emission Factor (lb/MMscf) * Natural Gas Consumption (MMscf/day)/(2,000 lb/ton)

Emissions (tons/day) = Emission Factor (lb/MMscf) * Plant Gas Consumption (MMscf/day)/(2,000 lb/ton)

Emissions (tons/day) = Emission Factor (lb/kgal) * Fuel Oil Consumption (kgal/24 hrs)/(2,000 lb/ton)

For purposes of these equations, fuel consumption shall be measured as outlined below:

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

Results shall be tabulated for each day, and records shall be kept which include CEM readings for H2S (averaged for each one-hour period), all meter reading (in the appropriate units), fuel oil parameters (density and wt% sulfur for each day any fuel oil is burned), and the calculated emissions.~~Results shall be tabulated for every day; and records shall be kept which include the CEM readings for H2S (averaged for each one-hour period), all meter readings (in the appropriate units), fuel oil~~

~~parameters (density and wt. %S, recorded for each day any fuel oil is burned), and the calculated emissions.~~

iv. Emergency and Standby Equipment

A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed in standby or emergency equipment at all times.

g.

Kennecott Utah Copper (KUC): Mine

i. Bingham Canyon Mine (BCM)

A. Maximum total mileage per calendar day for ore and waste haul trucks shall not exceed 30,000 miles.

KUC shall keep records of daily total mileage for all periods when the mine is in operation. KUC shall track haul truck miles with a Global Positioning System or equivalent. The system shall use real time ~~to~~ tracking to determine daily ~~the haul trucks and~~ mileage.

B. KUC shall use ultra-low sulfur diesel fuel in its haul trucks.

C. To minimize emissions at the mine, the owner/operator shall:

I. Control emissions from the in-pit crusher with a baghouse.

II. Use ore conveyors as the primary means for transport of crushed ore from the mine to the concentrator.

D. To minimize fugitive dust on roads at the mine, the owner/operator shall perform the following measures:

I. Apply water to all active haul roads as weather and operational conditions warrant except during precipitation or freezing weather conditions, and shall apply a chemical dust suppressant to active haul roads located outside of the pit influence boundary no less than twice per year.

II. Chemical dust suppressant shall be applied as weather and operational conditions warrant except during precipitation or freezing weather conditions on unpaved access roads that receive haul truck traffic and light vehicle traffic.

E. KUC is subject to the requirements in the most recent federally approved Fugitive Emissions and Fugitive Dust rules.~~KUC is subject to the requirements in the 1994 federally approved Fugitive Emissions and Fugitive Dust rules, R307-1-4.5.~~

h. Kennecott Utah Copper (KUC): Power Plant and Tailings Impoundment

i. Utah Power Plant

A. Boilers #1, #2, and #3 shall ~~not be operated~~cease operations permanently upon commencing operations of Unit #5 (combined-cycle, natural gas-fired combustion turbine).

B. Unit #5 shall not exceed the following emission rates to the atmosphere:

Pollutant	lb/hr	lb/event	ppmdv (15% O_2 dry)
I. PM_{10} with duct firing: Filterable + condensable	18.8		
II. NO_x:			2.0
Startup/shutdown		395	

III. Startup / Shutdown Limitations:

1. The total number of startups and shutdowns together shall not exceed 690 per calendar year.

2. The NO_x emissions shall not exceed 395 lbs from each startup/shutdown event, which shall be ~~calculated~~ determined using manufacturer data.

3. Definitions:

(i) Startup cycle duration ends when the unit achieves half of the design electrical generation capacity.

(ii) Shutdown duration cycle begins with the initiation of turbine shutdown sequence and ends when fuel flow to the gas turbine is discontinued.

C. Upon commencement of operation of Unit #5*, stack testing to demonstrate compliance with the emission limitations in IX.H.2.h.i.B shall be performed as follows for the following air contaminants

* Initial compliance testing for the natural gas turbine and duct burner is required. The initial test date shall be performed within 60 days after achieving the maximum heat input capacity production rate at which the affected facility will be operated and in no case later than 180 days after the initial startup of a new emission source.

The limited use of natural gas during maintenance firings and break-in firings does not constitute operation and does not require stack testing.

Pollutant	Test Frequency
I. PM_{10}	~~3 years~~every year
II. NO_x	~~3 years~~every year

D. The following requirements are applicable to Units #1, #2, #3, and #4 during the period November 1 to February 28/29 inclusive:

I. During the period from November 1, to the last day in February inclusive, only natural gas shall only be used as a fuel, unless the supplier or transporter of natural gas imposes a curtailment. The power plant may then burn coal, only for the duration of the curtailment plus sufficient time to empty the coal bins following the curtailment. The Director shall be notified of the curtailment within 48 hours of when it begins and within 48 hours of when it ends.

II. When burning natural gas the emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:

Pollutant	grains/dscf 68°F, 29.92 in. Hg	ppmdv (3% O_2)
1. PM_{10} Units #1, #2, #3 and #4		
filterable	0.004	
filterable + condensable	0.03	
2. NOx:		
Units #1, #2 and #3 (each)		336
3. NO_x		
Unit #4		336
(Unit 4 after January 1, 2018)		60

III. When using coal as a fuel during a curtailment of the natural gas supply, emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:

Pollutant	grains/dscf 68°F, 29.92 in Hg	ppmdv (3% O_2)
1. Units #1, #2 and #3		
(i) PM_{10}		
filterable	0.029	
filterable +		

condensable 0.29

(ii) NO_x Units 1, 2 & 3 426.5

2. Unit #4
(i) PM_{10}

filterable 0.029
filterable +
condensable 0.29

(ii) NO_x 384

IV. If the units operated during the months specified above, stack testing to show compliance with the emission limitations in H.2.h.i.D.II and III shall be performed as follows for the following air contaminants:

Pollutant	Test Frequency	Initial Test
1. PM_{10}	~~3 years~~every year	~~*~~#
2. NO_x	~~3 years~~every year	~~*~~#

~~*~~ # Initial compliance testing is required for Unit #4 after low NO_x burner installation. The initial test date shall be performed within 60 days after achieving the maximum heat input capacity production rate at which the affected facility will be operated and in no case later than 180 days after the initial startup of a new emission source.

The limited use of natural gas during maintenance firings and break-in firings does not constitute operation and does not require stack testing.

E. The following requirements are applicable to Units #1, #2, #3, and #4 during the period March 1 to October 1 inclusive:

I. Emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:

Pollutant	grains/dscf 68°F, 29.92 in Hg	ppmdv (3% O_2)
1. Units #1, #2, and #3		
(i) PM_{10} filterable	0.029	
(ii) filterable + condensable	0.29	
(iii) NO_x Units #1, #2, and3		426.5
2. ~~Units #1, #2, and #3~~		

(i) ~~PM_{10} filterable 0.029~~

(ii) ~~NO_x Units #1, #2, and3 426.5~~

3. Unit #4

(i) PM_{10} filterable 0.029

(ii) NO_x 384

II. If the units operated during the months specified above, stack testing to show compliance with the emission limitations in H.2.h.i.E.I shall be performed as follows for the following air contaminants:

Pollutant	Test Frequency
1. PM_{10}	every year
2. NO_x	every year

The limited use of natural gas during maintenance firings and break-in firings does not constitute operation and does not require stack testing.

F. The sulfur content of any fuel burned shall not exceed 0.66 lb of sulfur per million BTU per test.

I. Coal increments will be collected using ASTM 2234, Type I conditions A, B, or C and systematic spacing.

II. Percent sulfur content and gross calorific value of the coal on a dry basis will be determined for each gross sample using ASTM D methods 2013, 3177, 3173, and 2015.

III. KUC shall measure at least 95% of the required increments in any one month that coal is burned in Units #1, #2, #3 or #4.

ii. Tailings Impoundment

A. No more than 50 contiguous acres or more than 5% of the total tailings area shall be permitted to have the potential for wind erosion.

I. Wind erosion potential is the area that is not wet, frozen, vegetated, crusted, or treated and has the potential for wind erosion.

II. KUC shall conduct wind erosion potential grid inspections monthly between February 15 and November 15. The results of the inspections shall be used to determine wind erosion potential.

III. If KUC or the Director of Utah Division of Air Quality (Director) determines that the percentage of wind erosion potential is exceeded, KUC shall meet with the Director, to discuss additional or modified fugitive dust controls/operational practices, and an implementation schedule for such, within five working days following verbal notification by either party.~~develop a corrective action plan and implementation schedule within 60 days following verbal notification by either party. KUC shall then meet with the Director, to discuss the modified fugitive dust controls/operational practices, and an implementation schedule for such.~~

B. If between February 15 and November 15 KUC's daily weather forecast using surrounding area meteorological data is for a wind event (a wind event is defined as wind gusts exceeding 25 mph for more than one hour) the procedures listed below shall be followed within 48 hours of issuance of the forecast. KUC shall:

I. Alert the Utah Division of Air Quality promptly.

II. Continue surveillance and coordination of appropriate measures.

C. KUC is subject to the requirements of the most recent federally approved Fugitive Emissions and Fugitive Dust rules.~~in the 1994 federally approved Fugitive Emissions and Fugitive Dust rule, R307-1-4.5.~~

i. Kennecott Utah Copper (KUC): Smelter & Refinery

i. Smelter

A Emissions to the atmosphere from the indicated emission points shall not exceed the following rates and concentrations:

I. Main Stack (Stack No. 11)

1. PM10
   a. 89.5 lbs/hr (filterable~~, daily average~~)
   b. 439 lbs/hr (filterable + condensable~~, daily average~~)

2. SO2
   a. 552 lbs/hr (3 hr. rolling average)
   b. 422 lbs/hr (daily average)

3. NOx
   a. 154 lbs/hr (daily average)

II. Holman Boiler

1. NOx
   a. ~~9.34~~14.0 lbs/hr~~,~~ calendar -day average
   ~~b. 0.05 lbs/MMBTU, 30-day average~~

B. Stack testing to show compliance with the emissions limitations of Condition (A) above shall be performed as specified below:

Emission Point	Pollutant	Test Frequency
I. Main Stack (Stack No. 11)	PM10	every year
	SO2	CEM
	NOx	CEM
II. Holman Boiler	NOx	~~CEM or~~every three years &~~-~~alternate method ~~determined~~ according to applicable NSPS standards

C. KUC must operate and maintain the air pollution control equipment and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.~~During startup/shutdown operations, NO$_x$ and SO$_2$ emissions are monitored by CEMS or alternate methods in accordance with applicable NSPS standards.~~

ii. Refinery:

A. Emissions to the atmosphere from the indicated emission point shall not exceed the following rate:

Emission Point	Pollutant	Maximum Emission Rate
The sum of two (Tankhouse) Boilers	NOx	9.5 lbs/hr
Combined Heat Plant	NOx	5.96 lbs/hr

B. Stack testing to show compliance with the above emission limitations shall be performed as follows:

Emission Point	Pollutant	Testing Frequency
Tankhouse Boilers	NOx	every three years*
Combined Heat Plant	NOx	every year

*Stack testing shall be performed on boilers that have operated at least 300 hours during a three year period.

~~To determine mass emission rate, the pollutant concentration as determined by the appropriate methods above, shall be multiplied by the volumetric flow rate and any necessary conversion factors to give the results in the specified units of the emission limitation. Stack testing will be performed only on boilers operating more than 100 hours per calendar year for steam generation for the facility.~~

C. KUC must operate and maintain the stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.

D. ~~Standard operating procedures shall be followed during startup and shutdown operations to minimize emissions.~~

iii. Molybdenum Autoclave Project (MAP):

A. Emissions to the atmosphere from the Natural Gas Turbine combined with Duct Burner and with Turbine Electric Generator (TEG) Firing shall not exceed the following rate:

Emission Point	Pollutant	Maximum Emission Rate
Combined Heat Plant	NOx	5.01 lbs/hr

B. Stack testing to show compliance with the above emission limitations shall be performed as follows:

Emission Point	Pollutant	Testing Frequency
Combined Heat Plant	NOx	every year

To determine mass emission rates (lbs/hr, etc.), the pollutant concentration as determined by the appropriate methods above, shall be multiplied by the volumetric flow rate and any necessary conversion factors to give the results in the specified units of the emission limitation.

C. Standard operating procedures shall be followed during startup and shutdown operations to minimize emissions.

j. PacifiCorp Energy: Gadsby Power Plant

i. Steam Generating Unit #1:

A. Emissions of NOx shall be no greater than 179 lbs/hr on a three (3) hour block average basis.

B. The owner/operator shall install, certify, maintain, operate, and quality-assure a CEM consisting of NOx and O2 monitors to determine compliance with the NOx limitation. The CEM shall operate as outlined in IX.H.1.f.

ii. Steam Generating Unit #2:

A. Emissions of NOx shall be no greater than 204 lbs/hr on a three (3) hour block average basis.

B. The owner/operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitoring system (CEMS) consisting of NOx and O2 monitors to determine compliance with the NOx limitation.

iii. Steam Generating Unit #3:

A. Emissions of NOx shall be no greater than

I. 142 lbs/hr on a three (3) hour block average basis, applicable between November 1 and February 28/29

II. 203 lbs/hr on a three (3) hour block average basis, applicable between March 1 and October 31

B. The owner/operator shall install, certify, maintain, operate, and quality-assure a CEM consisting of NOx and O2 monitors to determine compliance with the NOx limitation. The CEM shall operate as outlined in IX.H.1.f.

iv. Steam Generating Units #1-3:

A. The owner/operator shall use only natural gas as a primary fuel and No. 2 fuel oil or better as back-up fuel in the boilers. The No. 2 fuel oil may be used only during periods of natural gas curtailment and for maintenance firings. Maintenance firings shall not exceed one-percent of the annual plant Btu requirement. In addition, maintenance firings shall be scheduled between April 1 and November 30 of any calendar year. Records of fuel oil use shall be kept and they shall show the date the fuel oil was fired, the duration in hours the fuel oil was fired, the amount of fuel oil consumed during each curtailment, and the reason for each firing.

v. Natural Gas-fired Simple Cycle Turbine Units:

~~A. Total emissions of NOx from all three turbines shall be no greater than 22.2 lbs/hour (15% O2, dry) based on a 30-day rolling average.~~

~~B~~A. Total emissions of NOx from all three turbines shall be no greater than 600 lbs/day. For purposes of this subsection a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

~~C~~B. The owner/operator shall install, certify, maintain, operate, and quality-assure a CEM consisting of NOx and O2 monitors to determine compliance with the NOx limitation. The CEM shall operate as outlined in IX.H.1.f.

vi. Combustion Turbine Startup / Shutdown Emission Minimization Plan

A. Startup begins when the fuel values open and natural gas is supplied to the combustion turbines

B. Startup ends when either of the following conditions is met:

I. The NOx water injection pump is operational, the dilution air temperature is greater than 600 °F, the stack inlet temperature reaches 570 °F, the ammonia block value has opened and ammonia is being injected into the SCR and the unit has reached an output of ten (10) gross MW; or

II. The unit has been in startup for two (2) hours.

C. Unit shutdown begins when the unit load or output is reduced below ten (10) gross MW with the intent of removing the unit from service.

D. Shutdown ends at the cessation of fuel input to the turbine combustor.

E. Periods of startup or shutdown shall not exceed two (2) hours per combustion turbine per day.

F. Turbine output (turbine load) shall be monitored and recorded on an hourly basis with an electrical meter.

k. Tesoro Refining & Marketing Company

i. Source-wide PM10 Cap

By no later than January 1, 2019, combined emissions of PM10 shall not exceed 2.25 tons per day (tpd).

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.2.k.i.B below, the default emission factors to be used are as follows:

Natural gas:
Filterable PM10: 1.9 lb/MMscf
Condensable PM10: 5.7 lb/MMscf

Plant gas:
Filterable PM10: 1.9 lb/MMscf
Condensable PM10: 5.7 lb/MMscf

Fuel Oil: The PM10 emission factor shall be determined from the latest edition of AP-42

Cooling Towers: The PM10 emission factor shall be determined from the latest edition of AP-42

FCC Wet Scrubber~~s~~:
The PM10 emission factors shall be based on the most recent stack test and verified by parametric monitoring as outlined in IX.H.1.g.i.B.III

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. The default emission factors listed in IX.H.2.k.i.A above apply until such time as stack testing is conducted as outlined below:

Initial PM10 stack testing on the FCC~~U~~ wet gas scrubber stack shall be conducted no later than January 1, 2019 and at least once every three (3) years thereafter. Stack testing shall be performed as outlined in IX.H.1.e.

C. Compliance with the Source-wide PM10 Cap shall be determined for each day as follows:

Total 24-hour PM10 emissions for the emission points shall be calculated by adding the daily results of the PM10 emissions equations listed below for natural gas, plant gas, and fuel oil combustion. These emissions shall be added to the emissions from the cooling towers and wet scrubber ~~and to the estimate for the SRU/TGTU/TGI~~ to arrive at a combined daily PM10 emission total. For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

The equation used to determine emissions for the boilers and furnaces shall be as follows:

Emission Factor (lb/MMscf) * Gas Consumption (MMscf/24 hrs)/(2,000 lb/ton)

Results shall be tabulated for each day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.

ii. Source-wide NOx Cap
By no later than January 1, 2019, combined emissions of NOx shall not exceed 1.988 tons per day (tpd).

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.2.k.ii.B below, the default emission factors to be used are as follows:

Natural gas/refinery fuel gas combustion using:
Low NOx burners (LNB): 41 lbs/MMbtu
Ultra-Low NOx (ULNB) burners: 0.04 lbs/MMbtu
Diesel fuel: shall be determined from the latest edition of AP-42

B. The default emission factors listed in IX.H.2.k.ii.A above apply until such time as stack testing is conducted as outlined below:

Initial NOx stack testing on natural gas/refinery fuel gas combustion equipment above 100 MMBtu/hr has already been performed and shall be conducted at least once every three (3) years following the date of the last test. At that time a new flow-weighted average emission factor in terms of: lbs/MMbtu shall be derived for each combustion type listed in IX.H.2.k.ii.A above. Stack testing shall be performed as outlined in IX.H.1.e.

C. Compliance with the source-wide NOx Cap shall be determined for each day as follows:

Total 24-hour NOx emissions shall be calculated by adding the emissions for each emitting unit. The emissions for each emitting unit shall be calculated by multiplying the hours of operation of a unit, feed rate to a unit, or quantity of each fuel combusted at each affected unit by the associated emission factor, and summing the results.

A NOx CEM shall be used to calculate daily NOx emissions from the FCCU wet gas scrubber stack. Emissions shall be determined by multiplying the nitrogen dioxide concentration in the flue gas by the ~~mass flow~~flow rate of the flue gas. The NOx concentration in the flue gas shall be determined by a CEM as outlined in IX.H.1.f.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

For purposes of this subsection a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Results shall be tabulated for each day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.

iii. Source-wide SO2 Cap
By no later than January 1, 2019, combined emissions of SO2 shall not exceed 3.1 tons per day (tpd).

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. The default emission factors to be used are as follows:

Natural gas: EF = 0.60 lb/MMscf
Propane: EF = 0.60 lb/MMscf
Diesel fuel: shall be determined from the latest edition of AP-42

Plant fuel gas: the emission factor shall be calculated from the H2S measurement or from the SO2 measurement obtained by direct testing/monitoring. ~~as follows:~~

~~EF (lb SO2/MMscf gas) = [(24 hr avg. ppmdv H2S) /10^6] [(64 lb SO2/lb mole)] [(10^6 scf/MMscf)/(379 scf/lb mole)]~~

Where mixtures of fuel are used in a unit, the above factors shall be weighted according to the use of each fuel.

B. Compliance with the source-wide SO2 Cap shall be determined for each day as follows:

Total daily SO2 emissions shall be calculated by adding the daily SO2 emissions for natural gas, plant fuel gas, and propane combustion to those from the wet gas scrubber stack.

Daily SO2 emissions from the FCCU wet gas scrubber stack shall be determined by multiplying the SO2 concentration in the flue gas by the ~~mass flow~~flow rate of the flue gas. The SO2 concentration in the flue gas shall be determined by a CEM as outlined in IX.H.1.f.

Daily SO2 emissions from other affected units shall be determined by multiplying the quantity of each fuel used daily at each affected unit by the appropriate emission factor.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

Results shall be tabulated for each day, and records shall be kept which include CEM readings for H2S (averaged for each one-hour period), all meter reading (in the appropriate units), fuel oil parameters (density and wt% sulfur for each day any fuel oil is burned), and the calculated emissions.~~Results shall be tabulated for each day, and records shall be kept which include the CEM readings for H2S (averaged for each one-hour period), all meter readings (in the appropriate units), and the calculated emissions.~~

iv. Emergency and Standby Equipment

A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed in standby or emergency equipment at all times.

l. University of Utah: University of Utah Facilities

i. Emissions to the atmosphere from the listed emission points in Building 303 shall not exceed the following concentrations:

Emission Point	Pollutant	ppmdv (3% O2 dry)
A. Boiler #3	NO_x	187
B. Boilers #4a & #4b	NOx	9
C. Boilers #5a & #5b	NOx	9
D. Turbine	NO_x	9
E. Turbine and WHRU Duct burner	NO_x	15

*Boiler #4 will be replaced with Boiler #4a and #4b by 2018.

ii. Testing to show compliance with the emissions limitations of Condition i above shall be performed as specified below:

Emission Point	Pollutant	Initial Test	Test Frequency
A. Boiler #3	NO_x	*	every year# ~~every 3 years~~
B. Boilers #4a & 4b	NOx	2018	every year# ~~every 3 years~~
C. Boilers #5a & 5b	NOx	2017	every year# ~~every 3 years~~
D. Turbine	NO_x	*	every year# ~~every 3 years~~
E. Turbine and WHRU Duct burner	NO_x	*	every year# ~~every 3 years~~

* Initial tests have been performed and the next method test using EPA approved test methods shall be performed within 3 years of the last stack test.

~~* Initial tests have been performed and the next test shall be performed within 3 years of the last stack test.~~

A compliance test shall be performed at least once every three years from the

date of the last compliance test that demonstrated compliance with the emission limit(s). Compliance testing shall be performed using EPA approved test methods acceptable to the Director. The Director shall be notified, in accordance with all applicable rules, of any compliance test that is to be performed. Beginning January 2018, annual screening with a portable monitor must be conducted in those years that a compliance test is not performed. Screening with a portable monitor shall be performed in accordance with the portable monitor manufacturer's specifications. If screening with a portable monitor indicates a potential exceedance of the concentration limit, a compliance test must be performed within 90 days of that screening. Records shall be kept on site which indicate the date, time, and results of each screening and demonstrate that the potable monitor was operated in accordance with manufacturer's specifications. ~~Compliance test at least once every year using an EPA approved test method or perform annual portable analyzer testing, subsequent to the initial compliance test. An EPA approved test method must be performed at least once every three years. If portable analyzer testing is employed, a correlation must be established during the initial tests between the portable testing analyzer and an approved EPA test method. The portable analyzer must be calibrated as per the manufacturer's specification prior to each test. Notification of each annual portable test must be provided~~.

iii. After January 1, 2019, Boiler #3 shall only be used as a back-up/peaking boiler and shall not exceed 300 hours of operation per rolling-12 months. Boiler #3 may be operated on a continuous basis if it is equipped with low NOx burners or is replaced with a boiler that has low NO_x burners.

m. West Valley Power Holdings, LLC.: West Valley Power Plant.

i. Total emissions of NOx from all five (5) turbines combined shall be no greater than 1050 lb of NOx on a daily basis. For purposes of this subpart, a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

ii. Total emissions of NOx from all five (5) turbines shall include the sum of all periods in the day including periods of startup, shutdown, and maintenance.

iii. The NOx emission rate (lb/hr) shall be determined by CEM. The CEM shall operate as outlined in IX.H.1.f.

~~i. Emissions of NOx from each individual turbine shall be no greater than 5 ppmdv (15% O2, dry) based on a 30-day rolling average.~~

~~ii. Total emissions of NOx from all five turbines shall be no greater than 37 lbs/hour (15% O2, dry) based on a 30-day rolling average.~~

~~iii. The NOx emission rate (lb/hr) shall be calculated by multiplying the NOx concentration (ppmdv) generated from CEMs and the volumetric flow rate. The 30-day rolling average shall be calculated by adding previous 30 days data on a daily basis. The CEM shall operate as outlined in IX.H.1.f.~~

~~iv. Combustion Turbine Startup / Shutdown Emission Minimization Plan~~

~~A. Startup begins when natural gas is supplied to the combustion turbine(s) with the intent of combusting the fuel to generate electricity. Startup conditions end within sixty (60) minutes of natural gas being supplied to the turbine(s).~~

B. ~~Shutdown begins with the initiation of the stop sequence of a turbine until the cessation of natural gas flow to the turbine.~~

C. ~~Periods of startup or shutdown shall not exceed two (2) hours per combustion turbine per day.~~

H.3 Source Specific Emission Limitations in Utah County PM10 Nonattainment/Maintenance Area

a. Brigham Young University: Main Campus

i All central heating plant units shall operate on natural gas from November 1 to February 28 each season beginning in the winter season of 2013-2014. Fuel oil may be used as backup fuel during periods of natural gas curtailment. The sulfur content of the fuel oil shall not exceed 0.0015 % by weight. BYU must maintain a fuel specification certification document from the fuel supplier with the sulfur content guarantee. Alternatively, sulfur content may be verified through testing completed by BYU or the fuel supplier using ASTM Method D-4294-10 or EPA approved equivalent acceptable to the Director.

ii. Emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:~~Emissions to the atmosphere from the indicated emission point shall not exceed the following r a t e s a n d concentrations:~~

Emission Point	Pollutant	ppm (7% O_2 dry)*		lb/hr	
A. Unit #1	NO_x	95	36	9.55	5.44
B. Unit #4	NO_x	127	36	38.5	19.2
C. Unit #6	NO_x	127	36	38.5	19.2

* Unit #1 NO_x limit is 95 ppm (9.55 lb/hr) until it operates for more than 300 hours during a rolling 12-month period, then the limit will be 36 ppm (5.44 lb/hr). The NO_x limit for units #4 and #6 is 127 ppm (38.5 lb/hr) and starting on ~~January~~ December 31, 201~~7~~8, the limit will then be 36 ppm (19.2 lb/hr).

Emission Point	Pollutant	ppm (7% O_2 dry)	lb/hr
D. Unit #2	NO_x	331	37.4
SO_2	597	56.0	
E. Unit #3	NO_x	331	37.4
	SO_2	597	56.0
F. Unit #5	NO_x	331	74.8
	SO_2	597	112.07

iii. Stack testing to show compliance with the above emission limitations shall be performed as follows:

Emission Point	Pollutant	Initial test	Test Frequency
A. Unit #1	NOx	&	every year*~~every three years~~
B. Unit #2	NOx	#	every year*~~every three years~~

C. Unit #3	NOx	#	every year*~~every three years~~
D. Unit #4	NOx	#	every year*~~every three years~~
E. Unit #5	NOx	#	every year*~~every three years~~
F. Unit #6	NOx	#	every year*~~every three years~~

Stack tests shall be performed in accordance with IX.H.1.e.

& If Unit #1 is operated for more than 100 hours per rolling 12-month period, the stack test shall be performed within 60 days of exceeding 100 hours of operations. Unit #1 shall only be operated as a back-up boiler to Units #4 and #6 and shall not be operated more than 300 hours per rolling 12-month period. If Unit #1 operates more than 300 hours per rolling 12-month period, then low NOx burners with Flue Gas Recirculation shall be installed and tested within 18 months of exceeding 300 hours of operation and the maximum NO_x concentration shall be 36 ppm.

The test shall be performed at least every 3 years based on the date of the last stack test. Units #4 and #6 shall be retested by March 1, 2018~~7~~.

* A compliance test shall be performed at least once every three years from the date of the last compliance test that demonstrated compliance with the emission limit(s). Compliance testing shall be performed using EPA approved test methods acceptable to the Director. The Director shall be notified, in accordance with all applicable rules, of any compliance test that is to be performed. Beginning January 2018, annual screening with a portable monitor must be conducted in those years that a compliance test is not performed. Screening with a portable monitor shall be performed in accordance with the portable monitor manufacturer's specifications. If screening with a portable monitor indicates a potential exceedance of the concentration limit, a compliance test must be performed within 90 days of that screening. Records shall be kept on site which indicate the date, time, and results of each screening and demonstrate that the potable monitor was operated in accordance with manufacturer's specifications.~~An EPA approved test method must be performed at least once every three years. Additional compliance tests must be performed at least once every year using either an EPA approved test method or perform annual portable analyzer testing. If portable analyzer testing is employed, the portable analyzer test must be subsequent to the initial EPA approved test method. A correlation must be established during the initial EPA approved tests to calibrate the portable testing analyzer to the initial EPA approved test. The portable analyzer must be calibrated as per the manufacturer's specification prior to each test. Notification of each annual portable test must be provided~~.

iv. Central Heating Plant ~~Natural Gas~~Coal-Fired Boilers

A. Startup and shutdown events shall not exceed 216 hours per boiler per 12-month rolling period.

B. The sulfur content of any coal or any mixture of coals burned shall not exceed either of the following:

I. 0.54 pounds of sulfur per million BTU heat input as determined by ASTM Method D-4239-85, or or EPA-approved equivalent acceptable to the Director.~~approved equivalent~~

II. 0.60% by weight as determined by ASTM Method D-4239-85, or or EPA-approved equivalent acceptable to the Director.~~approved equivalent~~.

For the sulfur content of coal, Brigham Young University shall either:

III. Determine the weight percent sulfur and the fuel heating value by submitting a coal sample to a laboratory, acceptable to the Director, on no less than a monthly basis; or

IV. For each delivery of coal, inspect the fuel sulfur content expressed as weight % determined by the vendor using methods of the ASTM; or

V. For each delivery of coal, inspect documentation provided by the vendor that indirectly demonstrates compliance with this provision.

b. Geneva Nitrogen Inc.: Geneva Nitrogen Plant

i. Prill Tower:

PM_{10} emissions (filterable and condensable) shall not exceed 0.236 ton/day
$PM_{2.5}$ emissions (filterable and condensable) shall not exceed 0.196 ton/day

A day is defined as from midnight to the following midnight.

ii. Testing

A. Stack testing shall be performed as specified below:

I. Frequency: Emissions shall be tested every three years. The test shall be performed as soon as possible and in no case later than December 31, 2017.

B. The daily limit shall be calculated by multiplying the most recent stack test results by the appropriate hours of operation for each day.

iii. Montecatini Plant:

NOx emissions shall not exceed 30.8 lb/hr

iv. Weatherly Plant:

NOx emissions shall not exceed 18.4 lb/hr

v. Testing

A. Stack testing for NO_x shall be performed as specified below:

I. Stack testing to show compliance with the NOx emission limitations shall be performed as specified below:

1. Testing and Frequency. Emissions shall be tested every three years using an EPA approved test method.

II. NOx concentration (ppmdv) shall be used as an indicator to provide a reasonable assurance of compliance with the NOx emission limitation as specified below:

1. Measurement Approach: NOx concentration (ppmdv) shall be determined by using a continuous NOx monitoring system.

2. Performance Criteria:
(i) QA/QC Practices and Criteria: The continuous monitoring

system shall be operated, calibrated, and maintained in accordance with manufacture's recommendations. Zero and span drift tests shall be conducted on a daily basis.

III. The EPA approved method test for the Montecatini Plant shall be performed as soon as possible and in no case later than December 31, 2017, and the test for the Weatherly Plant shall be performed as soon as possible and in no case later than December 31, 2018.

~~Stack testing to show compliance with the NO_x emission limitations shall be performed every three years.~~

~~The test for the Montecatini Plant shall be performed as soon as possible and in no case later than December 31, 2017, and the test for the Weatherly Plant shall be performed as soon as possible and in no case later than December 31, 2018.~~

vi. Start-up/Shut-down

A. Startup / Shutdown Limitations:

I. Planned shut-down and start-up events shall not exceed 50 hours per acid plant (Montecatini or Weatherly) per 12-month rolling period.

II. Total startup and shutdown events shall not exceed four hours per acid plant in any one calendar day.

c. PacifiCorp Energy: Lake Side Power Plant

i. Block #1 Turbine/HRSG Stacks:

A. Emissions of NOx shall not exceed 14.9 lb/hr on a 3-hr average basis

B. Compliance with the above conditions shall be demonstrated as follows:

I. NOx monitoring shall be through use of a CEM as outlined in IX.H.1.f

ii. Block #2 Turbine/HRSG Stacks:

A. Emissions of NOx shall not exceed 18.1 lb/hr on a 3-hr average basis

B. Compliance with the above conditions shall be demonstrated as follows:

I. NOx monitoring shall be through use of a CEM as outlined in IX.H.1.f

iii. Startup / Shutdown Limitations:

A. Block #1:

I. Startup and shutdown events shall not exceed 613.5 hours per turbine per 12-month rolling period.

II. Total startup and shutdown events shall not exceed 14 hours per turbine in any one calendar day.

III. Cumulative short-term transient load excursions shall not exceed 160 hours per 12- month rolling period.

IV. During periods of transient load conditions, NOx emissions from the Block #1 Turbine/HRSG Stacks shall not exceed 25 ppmvd at 15% O2.

B. Block #2:

I. Startup and shutdown events shall not exceed 553.6 hours per turbine per 12-month rolling period.

II. Total startup and shutdown events shall not exceed 8 hours per turbine in any one calendar day.

III. Cumulative short-term transient load excursions shall not exceed 160 hours per 12-month rolling period.

IV. During periods of transient load conditions, NOx emissions from the Block #~~1~~ 2 Turbine/HRSG Stacks shall not exceed 25 ppmvd at 15% O2.

C. Definitions:

I. Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hr emission limits listed in IX.H.3.c.i and ii above.

II. Shutdown is defined as the period beginning with the initiation of turbine shutdown sequence and ending with the cessation of firing of the gas turbine engine.

III. Transient load conditions are those periods, not to exceed four consecutive 15-minute periods, when the 15-minute average NOx concentration exceeds 2.0 ppmv dry @ 15% O2. Transient load conditions ~~include~~ consist~~s~~ of the following:

1. Initiation/shutdown of combustion turbine inlet air-cooling.

2. Rapid combustion turbine load changes.

3. Initiation/shutdown of HRSG duct burners.

4. Provision of Ancillary Services and Automatic Generation Control.

IV. For purposes of this subsection a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

e. Payson City Corporation: Payson City Power

b. Emissions of NOx shall be no greater than 1.54 ton per day for all engines combined.

c. Compliance with the emission limitation shall be determined by summing the emissions from all the engines. Emission from each engine shall be calculated from the following equation:

Emissions (tons/day) = (Power production in kW-hrs/day) x (Emission factor in grams/kW-hr) x (1 lb/453.59 g) x (1 ton/2000 lbs)

i. The NOx emission factor for each engine shall be derived from the most recent stack test. Stack tests shall be performed in accordance with IX.H.1.e. Each engine shall be tested at least every three years from the previous test.

ii. NOx emissions shall be calculated on a daily basis.

iii. A day is equivalent to the time period from midnight to the following midnight.

iv. The number of kilowatt hours generated by each engine shall be recorded on a daily basis with an electrical meter.

f. Provo City Power: Power Plant

i. NO_x emissions from the operation of all engines at the plant shall not exceed 2.45 tons per day.

ii. Compliance with the emission limitation shall be determined by summing the emissions from all the engines. Emission from each engine shall be calculated from the following equation:

Emissions (tons/day) = (Power production in kW-hrs/day) x (Emission factor in grams/kW-hr) x (1 lb/453.59 g) x (1 ton/2000 lbs)

A. The NO_x emission factor for each engine shall be derived from the most recent stack test. Stack tests shall be performed in accordance with IX.H.1.e. Each engine shall be tested every 8,760 hours of operation or at least every three years from the previous test, whichever occurs first.

B. NO_x emissions shall be calculated on a daily basis.

C. A day is equivalent to the time period from midnight to the following midnight.

D. The number of kilowatt hours generated by each engine shall be recorded on a daily basis with an electrical meter.

g. Springville City Corporation: Whitehead Power Plant

i. NOx emissions from the operation of all engines at the plant shall not exceed 1.68 tons per day.

ii. Internal combustion engine emissions shall be calculated from the operating data recorded by the CEM. CEM will be performed in accordance with IX.H.1.f. A day is equivalent to the time period from midnight to the following midnight. Emissions shall be calculated for NOx for each individual engine by the following equation:

$$D = (X * K)/453.6$$

Where:
X = grams/kW-hr rate for each generator (recorded by CEM)
K = total kW-hr generated by the generator each day (recorded by output meter)
D = daily output of pollutant in lbs/day

H.4 Interim Emission Limits and Operating Practices

a. The terms and conditions of this Subsection IX.H.4 shall apply to the sources listed in this section on a temporary basis, as a bridge between the 1991 PM10 State Implementation Plan and this PM10 Maintenance Plan. For all other point sources listed in IX.H.2 and IX.H.3 the limits apply upon approval by the Utah Air Quality Board of the PM10 Maintenance Plan. These bridge requirements are needed to impose limits on the sources that have time delays for implementation of controls. During this timeframe, the sources listed in this section may not meet the established limits listed in IX.H.1 and IX.H.2. As the control technology for the sources listed in this section is installed and operational, the terms and conditions listed in IX.H.1 and IX.H.2 become applicable and those limits replace the limits in this subsection. In no case, shall the terms and conditions listed in this Subsection IX.H.4 extend beyond January 1, 2019.

b. ~~The terms and conditions of this Subsection IX.H.4 shall apply to the sources listed in this section on a temporary basis, as a bridge between the 1991 PM10 State Implementation Plan and this PM10 Maintenance Plan. For all other point sources listed in IX.H.2 and IX.H.3 the limits apply upon approval by the Utah Air Quality Board of the PM10 Maintenance Plan. These bridge requirements are needed to impose limits on the sources that have time delays for implementation of controls. During this timeframe, the sources listed in this section may not meet the established limits listed in IX.H.2 and IX.H.3. As the control technology for the sources listed in this section is installed and operational, the terms and conditions listed in IX.H.1 through 3 become applicable and those limits replace the limits in this subsection.~~

c. Petroleum Refineries:

i. All petroleum refineries in or affecting the PM_{10} nonattainment/maintenance area shall, for the purpose of this PM_{10} Maintenance Plan:

A. Achieve an emission rate equivalent to no more than 9.8 kg of SO_2 per 1,000 kg of coke burn- off from any Catalytic Cracking unit by use of low-SO_x catalyst or equivalent emission reduction techniques or procedures, including those outlined in 40 CFR 60, Subpart J. Unless otherwise specified in IX.H.2, compliance shall be determined for each day based on a rolling seven-day average.

A. Compliance Demonstrations.

I. Compliance with the maximum daily (24-hr) plant-wide emission limitations for PM_{10}, SO_2, and NO_x shall be determined by adding the calculated emission estimates for all fuel burning process equipment to those from any stack-tested or CEM-measured source components. NO_x and PM_{10} emission factors shall be determined from AP-42 or from test data.

For SO_x, the emission factors are:

Natural gas: EF = 0.60 lb/MMscf
Propane: EF = 0.60 lb/MMscf
Plant gas: the emission factor shall be calculated from the H_2S measurement required in IX.H.1.g.ii.A.

Fuel oils (when permitted): The emission factor shall be calculated based on the weight percent of sulfur, as determined by ASTM Method D-4294-89 or EPA-approved equivalent, and the density of the fuel oil, as follows:

EF (lb SO_2/k gal) = density (lb/gal) * (1000 gal/k gal) * wt.% S/100 * (64 lb SO_2/32 lb S)

Where mixtures of fuel are used in an affected unit, the above factors shall be weighted according to the use of each fuel.

II. Daily emission estimates for stack-tested source components shall be made by multiplying the latest stack-tested hourly emission rate times the logged hours of operation (or other relevant parameter) for that source component for each day. This shall not preclude a source from determining emissions through the use of a CEM that meets the requirements of R307-170.

c. Big West Oil Company

i. PM_{10} Emissions

A. Combined emissions of filterable PM_{10} from all external combustion process equipment shall not exceed the following:

I. 0.377 tons per day, between October 1 and March 31;
II. 0.407 tons per day, between April 1 and September 30.

B. Emissions shall be determined for each day by multiplying the appropriate emission factor from section ~~IX.H.4.a.(2)~~IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation, feed rate, or quantity of fuel combusted) at each affected unit, and summing the results for the group of affected units.

The daily primary PM_{10} contribution from the Catalyst Regeneration System shall be calculated using the following equation:

Emitted PM_{10} = (Feed rate to FCC in kbbl/time) * (22 lbs/kbbl)

wherein the emission factor (22 lbs/kbbl) may be re-established by stack testing. Total 24-hour PM_{10} emissions shall be calculated by adding the daily emissions from the external combustion process equipment to the estimate for the Catalyst Regeneration System.

ii. SO_2 Emissions

A. Combined emissions of sulfur dioxide from all external combustion process equipment shall not exceed the following:

I. 2.764 tons/day, between October 1 and March 31;
II. 3.639 tons/day, between April 1 and September 30.

B. Emissions shall be determined for each day by multiplying the appropriate emission factor from section ~~IX.H.4.a.(2)~~IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation, feed rate, or quantity of fuel combusted) at each affected unit, and summing the results for the group of affected units.

The daily SO_2 emission from the Catalyst Regeneration System shall be calculated using the following equation:

SO_2 = [43.3 lb SO_2/hr / 7,688 bbl feed/day] x [(operational feed rate in bbl/day) x (wt% sulfur in feed / 0.1878 wt%) x (operating hr/day)]

The FCC feed weight percent sulfur concentration shall be determined by the refinery laboratory every 30 days with one or more analyses. Alternatively, SO_2 emissions from the Catalyst Regeneration System may be determined using a Continuous Emissions Monitor (CEM) in accordance with IX.H.1.f.

Emissions from the SRU Tail Gas Incinerator (TGI) shall be determined for each day by multiplying the sulfur dioxide concentration in the flue gas by the mass flow of the flue gas.

Total 24-hour SO_2 emissions shall be calculated by adding the daily emissions from the external combustion process equipment to the values for the Catalyst Regeneration System and the SRU.

iv. NO_x Emissions

A. Combined emissions of NO_x from all external combustion process equipment shall not exceed the following:

I. 1.027 tons per day, between October 1 and March 31;
II. 1.145 tons per day, between April 1 and September 30.

B. Emissions shall be determined for each day by multiplying the appropriate emission factor from section ~~IX.H.4.a.(2)~~IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation, feed rate, or quantity of fuel combusted) at each affected unit, and summing the results for the group of affected units.

The daily NO_x emission from the Catalyst Regeneration System shall be calculated using the following equation:

NO_x = (Flue Gas, moles/hr) x (180 ppm /1,000,000) x (30.006 lb/mole) x (operating hr/day)

wherein the scalar value (180 ppm) may be re-established by stack testing.

Alternatively, NO_x emissions from the Catalyst Regeneration System may be determined using a Continuous Emissions Monitor (CEM) in accordance with IX.H.1.f.

Total 24-hour NO_x emissions shall be calculated by adding the daily emissions from gas-fired compressor drivers and the external combustion process equipment to the value for the Catalyst Regeneration System.

d. Chevron Products Company

i. PM_{10} Emissions

A. Combined emissions of filterable PM_{10} from all external combustion process equipment shall be no greater than 0.234 tons per day.

Emissions shall be determined for each day by multiplying the appropriate emission factor from section ~~IX.H.4.a.(2)~~IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation, feed rate, or quantity of fuel combusted) at each affected unit, and summing the results for the group of affected units.

ii. SO_2 Emissions

A. Combined emissions of sulfur dioxide from gas-fired compressor drivers and all external combustion process equipment, including the FCC CO Boiler and Catalyst Regenerator, shall not exceed 0.5 tons/day.

Emissions shall be determined for each day by multiplying the appropriate emission factor from section ~~IX.H.4.a.(2)~~IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation, feed rate, or quantity of fuel combusted) at each affected unit, and summing the results for the group of affected units.

Alternatively, SO_2 emissions from the FCC CO Boiler and Catalyst Regenerator may be determined using a Continuous Emissions Monitor (CEM) in accordance with IX.H.1.f.

iii. NO_x Emissions

A. Combined emissions of NO_x from gas-fired compressor drivers and all external combustion process equipment, including the FCC CO Boiler and Catalyst Regenerator and the SRU Tail Gas Incinerator, shall be no greater than 2.52 tons per day.

Emissions shall be determined for each day by multiplying the appropriate emission factor from section ~~IX.H.4.a.(2)~~IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation, feed rate, or quantity of fuel combusted) at each affected unit, and summing the results for the group of affected units.

Alternatively, NO_x emissions from the FCC CO Boiler and Catalyst Regenerator may be determined using a Continuous Emissions Monitor (CEM) in accordance with IX.H.1.f.

iv. Chevron shall be permitted to combust HF alkylation polymer oil in its Alkylation unit.

e. Holly Refining and Marketing Company

i. PM_{10} Emissions

A. Combined emissions of filterable PM_{10} from all combustion sources, shall be no greater than 0.44 tons per day.

Emissions shall be determined for each day by multiplying the appropriate emission factor from section ~~IX.H.4.a.(2)~~IX.H.4.b.i.B, or from testing as described below, by the relevant parameter (e.g. hours of operation, feed rate, or quantity of fuel combusted) at each affected unit, and summing the results for the group of affected units.

ii. SO_2 Emissions

A. Combined emissions of SO_2 from all sources shall be no greater than 4.714 tons per day.

Emissions shall be determined for each day by multiplying the appropriate emission factor from section~~IX.H.4.a.(2)~~IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation, feed rate, or quantity of fuel combusted) at each affected unit, and summing the results for the group of affected units.

Emissions from the FCC~~U~~ wet scrubbers shall be determined using a Continuous Emissions Monitor (CEM) in accordance with IX.H.1.f.

iii. NO_x Emissions:

A. Combined emissions of NO_x from all sources shall be no greater than 2.20 tons per day.

Emissions shall be determined for each day by multiplying the appropriate emission factor from section ~~IX.H.4.a.(2)~~IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation, feed rate, or quantity of fuel combusted) at each affected unit, and summing the results for the group of affected units.

f. Tesoro Refining & Marketing Company

i. PM_{10} Emissions

A. Combined emissions of filterable PM_{10} from gas-fired compressor drivers and all external combustion process equipment, including the FCC/CO Boiler (ESP), shall be no greater than 0.261 tons per day.

Emissions for gas-fired compressor drivers and the group of external combustion process equipment shall be determined for each day by multiplying the appropriate emission factor from section ~~IX.H.4.a.(2)~~IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation, feed rate, or quantity of fuel combusted) at each affected unit, and summing the results for the group of affected units.

ii. SO_2 Emissions

A. Combined emissions of SO_2 from gas-fired compressor drivers and all external combustion process equipment, including the FCC/CO Boiler (ESP), shall not exceed the following:

I. November 1 through end of February: 3.699 tons/day
II. March 1 through October 31: 4.374 tons/day

Emissions shall be determined for each day by multiplying the appropriate emission factor from section ~~IX.H.4.a.(2)~~IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation, feed rate, or quantity of fuel combusted) at each affected unit, and summing the results for the group of affected units.

Emissions from the ESP stack (FCC/CO Boiler) shall be determined by multiplying the SO_2 concentration in the flue gas by the mass flow of the flue gas.

The SO2 concentration in the flue gas shall be determined by a continuous emission monitor (CEM).

iii. NO_x Emissions

A. Combined emissions of NO_x from gas-fired compressor drivers and all external combustion process equipment shall be no greater than 1.988 tons per day.

Emissions shall be determined for each day by multiplying the appropriate emission factor from section ~~IX.H.4.a.(2)~~IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation, feed rate, or quantity of fuel combusted) at each affected unit, and summing the results for the group of affected units.

ITEM 8

State of Utah
GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQ-066-15

M E M O R A N D U M

TO: Air Quality Board

THROUGH: Bryce C. Bird, Executive Secretary

FROM: Ryan Stephens, Environmental Planning Consultant

DATE: November 19, 2015

SUBJECT: FINAL ADOPTION: Amend R307-110-10. Section IX, Control Measures for Area and Point Sources, Part A, Fine Particulate Matter; and Amend R307-110-17. Section IX, Control Measures for Area and Point Sources, Part H, Emissions Limits.

The PM10 maintenance plan needs to be incorporated into the Air Quality Rules. R307-110-10 and R307-110-17 are the rules that do this. R307-110-10 will incorporate the amendments to Section IX.A into state rules, and R307-110-17 will incorporate Section IX.H into state rules. A 30 day comment period was held and no comments were received.

Staff Recommendation: Staff recommends that the Board adopt R307-110-10 and R307-110-17.

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R307. Environmental Quality, Air Quality.

R307-110. General Requirements: State Implementation Plan.

R307-110-10. Section IX, Control Measures for Area and Point Sources, Part A, Fine Particulate Matter.

The Utah State Implementation Plan, Section IX, Control Measures for Area and Point Sources, Part A, Fine Particulate Matter, as most recently amended by the Utah Air Quality Board on December 2, 2015, pursuant to Section 19-2-104, is hereby incorporated by reference and made a part of these rules.

KEY: air pollution, PM10, PM2.5, ozone

Date of Enactment or Last Substantive Amendment: June 4, 2015

Notice of Continuation: 2015

Authorizing, and Implemented or Interpreted Law: 19-2-104

R307. Environmental Quality, Air Quality.
R307-110. General Requirements: State Implementation Plan.

R307-110-17. Section IX, Control Measures for Area and Point Sources, Part H, Emissions Limits.

The Utah State Implementation Plan, Section IX, Control Measures for Area and Point Sources, Part H, Emissions Limits, as most recently amended by the Utah Air Quality Board on December 2, 2015, pursuant to Section 19-2-104, is hereby incorporated by reference and made a part of these rules.

KEY: air pollution, PM10, PM2.5, ozone
Date of Enactment or Last Substantive Amendment: June 4, 2015
Notice of Continuation: 2015
Authorizing, and Implemented or Interpreted Law: 19-2-104

ITEM 9

State of Utah
GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality
Alan Matheson
Executive Director
DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQ-069-15

M E M O R A N D U M

TO: Air Quality Board

THROUGH: Bryce C. Bird, Executive Secretary

FROM: Ryan Stephens, Environmental Planning Consultant

DATE: November 19, 2015

SUBJECT: FINAL ADOPTION: Amend R307-101-2. Definitions; R307-102-1. Air Pollution Prohibited; Periodic Reports Required; R307-150. Emission Inventories; R307-201-3. Visible Emissions Standards; R307-206. Emission Standards: Abrasive Blasting; R307-303. Commercial Cooking; R307-305-3. Visible Emissions; R307-306. PM10 Nonattainment and Maintenance Areas: Abrasive Blasting; R307-401. Permit: New and Modified Sources; R307-410. Permits: Emissions Impact Analysis; R307-415. Permits: Operating Permit Requirements.

On March 25, 2015, Governor Gary Herbert signed Utah House Bill 229, Air Quality Modifications, into law. House Bill 229 revised the statutory definitions of several terms in Utah Code 19-2-102. The following relevant changes were made to the code:

1) The definitions of “air contaminant” and “air contaminant source” were removed from the statute.
2) The terms “air pollutant” and “air pollutant source” were added and defined.
3) The definition of “air pollution” was amended.
4) The definition of “ambient air” was amended.

The amendments help create consistency across state regulations, state statutes, and the Clean Air Act. A 30 day comment period was held, and no comments were received.

<u>Staff Recommendation</u>: Staff recommends that the Board adopt the amendments to R307-101, R307-102, R307-150, R307-201, R307-206, R307-303, R307-305, R307-306, R307-401, R307-410, and R307-415.

R307. Environmental Quality, Air Quality.
R307-101. General Requirements.
R307-101-2. Definitions.

Except where specified in individual rules, definitions in R307-101-2 are applicable to all rules adopted by the Air Quality Board.

"Actual Emissions" means the actual rate of emissions of a pollutant from an emissions unit determined as follows:

(1) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operations. The director shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

(2) The director may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(3) For any emission unit, other than an electric utility steam generating unit specified in (4), which has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

(4) For an electric utility steam generating unit (other than a new unit or the replacement of an existing unit) actual emissions of the unit following the physical or operational change shall equal the representative actual annual emissions of the unit, provided the source owner or operator maintains and submits to the director, on an annual basis for a period of 5 years from the date the unit resumes regular operation, information demonstrating that the physical or operational change did not result in an emissions increase. A longer period, not to exceed 10 years, may be required by the director if the director determines such a period to be more representative of normal source post-change operations.

"Acute Hazardous Air Pollutant" means any noncarcinogenic hazardous air pollutant for which a threshold limit value - ceiling (TLV-C) has been adopted by the American Conference of Governmental Industrial Hygienists (ACGIH) in its "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, (2009)."

"Air pollutant" means a substance that qualifies as an air pollutant as defined in 42 U.S.C. Sec. 7602.

"Air Pollutant Source" means private and public sources of emissions of air pollutants.

"Air Pollution" means the presence of an air pollutant in the ambient air in such quantities and duration and under conditions and circumstances, that are injurious to human health or welfare, animal or plant life, or property, or would unreasonably interfere with the enjoyment of life or use of property as determined by the standards, rules and regulations adopted by the Air Quality Board (Section 19-2-104).

"Allowable Emissions" means the emission rate of a source calculated using the maximum rated capacity of the source (unless the source is subject to enforceable limits which restrict the operating rate, or hours of operation, or both) and the emission limitation established pursuant to R307-401-8.

"Ambient Air" means that portion of the atmosphere, external to buildings, to which the general public has access.(Section 19-2-102(4)).

"Appropriate Authority" means the governing body of any city, town or county.

"Atmosphere" means the air that envelops or surrounds the earth and includes all space outside of buildings, stacks or exterior ducts.

"Authorized Local Authority" means a city, county, city-county or district health department; a city, county or combination fire department; or other local agency duly designated by appropriate authority, with approval of the state Department of Health; and other lawfully adopted ordinances, codes or regulations not in conflict therewith.

"Board" means Air Quality Board. See Section 19-2-102(8)(a).

"Breakdown" means any malfunction or procedural error, to include but not limited to any malfunction or procedural error during start-up and shutdown, which will result in the inoperability or sudden loss of performance of the control equipment or process equipment causing emissions in excess of those allowed by approval order or Title R307.

"BTU" means British Thermal Unit, the quantity of heat necessary to raise the temperature of one pound of water one degree Fahrenheit.

"Calibration Drift" means the change in the instrument meter readout over a stated period of time of normal continuous operation when the VOC concentration at the time of measurement is the same known upscale value.

"Carbon Adsorption System" means a device containing adsorbent material (e.g., activated carbon, aluminum, silica gel), an inlet and outlet for exhaust gases, and a system for the proper disposal or reuse of all VOC adsorbed.

"Carcinogenic Hazardous Air Pollutant" means any hazardous air pollutant that is classified as a known human carcinogen

(A1) or suspected human carcinogen (A2) by the American Conference of Governmental Industrial Hygienists (ACGIH) in its "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, (2009)."

"Chargeable Pollutant" means any regulated air pollutant except the following:

(1) Carbon monoxide;

(2) Any pollutant that is a regulated air pollutant solely because it is a Class I or II substance subject to a standard promulgated or established by Title VI of the Act, Stratospheric Ozone Protection;

(3) Any pollutant that is a regulated air pollutant solely because it is subject to a standard or regulation under Section 112(r) of the Act, Prevention of Accidental Releases.

"Chronic Hazardous Air Pollutant" means any noncarcinogenic hazardous air pollutant for which a threshold limit value - time weighted average (TLV-TWA) having no threshold limit value - ceiling (TLV-C) has been adopted by the American Conference of Governmental Industrial Hygienists (ACGIH) in its "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, (2009)."

"Clean Air Act" means federal Clean Air Act as amended in 1990.

"Clean Coal Technology" means any technology, including technologies applied at the precombustion, combustion, or post combustion stage, at a new or existing facility which will achieve significant reductions in air emissions of sulfur dioxide or oxides of nitrogen associated with the utilization of coal in the generation of electricity, or process steam which was not in widespread use as of November 15, 1990.

"Clean Coal Technology Demonstration Project" means a project using funds appropriated under the heading "Department of Energy-Clean Coal Technology," up to a total amount of $2,500,000,000 for commercial demonstration of clean coal technology, or similar projects funded through appropriations for the Environmental Protection Agency. The Federal contribution for a qualifying project shall be at least 20 percent of the total cost of the demonstration project.

"Clearing Index" means an indicator of the predicted rate of clearance of ground level pollutants from a given area. This number is provided by the National Weather Service.

"Commence" as applied to construction of a major source or major modification means that the owner or operator has all necessary pre-construction approvals or permits and either has:

(1) Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

(2) Entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time.

"Condensable PM2.5" means material that is vapor phase at stack conditions, but which condenses and/or reacts upon cooling and dilution in the ambient air to form solid or liquid particulate matter immediately after discharge from the stack.

"Compliance Schedule" means a schedule of events, by date, which will result in compliance with these regulations.

"Construction" means any physical change or change in the method of operation including fabrication, erection, installation, demolition, or modification of a source which would result in a change in actual emissions.

"Control Apparatus" means any device which prevents or controls the emission of any air pollutant directly or indirectly into the outdoor atmosphere.

"Department" means Utah State Department of Environmental Quality. See Section 19-1-103(1).

"Director" means the Director of the Division of Air Quality. See Section 19-1-103(1).

"Division" means the Division of Air Quality.

"Electric Utility Steam Generating Unit" means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the affected facility.

"Emission" means the act of discharge into the atmosphere of an air pollutant or an effluent which contains or may contain an air pollutant; or the effluent so discharged into the atmosphere.

"Emissions Information" means, with reference to any source operation, equipment or control apparatus:

(1) Information necessary to determine the identity, amount, frequency, concentration, or other characteristics related to air quality of any air pollutant which has been emitted by the source operation, equipment, or control apparatus;

(2) Information necessary to determine the identity, amount, frequency, concentration, or other characteristics (to the extent related to air quality) of any air pollutant which, under an applicable standard or limitation, the source operation

was authorized to emit (including, to the extent necessary for such purposes, a description of the manner or rate of operation of the source operation), or any combination of the foregoing; and

(3) A general description of the location and/or nature of the source operation to the extent necessary to identify the source operation and to distinguish it from other source operations (including, to the extent necessary for such purposes, a description of the device, installation, or operation constituting the source operation).

"Emission Limitation" means a requirement established by the Board, the director or the Administrator, EPA, which limits the quantity, rate or concentration of emission of air pollutants on a continuous emission reduction including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction (Section 302(k)).

"Emissions Unit" means any part of a stationary source which emits or would have the potential to emit any pollutant subject to regulation under the Clean Air Act.

"Enforceable" means all limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within the State Implementation Plan and R307, any permit requirements established pursuant to 40 CFR 52.21 or R307-401.

"EPA" means Environmental Protection Agency.

"EPA Method 9" means 40 CFR Part 60, Appendix A, Method 9, "Visual Determination of Opacity of Emissions from Stationary Sources," and Alternate 1, "Determination of the opacity of emissions from stationary sources remotely by LIDAR."

"Executive Director" means the Executive Director of the Utah Department of Environmental Quality. See Section 19-1-103(2).

"Existing Installation" means an installation, construction of which began prior to the effective date of any regulation having application to it.

"Facility" means machinery, equipment, structures of any part or accessories thereof, installed or acquired for the primary purpose of controlling or disposing of air pollution. It does not include an air conditioner, fan or other similar device for the comfort of personnel.

"Filterable PM2.5" means particles with an aerodynamic diameter equal to or less than 2.5 micrometers that are directly emitted by a source as a solid or liquid at stack or release conditions and can be captured on the filter of a stack test train.

"Fireplace" means all devices both masonry or factory built units (free standing fireplaces) with a hearth, fire chamber or similarly prepared device connected to a chimney which provides the operator with little control of combustion air, leaving its fire chamber fully or at least partially open to the room. Fireplaces include those devices with circulating systems, heat exchangers, or draft reducing doors with a net thermal efficiency of no greater than twenty percent and are used for aesthetic purposes.

"Fugitive Dust" means particulate, composed of soil and/or industrial particulates such as ash, coal, minerals, etc., which becomes airborne because of wind or mechanical disturbance of surfaces. Natural sources of dust and fugitive emissions are not fugitive dust within the meaning of this definition.

"Fugitive Emissions" means emissions from an installation or facility which are neither passed through an air cleaning device nor vented through a stack or could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

"Garbage" means all putrescible animal and vegetable matter resulting from the handling, preparation, cooking and consumption of food, including wastes attendant thereto.

"Gasoline" means any petroleum distillate, used as a fuel for internal combustion engines, having a Reid vapor pressure of 4 pounds or greater.

"Hazardous Air Pollutant (HAP)" means any pollutant listed by the EPA as a hazardous air pollutant in conformance with Section 112(b) of the Clean Air Act. A list of these pollutants is available at the Division of Air Quality.

"Household Waste" means any solid or liquid material normally generated by the family in a residence in the course of ordinary day-to-day living, including but not limited to garbage, paper products, rags, leaves and garden trash.

"Incinerator" means a combustion apparatus designed for high temperature operation in which solid, semisolid, liquid, or gaseous combustible wastes are ignited and burned efficiently and from which the solid and gaseous residues contain little or no combustible material.

"Installation" means a discrete process with identifiable emissions which may be part of a larger industrial plant. Pollution equipment shall not be considered a separate installation or installations.

"LPG" means liquified petroleum gas such as propane or butane.

"Maintenance Area" means an area that is subject to the provisions of a maintenance plan that is included in the Utah state implementation plan, and that has been redesignated by EPA from nonattainment to attainment of any National Ambient Air

Quality Standard.

(a) The following areas are considered maintenance areas for ozone:

(i) Salt Lake County, effective August 18, 1997; and

(ii) Davis County, effective August 18, 1997.

(b) The following areas are considered maintenance areas for carbon monoxide:

(i) Salt Lake City, effective March 22, 1999;

(ii) Ogden City, effective May 8, 2001; and

(iii) Provo City, effective January 3, 2006.

(c) The following areas are considered maintenance areas for PM10:

(i) Salt Lake County, effective on the date that EPA approves the maintenance plan that was adopted by the Board on July 6, 2005; and

(ii) Utah County, effective on the date that EPA approves the maintenance plan that was adopted by the Board on July 6, 2005; and

(iii) Ogden City, effective on the date that EPA approves the maintenance plan that was adopted by the Board on July 6, 2005.

(d) The following area is considered a maintenance area for sulfur dioxide: all of Salt Lake County and the eastern portion of Tooele County above 5600 feet, effective on the date that EPA approves the maintenance plan that was adopted by the Board on January 5, 2005.

"Major Modification" means any physical change in or change in the method of operation of a major source that would result in a significant net emissions increase of any pollutant. A net emissions increase that is significant for volatile organic compounds shall be considered significant for ozone. Within Salt Lake and Davis Counties or any nonattainment area for ozone, a net emissions increase that is significant for nitrogen oxides shall be considered significant for ozone. Within areas of nonattainment for PM10, a significant net emission increase for any PM10 precursor is also a significant net emission increase for PM10. A physical change or change in the method of operation shall not include:

(1) routine maintenance, repair and replacement;

(2) use of an alternative fuel or raw material by reason of an order under section 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974, or by reason of a natural gas curtailment plan pursuant to the Federal Power Act;

(3) use of an alternative fuel by reason of an order or rule under section 125 of the federal Clean Air Act;

(4) use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid

waste;

(5) use of an alternative fuel or raw material by a source:

(a) which the source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any enforceable permit condition; or

(b) which the source is otherwise approved to use;

(6) an increase in the hours of operation or in the production rate unless such change would be prohibited under any enforceable permit condition;

(7) any change in ownership at a source

(8) the addition, replacement or use of a pollution control project at an existing electric utility steam generating unit, unless the director determines that such addition, replacement, or use renders the unit less environmentally beneficial, or except:

(a) when the director has reason to believe that the pollution control project would result in a significant net increase in representative actual annual emissions of any criteria pollutant over levels used for that source in the most recent air quality impact analysis in the area conducted for the purpose of Title I of the Clean Air Act, if any, and

(b) the director determines that the increase will cause or contribute to a violation of any national ambient air quality standard or PSD increment, or visibility limitation.

(9) the installation, operation, cessation, or removal of a temporary clean coal technology demonstration project, provided that the project complies with:

(a) the Utah State Implementation Plan; and

(b) other requirements necessary to attain and maintain the national ambient air quality standards during the project and after it is terminated.

"Major Source" means, to the extent provided by the federal Clean Air Act as applicable to R307:

(1) any stationary source of air pollutants which emits, or has the potential to emit, one hundred tons per year or more of any pollutant subject to regulation under the Clean Air Act; or

(a) any source located in a nonattainment area for carbon monoxide which emits, or has the potential to emit, carbon monoxide in the amounts outlined in Section 187 of the federal Clean Air Act with respect to the severity of the nonattainment area as outlined in Section 187 of the federal Clean Air Act; or

(b) any source located in Salt Lake or Davis Counties or in a nonattainment area for ozone which emits, or has the potential to emit, VOC or nitrogen oxides in the amounts outlined in Section 182 of the federal Clean Air Act with respect to the severity of the nonattainment area as outlined in Section 182 of the federal Clean Air Act; or

(c) any source located in a nonattainment area for PM10 which emits, or has the potential to emit, PM10 or any PM10 precursor in the amounts outlined in Section 189 of the federal Clean Air Act with respect to the severity of the nonattainment area as outlined in Section 189 of the federal Clean Air Act.

(2) any physical change that would occur at a source not qualifying under subpart 1 as a major source, if the change would constitute a major source by itself;

(3) the fugitive emissions and fugitive dust of a stationary source shall not be included in determining for any of the purposes of these R307 rules whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

(a) Coal cleaning plants (with thermal dryers);

(b) Kraft pulp mills;

(c) Portland cement plants;

(d) Primary zinc smelters;

(e) Iron and steel mills;

(f) Primary aluminum or reduction plants;

(g) Primary copper smelters;

(h) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(i) Hydrofluoric, sulfuric, or nitric acid plants;

(j) Petroleum refineries;

(k) Lime plants;

(l) Phosphate rock processing plants;

(m) Coke oven batteries;

(n) Sulfur recovery plants;

(o) Carbon black plants (furnace process);

(p) Primary lead smelters;

(q) Fuel conversion plants;

(r) Sintering plants;

(s) Secondary metal production plants;

(t) Chemical process plants;

(u) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British Thermal Units per hour heat input;

(v) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(w) Taconite ore processing plants;

(x) Glass fiber processing plants;

(y) Charcoal production plants;

(z) Fossil fuel-fired steam electric plants of more than 250 million British Thermal Units per hour heat input;

(aa) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the federal Clean Air Act.

"Modification" means any planned change in a source which results in a potential increase of emission.

"National Ambient Air Quality Standards (NAAQS)" means the allowable concentrations of air pollutants in the ambient air specified by the Federal Government (Title 40, Code of Federal Regulations, Part 50).

"Net Emissions Increase" means the amount by which the sum of the following exceeds zero:

(1) any increase in actual emissions from a particular physical change or change in method of operation at a source; and

(2) any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable. For purposes of determining a "net emissions increase":

(a) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between the date five years before construction on the particular change commences; and the date that the increase from the particular change occurs.

(b) An increase or decrease in actual emissions is creditable only if it has not been relied on in issuing a prior approval for the source which approval is in effect when the increase in actual emissions for the particular change occurs.

(c) An increase or decrease in actual emission of sulfur dioxide, nitrogen oxides or particulate matter which occurs before an applicable minor source baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available. With respect to particulate matter, only PM10 emissions will be used to evaluate this increase or decrease.

(d) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

(e) A decrease in actual emissions is creditable only to the extent that:

(i) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

(ii) It is enforceable at and after the time that actual construction on the particular change begins; and

(iii) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

(iv) It has not been relied on in issuing any permit under R307-401 nor has it been relied on in demonstrating attainment or reasonable further progress.

(f) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

"New Installation" means an installation, construction of which began after the effective date of any regulation having application to it.

"Nonattainment Area" means an area designated by the Environmental Protection Agency as nonattainment under Section 107, Clean Air Act for any National Ambient Air Quality Standard. The designations for Utah are listed in 40 CFR 81.345.

"Offset" means an amount of emission reduction, by a source, greater than the emission limitation imposed on such source by these regulations and/or the State Implementation Plan.

"Opacity" means the capacity to obstruct the transmission of light, expressed as percent.

"Open Burning" means any burning of combustible materials resulting in emission of products of combustion into ambient air without passage through a chimney or stack.

"Owner or Operator" means any person who owns, leases, controls, operates or supervises a facility, an emission source, or air pollution control equipment.

"PSD" Area means an area designated as attainment or unclassifiable under section 107(d)(1)(D) or (E) of the federal Clean Air Act.

"PM2.5" means particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers as measured by an EPA reference or equivalent method.

"PM2.5 Precursor" means any chemical compound or substance which, after it has been emitted into the atmosphere, undergoes chemical or physical changes that convert it into particulate matter, specifically PM2.5, and has been identified in the applicable implementation plan for PM2.5 as significant for the purpose of developing control measures. Specifically, PM2.5 precursors include SO2, NOx, and VOC.

"PM10" means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by an EPA reference or equivalent method.

"PM10 Precursor" means any chemical compound or substance which, after it has been emitted into the atmosphere, undergoes chemical or physical changes that convert it into particulate matter, specifically PM10.

"Part 70 Source" means any source subject to the permitting requirements of R307-415.

"Person" means an individual, trust, firm, estate, company, corporation, partnership, association, state, state or federal agency or entity, municipality, commission, or political subdivision of a state. (Subsection 19-2-103(4)).

"Pollution Control Project" means any activity or project at an existing electric utility steam generating unit for purposes of reducing emissions from such unit. Such activities or projects are limited to:

(1) The installation of conventional or innovative pollution control technology, including but not limited to advanced flue gas desulfurization, sorbent injection for sulfur dioxide and nitrogen oxides controls and electrostatic precipitators;

(2) An activity or project to accommodate switching to a fuel which is less polluting than the fuel used prior to the activity or project, including, but not limited to natural gas or coal reburning, or the cofiring of natural gas and other fuels for the purpose of controlling emissions;

(3) A permanent clean coal technology demonstration project conducted under Title II, sec. 101(d) of the Further Continuing Appropriations Act of 1985 (sec. 5903(d) of title 42 of the United States Code), or subsequent appropriations, up to a total amount of $2,500,000,000 for commercial demonstration of clean coal technology, or similar projects funded through appropriations for the Environmental Protection Agency; or

(4) A permanent clean coal technology demonstration project that constitutes a repowering project.

"Potential to Emit" means the maximum capacity of a source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation or the effect it would have on emissions is enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

"Primary PM2.5" means the sum of filterable PM2.5 and condensable PM2.5.

"Process Level" means the operation of a source, specific to the kind or type of fuel, input material, or mode of operation.

"Process Rate" means the quantity per unit of time of any raw material or process intermediate consumed, or product generated, through the use of any equipment, source operation, or control apparatus. For a stationary internal combustion unit or any other fuel burning equipment, this term may be expressed as the quantity of fuel burned per unit of time.

"Reactivation of a Very Clean Coal-Fired Electric Utility Steam Generating Unit" means any physical change or change in the method of operation associated with the commencement of commercial operations by a coal-fired utility unit after a period of discontinued operation where the unit:

(1) Has not been in operation for the two-year period prior to the enactment of the Clean Air Act Amendments of 1990, and the emissions from such unit continue to be carried in the emission inventory at the time of enactment;

(2) Was equipped prior to shutdown with a continuous system of emissions control that achieves a removal efficiency for sulfur dioxide of no less than 85 percent and a removal efficiency for particulates of no less than 98 percent;

(3) Is equipped with low-NOx burners prior to the time of commencement of operations following reactivation; and

(4) Is otherwise in compliance with the requirements of the Clean Air Act.

"Reasonable Further Progress" means annual incremental reductions in emission of an air pollutant which are sufficient to provide for attainment of the NAAQS by the date identified in the State Implementation Plan.

"Refuse" means solid wastes, such as garbage and trash.

"Regulated air pollutant" means any of the following:

(a) Nitrogen oxides or any volatile organic compound;

(b) Any pollutant for which a national ambient air quality standard has been promulgated;

(c) Any pollutant that is subject to any standard promulgated under Section 111 of the Act, Standards of Performance for New Stationary Sources;

(d) Any Class I or II substance subject to a standard promulgated under or established by Title VI of the Act, Stratospheric Ozone Protection;

(e) Any pollutant subject to a standard promulgated under Section 112, Hazardous Air Pollutants, or other requirements established under Section 112 of the Act, including Sections 112(g), (j), and (r) of the Act, including any of the following:

(i) Any pollutant subject to requirements under Section 112(j) of the Act, Equivalent Emission Limitation by Permit. If the Administrator fails to promulgate a standard by the date established pursuant to Section 112(e) of the Act, any pollutant for which a subject source would be major shall be considered to be regulated on the date 18 months after the applicable date established pursuant to Section 112(e) of the Act;

(ii) Any pollutant for which the requirements of Section 112(g)(2) of the Act (Construction, Reconstruction and

Modification) have been met, but only with respect to the individual source subject to Section 112(g)(2) requirement.

"Repowering" means replacement of an existing coal-fired boiler with one of the following clean coal technologies: atmospheric or pressurized fluidized bed combustion, integrated gasification combined cycle, magnetohydrodynamics, direct and indirect coal-fired turbines, integrated gasification fuel cells, or as determined by the Administrator, in consultation with the Secretary of Energy, a derivative of one or more of these technologies, and any other technology capable of controlling multiple combustion emissions simultaneously with improved boiler or generation efficiency and with significantly greater waste reduction relative to the performance of technology in widespread commercial use as of November 15, 1990.

(1) Repowering shall also include any oil and/or gas-fired unit which has been awarded clean coal technology demonstration funding as of January 1, 1991, by the Department of Energy.

(2) The director shall give expedited consideration to permit applications for any source that satisfies the requirements of this definition and is granted an extension under section 409 of the Clean Air Act.

"Representative Actual Annual Emissions" means the average rate, in tons per year, at which the source is projected to emit a pollutant for the two-year period after a physical change or change in the method of operation of unit, (or a different consecutive two-year period within 10 years after that change, where the director determines that such period is more representative of source operations), considering the effect any such change will have on increasing or decreasing the hourly emissions rate and on projected capacity utilization. In projecting future emissions the director shall:

(1) Consider all relevant information, including but not limited to, historical operational data, the company's own representations, filings with the State of Federal regulatory authorities, and compliance plans under title IV of the Clean Air Act; and

(2) Exclude, in calculating any increase in emissions that results from the particular physical change or change in the method of operation at an electric utility steam generating unit, that portion of the unit's emissions following the change that could have been accommodated during the representative baseline period and is attributable to an increase in projected capacity utilization at the unit that is unrelated to the particular change, including any increased utilization due to the rate of electricity demand growth for the utility system as a whole.

"Residence" means a dwelling in which people live, including all ancillary buildings.

"Residential Solid Fuel Burning" device means any residential burning device except a fireplace connected to a chimney that burns solid fuel and is capable of, and intended for use as a space heater, domestic water heater, or indoor cooking appliance, and has an air-to-fuel ratio less than 35-to-1 as determined by the test procedures prescribed in 40 CFR 60.534. It must also have a useable firebox volume of less than 6.10 cubic meters or 20 cubic feet, a minimum burn rate less than 5 kilograms per hour or 11 pounds per hour as determined by test procedures prescribed in 40 CFR 60.534, and weigh less than 800 kilograms or 362.9 pounds. Appliances that are described as prefabricated fireplaces and are designed to accommodate doors or other accessories that would create the air starved operating conditions of a residential solid fuel burning device shall be considered as such. Fireplaces are not included in this definition for solid fuel burning devices.

"Road" means any public or private road.

"Salvage Operation" means any business, trade or industry engaged in whole or in part in salvaging or reclaiming any product or material, including but not limited to metals, chemicals, shipping containers or drums.

"Secondary Emissions" means emissions which would occur as a result of the construction or operation of a major source or major modification, but do not come from the major source or major modification itself.

Secondary emissions must be specific, well defined, quantifiable, and impact the same general area as the source or modification which causes the secondary emissions. Secondary emissions include emissions from any off-site support facility which would not be constructed or increase its emissions except as a result of the construction or operation of the major source or major modification. Secondary emissions do not include any emissions which come directly from a mobile source such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel.

Fugitive emissions and fugitive dust from the source or modification are not considered secondary emissions.

"Secondary PM2.5" means particles that form or grow in mass through chemical reactions in the ambient air well after dilution and condensation have occurred. Secondary PM2.5 is usually formed at some distance downwind from the source.

"Significant" means:

(1) In reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Carbon monoxide: 100 ton per year (tpy);
Nitrogen oxides: 40 tpy;
Sulfur dioxide: 40 tpy;
PM10: 15 tpy;
PM2.5: 10 tpy;
Particulate matter: 25 tpy;
Ozone: 40 tpy of volatile organic compounds;
Lead: 0.6 tpy.

"Solid Fuel" means wood, coal, and other similar organic material or combination of these materials.

"Solvent" means organic materials which are liquid at standard conditions (Standard Temperature and Pressure) and which are used as dissolvers, viscosity reducers, or cleaning agents.

"Source" means any structure, building, facility, or installation which emits or may emit any air pollutant subject to regulation under the Clean Air Act and which is located on one or more continuous or adjacent properties and which is under the control of the same person or persons under common control. A building, structure, facility, or installation means all of the pollutant-emitting activities which belong to the same industrial grouping. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e. which have the same two-digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (US Government Printing Office stock numbers 4101-0065 and 003-005-00176-0, respectively).

"Stack" means any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct but not including flares.

"Standards of Performance for New Stationary Sources" means the Federally established requirements for performance and record keeping (Title 40 Code of Federal Regulations, Part 60).

"State" means Utah State.

"Temporary" means not more than 180 calendar days.

"Temporary Clean Coal Technology Demonstration Project" means a clean coal technology demonstration project that is operated for a period of 5 years or less, and which complies with the Utah State Implementation Plan and other requirements necessary to attain and maintain the national ambient air quality standards during the project and after it is terminated.

"Threshold Limit Value - Ceiling (TLV-C)" means the airborne concentration of a substance which may not be exceeded, as adopted by the American Conference of Governmental Industrial Hygienists in its "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, (2009)."

"Threshold Limit Value - Time Weighted Average (TLV-TWA)" means the time-weighted airborne concentration of a substance adopted by the American Conference of Governmental Industrial Hygienists in its "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, (2009)."

"Total Suspended Particulate (TSP)" means minute separate particles of matter, collected by high volume sampler.

"Toxic Screening Level" means an ambient concentration of an air pollutant equal to a threshold limit value - ceiling (TLV- C) or threshold limit value -time weighted average (TLV-TWA) divided by a safety factor.

"Trash" means solids not considered to be highly flammable or explosive including, but not limited to clothing, rags, leather, plastic, rubber, floor coverings, excelsior, tree leaves, yard trimmings and other similar materials.

"Volatile Organic Compound (VOC)" means VOC as defined in 40 CFR 51.100(s), effective as of the date referenced in R307-101-3, is hereby adopted and incorporated by reference.

"Waste" means all solid, liquid or gaseous material, including, but not limited to, garbage, trash, household refuse, construction or demolition debris, or other refuse including that resulting from the prosecution of any business, trade or industry.

"Zero Drift" means the change in the instrument meter readout over a stated period of time of normal continuous operation when the VOC concentration at the time of measurement is zero.

KEY: air pollution, definitions

Date of Enactment or Last Substantive Amendment: 2015

Notice of Continuation: May 8, 2014

Authorizing, and Implemented or Interpreted Law: 19-2-104(1)(a)

R307. Environmental Quality, Air Quality.

R307-102. General Requirements: Broadly Applicable Requirements.

R307-102-1. Air Pollution Prohibited; Periodic Reports Required.

(1) Emission of air pollutants in sufficient quantities to cause air pollution as defined in R307-101-2 is prohibited. The State statute provides for penalties up to $50,000/day for violation of State statutes, regulations, rules or standards (See Section 19-2-115 for further details).

(2) Periodic Reports and Availability of Information. The owner or operator of any stationary air pollutant source in Utah shall furnish to the director the periodic reports required under Section 19-2-104(1)(c) and any other information as the director may deem necessary to determine whether the source is in compliance with Utah and Federal regulations and standards. The information thus obtained will be correlated with applicable emission standards or limitations and will be available to the public during normal business hours at the Division of Air Quality.

KEY: air pollution, confidentiality of information, variances

Date of Enactment or Last Substantive Amendment: 2015

Notice of Continuation: February 6, 2013

Authorizing, and Implemented or Interpreted Law: 19-2-104; 19-2-113

R307. Environmental Quality, Air Quality.

R307-150. Emission Inventories.

R307-150-1. Purpose and General Requirements.

(1) The purpose of R305-150 is:

(a) to establish by rule the time frame, pollutants, and information that sources must include in inventory submittals; and

(b) to establish consistent reporting requirements for stationary sources in Utah to determine whether sulfur dioxide emissions remain below the sulfur dioxide milestones established in the State Implementation Plan for Regional Haze, section XX.E.1.a, incorporated by reference in R307-110-28.

(2) The requirements of R307-150 replace any annual inventory reporting requirements in approval orders or operating permits issued prior to December 4, 2003.

(3) Emission inventories shall be submitted on or before ninety days following the effective date of this rule and thereafter on or before April 15 of each year following the calendar year for which an inventory is required. The inventory shall be submitted in a format specified by the Division of Air Quality following consultation with each source.

(4) The executive secretary may require at any time a full or partial year inventory upon reasonable notice to affected sources when it is determined that the inventory is necessary to develop a state implementation plan, to assess whether there is a threat to public health or safety or the environment, or to determine whether the source is in compliance with R307.

(5) Recordkeeping Requirements.

(a) Each owner or operator of a stationary source subject to this rule shall maintain a copy of the emission inventory submitted to the Division of Air Quality and records indicating how the information submitted in the inventory was determined, including any calculations, data, measurements, and estimates used. The records under R307-150-4 shall be kept for ten years. Other records shall be kept for a period of at least five years from the due date of each inventory.

(b) The owner or operator of the stationary source shall make these records available for inspection by any representative of the Division of Air Quality during normal business hours.

R307-150-2. Definitions.

The following additional definitions apply to R307-150.

"Acute pollutant" means any noncarcinogenic air pollutant for which a threshold limit value - ceiling (TLV-C) has been adopted by the American Conference of Governmental Industrial Hygienists in its "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices," 2003 edition.

"Carcinogenic pollutant" means any air pollutant that is classified as a known human carcinogen (A1) or suspected human carcinogen (A2) by the American Conference of Governmental Industrial Hygienists in its "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices," 2003 edition.

"Chronic Pollutant" means any noncarcinogenic air pollutant for which a threshold limit value - time weighted average (TLV-TWA) having no threshold limit value - ceiling (TLV-C) has been adopted by the American Conference of Governmental Industrial Hygienists in its "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices," 2003 edition.

"Dioxins" and "Furans" mean total tetra- through octachlorinated dibenzo-p-dioxins and dibenzofurans.

"Emissions unit" means emissions unit as defined in R307-415-3.

"Large Major Source" means a major source that emits or has the potential to emit 2500 tons or more per year of oxides of sulfur, oxides of nitrogen, or carbon monoxide, or that emits or has the potential to emit 250 tons or more per year of PM10, PM2.5, volatile organic compounds, or ammonia.

"Lead" means elemental lead and the portion of its compounds measured as elemental lead.

"Major Source" means major source as defined in R307-415-3.

R307-150-3. Applicability.

(1) R307-150-4 applies to all stationary sources with actual emissions of 100 tons or more per year of sulfur dioxide in calendar year 2000 or any subsequent year unless exempted in (a) below. Sources subject to R307-150-4 may be subject to other sections of R307-150.

(a) A stationary source that meets the requirements of R307-150-3(1) that has permanently ceased operation is exempt from the requirements of R307-150-4 for all years during which the source did not operate at any time during the year.

(b) Except as provided in (a) above, any source that meets the criteria of R307-150-3(1) and that emits less than 100 tons per year of sulfur dioxide in any subsequent year shall remain subject to the requirements of R307-150-4 until 2018 or until the first control period under the Western Backstop Sulfur Dioxide Trading Program as established in R307-250-12(1)(a), whichever is earlier.

(2) R307-150-5 applies to large major sources.

(3) R307-150-6 applies to:

(a) each major source that is not a large major source;

(b) each source with the potential to emit 5 tons or more per year of lead; and

(c) each source not included in (2) or (3)(a) or (3)(b) above that is located in Davis, Salt Lake, Utah, or Weber Counties and that has the potential to emit 25 tons or more per year of any combination of oxides of nitrogen, oxides of sulfur and PM10, or the potential to emit 10 tons or more per year of volatile organic compounds.

(4) R307-150-7 applies to Part 70 sources not included in (2) or (3) above.

R307-150-4. Sulfur Dioxide Milestone Inventory Requirements.

(1) Annual Sulfur Dioxide Emission Report.

(a) Sources identified in R307-150-3(1) shall submit an annual inventory of sulfur dioxide emissions beginning with calendar year 2003 for all emissions units including fugitive emissions.

(b) The inventory shall include the rate and period of emissions, excess or breakdown emissions, startup and shut down emissions, the specific emissions unit that is the source of the air pollution, type and efficiency of the air pollution control equipment, percent of sulfur content in fuel and how the percent is calculated, and other information necessary to quantify operation and emissions and to evaluate pollution control efficiency. The emissions of a pollutant shall be calculated using the source's actual operating hours, production rates, and types of materials processed, stored, or combusted during the inventoried time period.

(2) Each source subject to R307-150-4 that is also subject to 40 CFR Part 75 reporting requirements shall submit a summary report of annual sulfur dioxide emissions that were reported to the Environmental Protection Agency under 40 CFR Part 75 in lieu of the reporting requirements in (1) above.

(3) Changes in Emission Measurement Techniques. Each source subject to R307-150-4 that uses a different emission monitoring or calculation method than was used to report their sulfur dioxide emissions in 2006 under R307-150 or 40 CFR Part 75 shall adjust their reported emissions to be comparable to the emission monitoring or calculation method that was used in 2006. The calculations that are used to make this adjustment shall be included with the annual emission report.

R307-150-5. Sources Identified in R307-150-3(2), Large Major Source Inventory Requirements.

(1) Each large major source shall submit an emission inventory annually beginning with calendar year 2002. The inventory shall include PM10, PM2.5, oxides of sulfur, oxides of nitrogen, carbon monoxide, volatile organic compounds, and ammonia for all emissions units including fugitive emissions.

(2) For every third year beginning with 2005, the inventory shall also include all other chargeable pollutants and hazardous air pollutants not exempted in R307-150-8.

(3) For each pollutant specified in (1) or (2) above, the inventory shall include the rate and period of emissions, excess or breakdown emissions, startup and shut down emissions, the specific emissions unit that is the source of the air pollution, composition of air pollutant, type and efficiency of the air pollution control equipment, and other information necessary to quantify operation and emissions and to evaluate pollution control efficiency. The emissions of a pollutant shall be calculated using the source's actual operating hours, production rates, and types of materials processed, stored, or combusted during the inventoried time period.

R307-150-6. Sources Identified in R307-150-3(3).

(1) Each source identified in R307-150-3(3) shall submit an inventory every third year beginning with calendar year 2002 for all emissions units including fugitive emissions.

(a) The inventory shall include PM10, PM2.5, oxides of sulfur, oxides of nitrogen, carbon monoxide, volatile organic compounds, ammonia, other chargeable pollutants, and hazardous air pollutants not exempted in R307-150-8.

(b) For each pollutant, the inventory shall include the rate and period of emissions, excess or breakdown emissions, startup and shut down emissions, the specific emissions unit which is the source of the air pollution, composition of air pollutant, type and efficiency of the air pollution control equipment, and other information necessary to quantify operation and emissions and to evaluate pollution control efficiency. The emissions of a pollutant shall be calculated using the source's actual operating hours, production rates, and types of materials processed, stored, or combusted during the inventoried time period.

(2) Sources identified in R307-150-3(3) shall submit an inventory for each year after 2002 in which the total amount of PM10, oxides of sulfur, oxides of nitrogen, carbon monoxide, or volatile organic compounds increases or decreases by 40 tons or more per year from the most recently submitted inventory. For each pollutant, the inventory shall meet the requirements of R307-150-6(1)(a) and (b).

R307-150-7. Sources Identified in R307-150-3(4), Other Part 70 Sources.

(1) Sources identified in R307-150-3(4) shall submit the following emissions inventory every third year beginning with calendar year 2002 for all emission units including fugitive emissions.

(2) Sources identified in R307-150-3(4) shall submit an inventory for each year after 2002 in which the total amount of PM10, oxides of sulfur, oxides of nitrogen, carbon monoxide, or volatile organic compounds increases or decreases by 40 tons or more per year from the most recently submitted inventory.

(3) The emission inventory shall include individual pollutant totals of all chargeable pollutants not exempted in R307-150-8.

R307-150-8. Exempted Hazardous Air Pollutants.

(1) The following air pollutants are exempt from this rule if they are emitted in an amount less than that listed in Table 1.

TABLE 1

POLLUTANT	Pounds/year
Arsenic	0.21
Benzene	33.90
Beryllium	0.04
Ethylene oxide	38.23
Formaldehyde	5.83

(2) Hazardous air pollutants, except for dioxins or furans, are exempt from being reported if they are emitted in an amount less than the smaller of the following:

(a) 500 pounds per year; or

(b) for acute pollutants, the applicable TLV-C expressed in milligrams per cubic meter and multiplied by 15.81 to obtain the pounds-per-year threshold; or

(c) for chronic pollutants, the applicable TLV-TWA expressed in milligrams per cubic meter and multiplied by 21.22 to obtain the pounds-per-year threshold; or

(d) for carcinogenic pollutants, the applicable TLV-C or TLV-TWA expressed in milligrams per cubic meter and multiplied by 7.07 to obtain the pounds-per-year threshold.

KEY: air pollution, reports, inventories
Date of Enactment or Last Substantive Amendment: 2015
Notice of Continuation: January 28, 2014
Authorizing, and Implemented or Interpreted Law: 19-2-104(1)(c)

R307-201-3. Visible Emissions Standards.

(1) Visible emissions from installations constructed on or before April 25, 1971, except diesel engines, shall be of a shade or density no darker than 40% opacity, except as otherwise provided in these rules.

(2) Visible emissions from installations constructed after April 25, 1971, except diesel engines shall be of a shade or density no darker than 20% opacity, except as otherwise provided in these rules.

(3) Visible emissions for all incinerators, no matter when constructed, shall be of shade or density no darker than 20% opacity.

(4) No owner or operator of a gasoline powered engine or vehicle shall allow, cause or permit visible emissions.

(5) Emissions from diesel engines, except locomotives, manufactured after January 1, 1973, shall be of a shade or density no darker than 20% opacity, except for starting motion no farther than 100 yards or for stationary operation not exceeding three minutes in any hour.

(6) Emissions from diesel engines manufactured before January 1, 1973, shall be of a shade or density no darker than 40% opacity, except for starting motion no farther than 100 yards or for stationary operation not exceeding three minutes in any hour.

(7) Visible emissions exceeding the opacity standards for short time periods as the result of initial warm-up, soot blowing, cleaning of grates, building of boiler fires, cooling, etc., caused by start-up or shutdown of a facility, installation or operation, or unavoidable combustion irregularities which do not exceed three minutes in length (unavoidable combustion irregularities which exceed three minutes in length must be handled in accordance with R307-107), shall not be deemed in violation provided that the director finds that adequate control technology has been applied. The owner or operator shall minimize visible and non-visible emissions during start-up or shutdown of a facility, installation, or operation through the use of adequate control technology and proper procedures.

(8) Compliance Method. Emissions shall be brought into compliance with these requirements by reduction of the total weight of pollutants discharged per unit of time rather than by dilution of emissions with clean air.

(9) Opacity Observation. Opacity observations of emissions from stationary sources shall be conducted in accordance with EPA Method 9. Opacity observers of mobile sources and intermittent sources shall use procedures similar to Method 9, but the requirement for observations to be made at 15 second intervals over a 6-minute period shall not apply.

KEY: air pollution, PM10
Date of Enactment or Last Substantive Amendment: 2015
Notice of Continuation: February 5, 2015
Authorizing, and Implemented or Interpreted Law: 19-2-101; 19-2-104

R307. Environmental Quality, Air Quality.
R307-206. Emission Standards: Abrasive Blasting.
R307-206-1. Purpose.

R307-206 establishes work practice and emission standards for abrasive blasting operations for sources located statewide except for those sources listed in section IX, Part H of the state implementation plan or located in a PM10 nonattainment or maintenance area.

R307-206-2. Definitions.

(1) The following additional definitions apply to R307-206:

"Abrasive Blasting" means the operation of cleaning or preparing a surface by forcibly propelling a stream of abrasive material against the surface.

"Abrasive Blasting Equipment" means any equipment utilized in abrasive blasting operations.

"Confined Blasting" means any abrasive blasting conducted in an enclosure which significantly restricts air pollutants from being emitted to the ambient atmosphere, including but not limited to shrouds, tanks, drydocks, buildings and structures.

"Multiple Nozzles" means a group of two or more nozzles being used for abrasive cleaning of the same surface in such close proximity that their separate plumes are indistinguishable.

"Unconfined Blasting" means any abrasive blasting which is not confined blasting as defined above.

R307-206-3. Applicability.

R307-206 applies statewide to any abrasive blasting operation, except for any source that is listed in Section IX, Part H of the state implementation plan or that is located in a PM10 nonattainment or maintenance area.

R307-206-4. Visible Emission Standards.

Visible emissions from abrasive blasting operations shall not exceed 40% opacity, except for an aggregate period of three minutes in any one hour.

R307-206-5. Visible Emission Evaluation Techniques.

(1) Visible emissions shall be measured using EPA Method 9. Visible emissions from intermittent sources shall use procedures similar to Method 9, but the requirement for observations to be made at 15 second intervals over a six-minute period shall not apply.

(2) Visible emissions from unconfined blasting shall be measured at the densest point of the emission after a major portion of the spent abrasive has fallen out, at a point not less than five feet nor more than twenty-five feet from the impact

surface from any single abrasive blasting nozzle.

(3) An unconfined blasting operation that uses multiple nozzles shall be considered a single source unless it can be demonstrated by the owner or operator that each nozzle, measured separately, meets the emission and performance standards provided in R307-206-2 through 4.

(4) Visible emissions from confined blasting shall be measured at the densest point after the air pollutant leaves the enclosure.

KEY: air pollution, abrasive blasting, PM10
Date of Enactment or Last Substantive Amendment: 2015
Notice of Continuation: February 5, 2015
Authorizing, and Implemented or Interpreted Law: 19-2-104(1)(a)

R307. Environmental Quality, Air Quality.

R307-303. Commercial Cooking.

R307-303-1. Purpose.

The purpose of this rule is to reduce volatile organic compound (VOC) and PM2.5 emissions from commercial cooking equipment.

R307-303-2. Applicability.

R307-303 shall apply to Box Elder, Cache, Davis, Salt Lake, Tooele, Utah and Weber counties.

R307-303-3. Definitions.

"Catalytic oxidizer" means an emission control device that employs a catalyst fixed onto a substrate to oxidize air pollutants in an exhaust stream.

"Chain-driven charbroiler" means a semi-enclosed charbroiler designed to mechanically move food on a grated grill through the broiler.

"Charbroiler" means a cooking device composed of a grated grill and a heat source, where food resting on the grated grill cooks as the food receives direct heat from the heat source or a radiant surface.

R307-303-4. Performance Standards and Recordkeeping.

(1) Owners or operators of all chain-driven charbroilers in food service establishments shall install, maintain and operate a catalytic oxidizer.

(2) Any emission control device installed and operated under this rule shall be operated, cleaned, and maintained in accordance with the manufacturer's specifications. Manufacturer specifications for all emission controls must be maintained onsite.

(3) The owner or operator shall maintain on the premises of the food service establishment records of each of the following:

(a) The date of installation of the emission control device;

(b) When applicable, the date of the catalyst replacement; and

(c) For a minimum of five years, the date, time, and a brief description of all maintenance performed on the emission control device, including, but not limited to, preventative maintenance, breakdown repair, and cleaning.

(4) Opacity of exhaust stream shall not exceed 20% opacity using EPA Method 9.

KEY: commercial cooking, charbroilers, PM2.5, VOC

Date of Enactment or Last Substantive Amendment: 2015

Authorizing, and Implemented or Interpreted Law: 19-2-101

R307. Environmental Quality, Air Quality.

R307-305. Nonattainment and Maintenance Areas for PM10: Emission Standards.

R307-305-3. Visible Emissions.

(1) Visible emissions from existing installations except diesel engines shall be of a shade or density no darker than 20% opacity. Visible emissions shall be measured using EPA Method 9.

(2) No owner or operator of a gasoline engine or vehicle shall allow, cause or permit the emissions of visible pollutants.

(3) Emissions from diesel engines, except locomotives, shall be of a shade or density no darker than 20% opacity, except for starting motion no farther than 100 yards or for stationary operation not exceeding three minutes in any hour.

(4) Visible emissions exceeding the opacity standards for short time periods as the result of initial warm-up, soot blowing, cleaning of grates, building of boiler fires, cooling, etc., caused by start-up or shutdown of a facility, installation or operation, or unavoidable combustion irregularities which do not exceed three minutes in length (unavoidable combustion irregularities which exceed three minutes in length must be handled in accordance with R307-107), shall not be deemed in violation provided that the director finds that adequate control technology has been applied. The owner or operator shall minimize visible and non-visible emissions during start-up or shutdown of a facility, installation, or operation through the use of adequate control technology and proper procedures.

KEY: air pollution, particulate matter, PM10, PM 2.5

Date of Enactment or Last Substantive Amendment: 2015

Notice of Continuation: February 5, 2015

Authorizing, and Implemented or Interpreted Law: 19-2-104(1)(a)

R307. Environmental Quality, Air Quality.

R307-306. PM10 Nonattainment and Maintenance Areas: Abrasive Blasting.

R307-306-1. Purpose.

This rule establishes requirements that apply to abrasive blasting operations in PM10 nonattainment and maintenance areas.

R307-306-2. Definitions.

The following additional definitions apply to R307-306.

"Abrasive Blasting" means the operation of cleaning or preparing a surface by forcibly propelling a stream of abrasive material against the surface.

"Abrasive Blasting Equipment" means any equipment used in abrasive blasting operations.

"Abrasives" means any material used in abrasive blasting operations including but not limited to sand, slag, steel shot, garnet or walnut shells.

"Confined Blasting" means any abrasive blasting conducted in an enclosure that significantly restricts air pollutants from being emitted to the ambient atmosphere, including but not limited to shrouds, tanks, drydocks, buildings and structures.

"Hydroblasting" means any abrasive blasting using high pressure liquid as the propelling force.

"Multiple Nozzles" means a group of two or more nozzles used for abrasive cleaning of the same surface in such close proximity that their separate plumes are indistinguishable.

"Unconfined Blasting" means any abrasive blasting that is not confined blasting as defined above.

"Wet Abrasive Blasting" means any abrasive blasting using compressed air as the propelling force and sufficient water to minimize the plume.

R307-306-3. Applicability.

R307-306 applies to any person who operates abrasive blasting equipment in a PM10 nonattainment or maintenance area, or to sources listed in Section IX, Part H of the state implementation plan.

R307-306-4. Visible Emission Standard.

(1) Except as provided in (2) below, visible emissions from abrasive blasting operations shall not exceed 20% opacity except for an aggregate period of three minutes in any one hour.

(2) If the abrasive blasting operation complies with the performance standards in R307-306-6, visible emissions from the operation shall not exceed 40% opacity, except for an aggregate period of 3 minutes in any one hour.

R307-306-5. Visible Emission Evaluation Techniques.

(1) Visible emissions shall be measured using EPA Method 9. Visible emissions from intermittent sources shall use procedures similar to Method 9, but the requirement for observations to be made at 15 second intervals over a six minute period shall not apply.

(2) Visible emissions from unconfined blasting shall be measured at the densest point of the emission after a major portion of the spent abrasive has fallen out at a point not less than five feet nor more than twenty-five feet from the impact surface from any single abrasive blasting nozzle.

(3) An unconfined blasting operation that uses multiple nozzles shall be considered a single source unless it can be demonstrated by the owner or operator that each nozzle, measured separately, meets the visible emission standards in R307-306-4.

(4) Emissions from confined blasting shall be measured at the densest point after the air pollutant leaves the enclosure.

R307-306-6. Performance Standards.

(1) To satisfy the requirements of R307-306-4(2), the abrasive blasting operation shall use at least one of the following performance standards:

(a) confined blasting;

(b) wet abrasive blasting;

(c) hydroblasting; or

(d) unconfined blasting using abrasives as defined in (2) below.

(2) Abrasives.

(a) Abrasives used for dry unconfined blasting referenced in (1) above shall comply with the following performance standards:

(i) Before blasting, the abrasive shall not contain more than 1% by weight material passing a #70 U.S. Standard sieve.

(ii) After blasting the abrasive shall not contain more than 1.8% by weight material 5 microns or smaller.

(b) Abrasives reused for dry unconfined blasting are exempt from (a)(ii) above, but must conform with (a)(i) above.

(3) Abrasive Certification. Sources using the performance standard of (1)(d) above to meet the requirements of R307-306-4(2) must demonstrate they have obtained abrasives from a supplier who has certified (submitted test results) to the director at least annually that such abrasives meet the requirements of (2) above.

R307-306-7. Compliance Schedule.

The provisions of R307-306 shall apply in any new PM10 nonattainment area 180 days after the area is officially designated a nonattainment area for PM10 by the Environmental Protection Agency. Provisions of R307-206 shall continue to apply to the owner or operator of a source during this transition period.

KEY: air pollution, abrasive blasting, PM10
Date of Enactment or Last Substantive Amendment: 2015
Notice of Continuation: February 5, 2015
Authorizing, and Implemented or Interpreted Law: 19-2-101(1)(a)

R307. Environmental Quality, Air Quality.
R307-401. Permit: New and Modified Sources.
R307-401-1. Purpose.

This rule establishes the application and permitting requirements for new installations and modifications to existing installations throughout the State of Utah. Additional permitting requirements apply to larger installations or installations located in nonattainment or maintenance areas. These additional requirements can be found in R307-403, R307-405, R307-406, R307-420, and R307-421. Modeling requirements in R307-410 may also apply. Each of the permitting rules establishes independent requirements, and the owner or operator must comply with all of the requirements that apply to the installation. Exemptions under R307-401 do not affect applicability of the other permitting rules.

R307-401-2. Definitions.

(1) The following additional definitions apply to R307-401.

"Actual emissions" (a) means the actual rate of emissions of an air pollutant from an emissions unit, as determined in accordance with paragraphs (b) through (d) below.

(b) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the air pollutant during a consecutive 24-month period which precedes the particular date and which is representative of normal source operation. The director shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

(c) The director may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(d) For any emissions unit that has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

"Best available control technology" means an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each air pollutant which would be emitted from any proposed stationary source or modification which the director, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR parts 60 and 61. If the director determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.

"Building, structure, facility, or installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same Major Group (i.e., which have the same two-digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively).

"Construction" means any physical change or change in the method of operation (including fabrication, erection, installation, demolition, or modification of an emissions unit) that would result in a change in emissions.

"Emissions unit" means any part of a stationary source that emits or would have the potential to emit any air pollutant.

"Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

"Indirect source" means a building, structure, facility or installation which attracts or may attract mobile source activity that results in emission of a pollutant for which there is a national standard.

"Potential to emit" means the maximum capacity of a stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

"Secondary emissions" means emissions which occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. Secondary emissions include emissions from any offsite support facility which would not be constructed or increase its emissions except as a result of the construction or operation of the major stationary source or major modification. Secondary emissions do not include any emissions which come directly from a mobile source, such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel.

"Stationary source" means any building, structure, facility, or installation which emits or may emit an air pollutant.

R307-401-3. Applicability.

(1) R307-401 applies to any person intending to:

(a) construct a new installation which will or might reasonably be expected to become a source or an indirect source of air pollution, or

(b) make modifications or relocate an existing installation which will or might reasonably be expected to increase the amount or change the effect of, or the character of, air pollutants discharged, so that such installation may be expected to become a source or indirect source of air pollution, or

(c) install a control apparatus or other equipment intended to control emissions of air pollutants.

(2) R307-403, R307-405 and R307-406 may establish additional permitting requirements for new or modified sources.

(a) Exemptions contained in R307-401 do not affect applicability or other requirements under R307-403, R307-405 or R307-406.

(b) Exemptions contained in R307-403, R307-405 or R307-406 do not affect applicability or other requirements under R307-401, unless specifically authorized in this rule.

R307-401-4. General Requirements.

The general requirements in (1) through (3) below apply to all new and modified installations, including installations that are exempt from the requirement to obtain an approval order.

(1) Any control apparatus installed on an installation shall be adequately and properly maintained.

(2) If the director determines that an exempted installation is not meeting an approval order or State Implementation Plan limitation, is creating an adverse impact to the environment, or would be injurious to human health or welfare, then the director may require the owner or operator to submit a notice of intent and obtain an approval order in accordance with R307-401-5 through

R307-401-8. The director will complete an appropriate analysis and evaluation in consultation with the owner or operator before determining that an approval order is required.

(3) Low Oxides of Nitrogen Burner Technology.

(a) Except as provided in (b) below, whenever existing fuel combustion burners are replaced, the owner or operator shall install low oxides of nitrogen burners or equivalent oxides of nitrogen controls, as determined by the director, unless such equipment is not physically practical or cost effective. The owner or operator shall submit a demonstration that the equipment is not physically practical or cost effective to the director for review and approval prior to beginning construction.

(b) The provisions of (a) above do not apply to non-commercial, residential buildings.

R307-401-5. Notice of Intent.

(1) Except as provided in R307-401-9 through R307-401-17, any person subject to R307-401 shall submit a notice of intent to the director and receive an approval order prior to initiation of construction, modification or relocation. The notice of intent shall be in a format specified by the director.

(2) The notice of intent shall include the following information:

(a) A description of the nature of the processes involved; the nature, procedures for handling and quantities of raw materials; the type and quantity of fuels employed; and the nature and quantity of finished product.

(b) Expected composition and physical characteristics of effluent stream both before and after treatment by any control apparatus, including emission rates, volume, temperature, air pollutant types, and concentration of air pollutants.

(c) Size, type and performance characteristics of any control apparatus.

(d) An analysis of best available control technology for the proposed source or modification. When determining best available control technology for a new or modified source in an ozone nonattainment or maintenance area that will emit volatile organic compounds or nitrogen oxides, the owner or operator of the source shall consider EPA Control Technique Guidance (CTG) documents and Alternative Control Technique documents that are applicable to the source. Best available control technology shall be at least as stringent as any published CTG that is applicable to the source.

(e) Location and elevation of the emission point and other factors relating to dispersion and diffusion of the air pollutant in relation to nearby structures and window openings, and other information necessary to appraise the possible effects of the effluent.

(f) The location of planned sampling points and the tests of the completed installation to be made by the owner or operator when necessary to ascertain compliance.

(g) The typical operating schedule.

(h) A schedule for construction.

(i) Any plans, specifications and related information that are in final form at the time of submission of notice of intent.

(j) Any additional information required by:

(i) R307-403, Permits: New and Modified Sources in Nonattainment Areas and Maintenance Areas;

(ii) R307-405, Permits: Major Sources in Attainment or Unclassified Areas (PSD);

(iii) R307-406, Visibility;

(iv) R307-410, Emissions Impact Analysis;

(v) R307-420, Permits: Ozone Offset Requirements in Davis and Salt Lake Counties; or

(vi) R307-421, Permits: PM10 Offset Requirements in Salt Lake County and Utah County.

(k) Any other information necessary to determine if the proposed source or modification will be in compliance with Title R307.

(3) Notwithstanding the exemption in R307-401-9 through 16, any person that is subject to R307-403, R307-405, or R307-406 shall submit a notice of intent to the director and receive an approval order prior to initiation of construction, modification, or relocation.

R307-401-6. Review Period.

(1) Completeness Determination. Within 30 days after receipt of a notice of intent, or any additional information necessary to the review, the director will advise the applicant of any deficiency in the notice of intent or the information submitted.

(2) Within 90 days of receipt of a complete application including all the information described in R307- 401-5, the director will

(a) issue an approval order for the proposed construction, installation, modification, relocation, or establishment pursuant to the requirements of R307-401-8, or

(b) issue an order prohibiting the proposed construction, installation, modification, relocation or establishment if it is deemed that any part of the proposal is inadequate to meet the applicable requirements of R307.

(3) The review period under (2) above may be extended by up to three 30-day extensions if more time is needed to review the proposal.

R307-401-7. Public Notice.

(1) Issuing the Notice. Prior to issuing an approval or disapproval order, the director will advertise intent to approve or disapprove in a newspaper of general circulation in the locality of the proposed construction, installation, modification, relocation or establishment.

(2) Opportunity for Review and Comment.

(a) At least one location will be provided where the information submitted by the owner or operator, the director's analysis of the notice of intent proposal, and the proposed approval order conditions will be available for public inspection.

(b) Public Comment.

(i) A 30-day public comment period will be established.

(ii) A request to extend the length of the comment period, up to 30 days, may be submitted to the director within 15 days of the date the notice in R307-401-7(1) is published.

(iii) Public Hearing. A request for a hearing on the proposed approval or disapproval order may be submitted to the director within 15 days of the date the notice in R307-401-7(1) is published.

(iv) The hearing will be held in the area of the proposed construction, installation, modification, relocation or establishment.

(v) The public comment and hearing procedure shall not be required when an order is issued for the purpose of extending the time required by the director to review plans and specifications.

(3) The director will consider all comments received during the public comment period and at the public hearing and, if appropriate, will make changes to the proposal in response to comments before issuing an approval order or disapproval order.

R307-401-8. Approval Order.

(1) The director will issue an approval order if the following conditions have been met:

(a) The degree of pollution control for emissions, to include fugitive emissions and fugitive dust, is at least best available control technology. When determining best available control technology for a new or modified source in an ozone nonattainment or maintenance area that will emit volatile organic compounds or nitrogen oxides, best available control technology shall be at least as stringent as any Control Technique Guidance document that has been published by EPA that is applicable to the source.

(b) The proposed installation will meet the applicable requirements of:

(i) R307-403, Permits: New and Modified Sources in Nonattainment Areas and Maintenance Areas;

(ii) R307-405, Permits: Major Sources in Attainment or Unclassified Areas (PSD);

(iii) R307-406, Visibility;

(iv) R307-410, Emissions Impact Analysis;

(v) R307-420, Permits: Ozone Offset Requirements in Davis and Salt Lake Counties;

(vi) R307-210, National Standards of Performance for New Stationary Sources;

(vii) National Primary and Secondary Ambient Air Quality Standards;

(viii) R307-214, National Emission Standards for Hazardous Air Pollutants;

(ix) R307-110, Utah State Implementation Plan; and

(x) all other provisions of R307.

(2) The approval order will require that all pollution control equipment be adequately and properly maintained.

(3) Receipt of an approval order does not relieve any owner or operator of the responsibility to comply with the provisions of R307 or the State Implementation Plan.

(4) To accommodate staged construction of a large source, the director may issue an order authorizing construction of an initial stage prior to receipt of detailed plans for the entire proposal provided that, through a review of general plans, engineering reports and other information the proposal is determined feasible by the director under the intent of R307. Subsequent detailed plans will then be processed as prescribed in this paragraph. For staged construction projects the previous determination under R307-401-8(1) and (2) will be reviewed and modified as appropriate at the earliest reasonable time prior to commencement of construction of each independent phase of the proposed source or modification.

(5) If the director determines that a proposed stationary source, modification or relocation does not meet the conditions established in (1) above, the director will not issue an approval order.

R307-401-9. Small Source Exemption.

(1) A small stationary source is exempted from the requirement to obtain an approval order in R307-401-5 through 8 if the following conditions are met.

(a) its actual emissions are less than 5 tons per year per air pollutant of any of the following air pollutants: sulfur dioxide, carbon monoxide, nitrogen oxides, PM_{10}, ozone, or volatile organic compounds;

(b) its actual emissions are less than 500 pounds per year of any hazardous air pollutant and less than 2000 pounds per year of any combination of hazardous air pollutants;

(c) its actual emissions are less than 500 pounds per year of any air pollutant not listed in (a)(or (b) above and less than 2000 pounds per year of any combination of air pollutants not listed in (a) or (b) above.

(d) Air pollutants that are drawn from the environment through equipment in intake air and then are released back to the environment without chemical change, as well as carbon dioxide, nitrogen, oxygen, argon, neon, helium, krypton, xenon should not be included in emission calculations when determining applicability under (a) through (c) above.

(2) The owner or operator of a source that is exempted from the requirement to obtain an approval order under (1) above shall no longer be exempt if actual emissions in any subsequent year exceed the emission thresholds in (1) above. The owner or operator shall submit a notice of intent under R307-401-5 no later than 180 days after the end of the calendar year in which the source exceeded the emission threshold.

(3) Small Source Exemption - Registration. The director will maintain a registry of sources that are claiming an exemption under R307-401-9. The owner or operator of a stationary source that is claiming an exemption under R307-401-9 may submit a written registration notice to the director. The notice shall include the following minimum information:

(a) identifying information, including company name and address, location of source, telephone number, and name of plant site manager or point of contact;

(b) a description of the nature of the processes involved, equipment, anticipated quantities of materials used, the type and quantity of fuel employed and nature and quantity of the finished product;

(c) identification of expected emissions;

(d) estimated annual emission rates;

(e) any control apparatus used; and

(f) typical operating schedule.

(4) An exemption under R307-401-9 does not affect the requirements of R307-401-17, Temporary Relocation.

(5) A stationary source that is not required to obtain a permit under R307-405 for greenhouse gases, as defined in R307-405-3(9)(a), is not required to obtain an approval order for greenhouse gases under R307-401. This exemption does not affect the requirement to obtain an approval order for any other air pollutant emitted by the stationary source.

R307-401-10. Source Category Exemptions.

The following source categories described in (1) through (5) below are exempted from the requirement to obtain an approval order. The general provisions in R307-401-4 shall apply to these sources.

(1) Fuel-burning equipment in which combustion takes place at no greater pressure than one inch of mercury above ambient pressure with a rated capacity of less than five million BTU per hour using no other fuel than natural gas or LPG or other mixed gas that meets the standards of gas distributed by a utility in accordance with the rules of the Public Service Commission of the State of Utah, unless there are emissions other than combustion products.

(2) Comfort heating equipment such as boilers, water heaters, air heaters and steam generators with a rated capacity of less than one million BTU per hour if fueled only by fuel oil numbers 1 - 6,

(3) Emergency heating equipment, using coal or wood for fuel, with a rated capacity less than 50,000 BTU per hour.

(4) Exhaust systems for controlling steam and heat that do not contain combustion products.

R307-401-11. Replacement-in-Kind Equipment.

(1) Applicability. Existing process equipment or pollution control equipment that is covered by an existing approval order or State Implementation Plan requirement may be replaced using the procedures in (2) below if:

(a) the potential to emit of the process equipment is the same or lower;

(b) the number of emission points or emitting units is the same or lower;

(c) no additional types of air pollutants are emitted as a result of the replacement;

(d) the process equipment or pollution control equipment is identical to or functionally equivalent to the replaced equipment;

(e) the replacement does not change the basic design parameters of the process unit or pollution control equipment;

(f) the replaced process equipment or pollution control equipment is permanently removed from the stationary source, otherwise permanently disabled, or permanently barred from operation;

(g) the replacement process equipment or pollution control equipment does not trigger New Source Performance Standards or National Emissions Standards for Hazardous Air Pollutants under 42 U.S.C. 7411 or 7412; and

(h) the replacement of the control apparatus or process equipment does not violate any other provision of Title R307.

(2) Replacement-in-Kind Procedures.

(a) In lieu of filing a notice of intent under R307-401-5, the owner or operator of a stationary source shall submit a written notification to the director before replacing the equipment. The notification shall contain a description of the replacement-in-kind equipment, including the control capability of any control apparatus and a demonstration that the conditions of (1) above are met.

(b) If the replacement-in-kind meets the conditions of (1) above, the director will update the source's approval order and notify the owner or operator. Public review under R307-401-7 is not required for the update to the approval order.

(3) If the replaced process equipment or pollution control equipment is brought back into operation, it shall constitute a new emissions unit.

R307-401-12. Reduction in Air Pollutants.

(1) Applicability. The owner or operator of a stationary source of air pollutants that reduces or eliminates air pollutants is exempt from the requirement to submit a notice of intent and obtain an approval order prior to construction if:

(a) the project does not increase the potential to emit of any air pollutant or cause emissions of any new air pollutant, and

(b) the director is notified of the change and the reduction of air pollutants is made enforceable through an approval order in accordance with (2) below.

(2) Notification. The owner or operator shall submit a written description of the project to the director no later than 60 days after the changes are made. The director will update the source's approval order or issue a new approval order to include the project and to make the emission reductions enforceable. Public review under R307-401-7 is not required for the update to the approval order.

R307-401-13. Plantwide Applicability Limits.

A plantwide applicability limit under R307-405-21 does not exempt a stationary source from the requirements of R307-401.

R307-401-14. Used Oil Fuel Burned for Energy Recovery.

(1) Definitions.

"Boiler" means boiler as defined in R315-1-1(b).

"Used Oil" is defined as any oil that has been refined from crude oil, used, and, as a result of such use contaminated by physical or chemical impurities.

(2) Boilers burning used oil for energy recovery are exempted from the requirement to obtain an approval order in R307-401-5 through 8 if the following requirements are met:

(a) the heat input design is less than one million BTU/hr;

(b) contamination levels of all used oil to be burned do not exceed any of the following values:

(i) arsenic - 5 ppm by weight,
(ii) cadmium - 2 ppm by weight,
(iii) chromium - 10 ppm by weight,
(iv) lead - 100 ppm by weight,
(v) total halogens - 1,000 ppm by weight,
(vi) Sulfur - 0.50% by weight; and

(c) the flash point of all used oil to be burned is at least 100 degrees Fahrenheit.

(3) Testing. The owner or operator shall test each load of used oil received or generated as directed by the director to ensure it meets these requirements. Testing may be performed by the owner/operator or documented by test reports from the used fuel oil vendor. The flash point shall be measured using the appropriate ASTM method as required by the director. Records for used oil consumption and test reports are to be kept for all periods when fuel-burning equipment is in operation. The records shall be kept on site and made available to the director or the director's representative upon request. Records must be kept for a three-year period.

R307-401-15. Air Strippers and Soil Venting Projects.

(1) The owner or operator of an air stripper or soil venting system that is used to remediate contaminated groundwater or soil is exempt from the notice of intent and approval order requirements of R307-401-5 through 8 if the following conditions are met:

(a) the estimated total air emissions of volatile organic compounds from a given project are less than the de minimis emissions listed in R307-401-9(1)(a), and

(b) the level of any one hazardous air pollutant or any combination of hazardous air pollutants is below the levels listed in R307-410-5(1)(c)(i)(C).

(2) The owner or operator shall submit documentation that the project meets the exemption requirements in R307-401-15(1) to the director prior to beginning the remediation project.

(3) After beginning the soil remediation project, the owner or operator shall submit emissions information to the director to verify that the emission rates of the volatile organic compounds and hazardous air pollutants in R307-401-15(1) are not exceeded.

(a) Emissions estimates of volatile organic compounds shall be based on test data obtained in accordance with the test method in the EPA document SW-846, Test #8260c or 8261a, or the most recent EPA revision of either test method if approved by the director.

(b) Emissions estimates of hazardous air pollutants shall be based on test data obtained in accordance with the test method in EPA document SW-846, Test #8021B or the most recent EPA revision of the test method if approved by the director.

(c) Results of the test and calculated annual quantity of emissions of volatile organic compounds and hazardous air pollutants shall be submitted to the director within one month of sampling.

(d) The test samples shall be drawn on intervals of no less than twenty-eight days and no more than thirty-one days (i.e., monthly) for the first quarter, quarterly for the first year, and semi-annually thereafter or as determined necessary by the director.

(4) The following control devices do not require a notice of intent or approval order when used in relation to an air stripper or soil venting project exempted under R307-401-15:

(a) thermodestruction unit with a rated input capacity of less than five million BTU per hour using no other auxiliary fuel than natural gas or LPG, or

(b) carbon adsorption unit.

R307-401-16. De minimis Emissions From Soil Aeration Projects.

An owner or operator of a soil remediation project is not subject to the notice of intent and approval order requirements of R307-401-5 through 8 when soil aeration or land farming is used to conduct a soil remediation, if the owner or operator submits the following information to the director prior to beginning the remediation project:

(1) documentation that the estimated total air emissions of volatile organic compounds, using an appropriate sampling method, from the project are less than the de minimis emissions listed in R307-401-9(1)(a);

(2) documentation that the levels of any one hazardous air pollutant or any combination of hazardous air pollutants are less than the levels in R307-410-5(1)(d); and

(3) the location of the remediation and where the remediated material originated.

R307-401-17. Temporary Relocation.

The owner or operator of a stationary source previously approved under R307-401 may temporarily relocate and operate the stationary source at any site for up to 180 working days in any calendar year not to exceed 365 consecutive days, starting from the initial relocation date. The director will evaluate the expected emissions impact at the site and compliance with applicable Title R307 rules as the bases for determining if approval for temporary relocation may be granted. Records of the working days at each site, consecutive days at each site, and actual production rate shall be submitted to the director at the end of each 180 calendar days. These records shall also be kept on site by the owner or operator for the entire project, and be made available for review to the director as requested. R307-401-7, Public Notice, does not apply to temporary relocations under R307-401-17.

R307-401-18. Eighteen Month Review.

Approval orders issued by the director in accordance with the provisions of R307-401 will be reviewed eighteen months after the date of issuance to determine the status of construction, installation, modification, relocation or establishment. If a continuous program of construction, installation, modification, relocation or establishment is not proceeding, the director may revoke the approval order.

R307-401-19. General Approval Order.

(1) The director may issue a general approval order that would establish conditions for similar new or modified sources of the same type or for specific types of equipment. The general approval order may apply throughout the state or in a specific area.

(a) A major source or major modification as defined in R307-403, R307-405, or R307-420 for each respective area is not eligible for coverage under a general approval order.

(b) A source that is subject to the requirements of R307-403-5 is not eligible for coverage under a general approval order.

(c) A source that is subject to the requirements of R307-410-4 is not eligible for coverage under a general approval order unless a demonstration that meets the requirements of R307-410-4 was conducted.

(d) A source that is subject to the requirements of R307-410-5(1)(c)(ii) is not eligible for coverage under a general approval order unless a demonstration that meets the requirements of R307-410-5(1)(c)(ii) was conducted.

(e) A source that is subject to the requirements of R307-410-5(1)(c)(iii) is not eligible for coverage under a general approval order.

(2) A general approval order shall meet all applicable requirements of R307-401-8.

(3) The public notice requirements in R307-401-7 shall apply to a general approval order except that the director will advertise the notice of intent in a newspaper of statewide circulation.

(4) Application.

(a) After a general approval order has been issued, the owner or operator of a proposed new or modified source may apply to be covered under the conditions of the general approval order.

(b) The owner or operator shall submit the application on forms provided by the director in lieu of the notice of intent requirements in R307-401-5 for all equipment covered by the general approval order.

(c) The owner or operator may request that an existing, individual approval order for the source be revoked, and that it be covered by the general approval order.

(d) The owner or operator that has applied to be covered by a general approval order shall not initiate construction, modification, or relocation until the application has been approved by the director.

(5) Approval.

(a) The director will review the application and approve or deny the request based on criteria specified in the general approval order for that type of source. If approved, the director will issue an authorization to the applicant to operate under the general approval order.

(b) The public notice requirements in R307-401-7 do not apply to the approval of an application to be covered under the general approval order.

(c) The director will maintain a record of all stationary sources that are covered by a specific general approval order and this record will be available for public review.

(6) Exclusions and Revocation.

(a) The director may require any source that has applied for or is authorized by a general approval order to submit a notice of intent and obtain an individual approval order under R307-401-8. Cases where an individual approval order will be required include, but are not limited to, the following:

(i) the director determines that the source does not meet the criteria specified in the general approval order;

(ii) the director determines that the application for the general approval order did not contain all necessary information to evaluate applicability under the general approval order;

(iii) modifications were made to the source that were not authorized by the general approval order or an individual approval order;

(iv) the director determines the source may cause a violation of a national ambient air quality standard; or

(v) the director determines that one is required based on the compliance history and current compliance status of the source or applicant.

(b)(i) Any source authorized by a general approval order may request to be excluded from the coverage of the general approval order by submitting a notice of intent under R307-401-5 and receiving an individual approval order under R307-401-8.

(ii) When the director issues an individual approval order to a source subject to a general approval order, the applicability of the general approval order to the individual source is revoked on the effective date of the individual approval order.

(7) Modification of General Approval Order. The director may modify, replace, or discontinue the general approval order.

(a) Administrative corrections may be made to the existing version of the general approval order. These corrections are to correct typographical errors or similar minor administrative changes.

(b) All other modifications or the discontinuation of a general approval order shall not apply to any source authorized under previous versions of the general approval order unless the owner or operator submits an application to be covered under the new version of the general approval order. Modifications under R307-401-19(7)(b) shall meet the public notice requirements in R307-401-19(3).

(c) A general approval order shall be reviewed at least every three year. The review of the general approval order shall follow the public notice requirements of R307-401-19(3).

(8) Modifications at a source covered by a general approval order. A source may make modifications only as authorized by the approved general approval order. Modifications outside the scope authorized by the approved general approval order shall require a new application for either an individual approval order under R307-401-8 or a general approval order under R307-401-19.

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R307. Environmental Quality, Air Quality.

R307-410. Permits: Emissions Impact Analysis.

R307-410-1. Purpose.

This rule establishes the procedures and requirements for evaluating the emissions impact of new or modified sources that require an approval order under R307-401 to ensure that the source will not interfere with the attainment or maintenance of any NAAQS. The rule also establishes the procedures and requirements for evaluating the emissions impact of hazardous air pollutants. The rule also establishes the procedures for establishing an emission rate based on the good engineering practice stack height as required by 40 CFR 51.118.

R307-410-2. Definitions.

(1) The following additional definitions apply to R307-410.

"Vertically Restricted Emissions Release" means the release of an air pollutant through a stack or opening whose flow is directed in a downward or horizontal direction due to the alignment of the opening or a physical obstruction placed beyond the opening, or at a height which is less than 1.3 times the height of an adjacent building or structure, as measured from ground level.

"Vertically Unrestricted Emissions Release" means the release of an air pollutant through a stack or opening whose flow is directed upward without any physical obstruction placed beyond the opening, and at a height which is at least 1.3 times the height of an adjacent building or structure, as measured from ground level.

(2) Except as provided in (3) below, the definitions of "stack", "stack in existence", "dispersion technique", "good engineering practice (GEP) stack height", "nearby", "excessive concentration", and "intermittent control system (ICS)" in 40 CFR 51.100(ff) through (kk) and (nn) are hereby incorporated by reference.

(3)(a) The terms "reviewing authority" and "authority administering the State implementation plan" shall mean the director.

(b) The reference to "40 CFR parts 51 and 52" in 40 CFR 51.100(ii)(2)(i) shall be changed to "R307-401, R307-403 and R307-405".

(c) The phrase "For sources subject to the prevention of significant deterioration program (40 CFR 51.166 and 52.21)" in 40 CFR 51.100(kk)(1) shall be replaced with the phrase "For sources subject to R307-401, R307-403, or R307-405".

R307-410-3. Use of Dispersion Models.

All estimates of ambient concentrations derived in meeting the requirements of R307 shall be based on appropriate air quality models, data bases, and other requirements specified in 40 CFR Part 51, Appendix W, (Guideline on Air Quality Models), effective July 1, 2005, which is hereby incorporated by reference. Where an air quality model specified in the Guideline on Air Quality Models or other EPA approved guidance documents is inappropriate, the director may authorize the modification of the model or substitution of another model. In meeting the requirements of federal law, any modification or substitution will be made only with the written approval of the Administrator, EPA.

R307-410-4. Modeling of Criteria Pollutant Impacts in Attainment Areas.

Prior to receiving an approval order under R307-401, a new source in an attainment area with a total controlled emission rate per pollutant greater than or equal to amounts specified in Table 1, or a modification to an existing source located in an attainment area which increases the total controlled emission rate per pollutant of the source in an amount greater than or equal to those specified in Table 1, shall conduct air quality modeling, as identified in R307-410-3, to estimate the impact of the new or modified source on air quality unless previously performed air quality modeling for the source indicates that the addition of the proposed emissions increase would not violate a National Ambient Air Quality Standard, as determined by the director.

TABLE 1

POLLUTANT	EMISSIONS
sulfur dioxide	40 tons per year
oxides of nitrogen	40 tons per year
PM10 - fugitive emissions and fugitive dust	5 tons per year
PM10 - non-fugitive emissions or non-fugitive dust	15 tons per year
carbon monoxide	100 tons per year
lead	0.6 tons per year

R307-410-5. Documentation of Ambient Air Impacts for Hazardous Air Pollutants.

(1) Prior to receiving an approval order under R307-401, a source shall provide documentation of increases in emissions of hazardous air pollutants as required under (c) below for all installations not exempt under (a) below.

(a) Exempted Installations.

(i) The requirements of R307-410-5 do not apply to installations which are subject to or are scheduled to be subject to an emission standard promulgated under 42 U.S.C. 7412 at the time a notice of intent is submitted, except as defined in (ii) below. This exemption does not affect requirements otherwise applicable to the source, including requirements under R307-401.

(ii) The director may, upon making a written determination that the delay in the implementation of an emission standard under R307-214-2, that incorporates 40 CFR Part 63, might reasonably be expected to pose an unacceptable risk to public health, require, on a case-by-case basis, notice of intent documentation of emissions consistent with (c) below.

(A) The director will notify the source in writing of the preliminary decision to require some or all of the documentation as listed in (c) below.

(B) The source may respond in writing within thirty days of receipt of the notice, or such longer period as the director approves.

(C) In making a final determination, the director will document objective bases for the determination, which may include public information and studies, documented public comment, the applicant's written response, the physical and chemical properties of emissions, and ambient monitoring data.

(b) Lead Compounds Exemption. The requirements of R307-410-5 do not apply to emissions of lead compounds. Lead compounds shall be evaluated pursuant to requirements of R307-410-4.

(c) Submittal Requirements.

(i) Each applicant's notice of intent shall include:

(A) the estimated maximum pounds per hour emission rate increase from each affected installation,

(B) the type of release, whether the release flow is vertically restricted or unrestricted, the maximum release duration in minutes per hour, the release height measured from the ground, the height of any adjacent building or structure, the shortest distance between the release point and any area defined as "ambient air" under 40 CFR 50.1(e), effective July 1, 2005, which is hereby incorporated by reference for each installation for which the source proposes an emissions increase,

(C) the emission threshold value, calculated to be the applicable threshold limit value - time weighted average (TLV-TWA) or the threshold limit value - ceiling (TLV-C) multiplied by the appropriate emission threshold factor listed in Table 2, except in the case of arsenic, benzene, beryllium, and ethylene oxide which shall be calculated using chronic emission threshold factors, and formaldehyde, which shall be calculated using an acute emission threshold factor. For acute hazardous air pollutant releases having a duration period less than one hour, this maximum pounds per hour emission rate shall be consistent with an identical operating process having a continuous release for a one-hour period.

TABLE 2
EMISSION THRESHOLD FACTORS FOR HAZARDOUS AIR POLLUTANTS
(cubic meter pounds per milligram hour)

VERTICALLY-RESTRICTED AND FUGITIVE EMISSION RELEASE POINTS

DISTANCE TO PROPERTY BOUNDARY	ACUTE	CHRONIC	CARCINOGENIC
20 Meters or less	0.038	0.051	0.017
21 - 50 Meters	0.051	0.066	0.022
51 - 100 Meters	0.092	0.123	0.041
Beyond 100 Meters	0.180	0.269	0.090

VERTICALLY-UNRESTRICTED EMISSION RELEASE POINTS

DISTANCE TO PROPERTY BOUNDARY	ACUTE	CHRONIC	CARCINOGENIC
50 Meters or less	0.154	0.198	0.066
51 - 100 Meters	0.224	0.244	0.081
Beyond 100 Meters	0.310	0.368	0.123

(ii) A source with a proposed maximum pounds per hour emissions increase equal to or greater than the emissions threshold value shall include documentation of a comparison of the estimated ambient concentration of the proposed emissions with the applicable toxic screening level specified in (d) below.

(iii) A source with an estimated ambient concentration equal to or greater than the toxic screening level shall provide additional documentation regarding the impact of the proposed emissions. The director may require such documentation to include, but not be limited to:

(A) a description of symptoms and adverse health effects that can be caused by the hazardous air pollutant,

(B) the exposure conditions or dose that is sufficient to cause the adverse health effects,

(C) a description of the human population or other biological species which could be exposed to the estimated concentration,

(D) an evaluation of land use for the impacted areas,

(E) the environmental fate and persistency.

(d) Toxic Screening Levels and Averaging Periods.

(i) The toxic screening level for an acute hazardous air pollutant is 1/10th the value of the TLV-C, and the applicable averaging period shall be:

(A) one hour for emissions releases having a duration period of one hour or greater,

(B) one hour for emission releases having a duration period less than one hour if the emission rate used in the model is consistent with an identical operating process having a continuous release for a one-hour period or more, or

(C) the dispersion model's shortest averaging period when using an applicable model capable of estimating ambient concentrations for periods of less than one hour.

(ii) The toxic screening level for a chronic hazardous air pollutant is 1/30th the value of the TLV- TWA, and the applicable averaging period shall be 24 hours.

(iii) The toxic screening level for all carcinogenic hazardous air pollutants is 1/90 the value of the TLV-TWA, and the applicable averaging period shall be 24 hours, except in the case of formaldehyde which shall be evaluated consistent with (d)(i) above and arsenic, benzene, beryllium, and ethylene oxide which shall be evaluated consistent with (d)(ii) above.

R307-410-6. Stack Heights and Dispersion Techniques.

(1) The degree of emission limitation required of any source for control of any air pollutant to include determinations made under R307-401, R307-403 and R307-405, must not be affected by so much of any source's stack height that exceeds good engineering practice or by any other dispersion technique except as provided in (2) below. This does not restrict, in any manner, the actual stack height of any source.

(2) The provisions in R307-410-6 shall not apply to:

(a) stack heights in existence, or dispersion techniques implemented on or before December 31, 1970, except where pollutants are being emitted from such stacks or using such dispersion techniques by sources which were constructed or reconstructed, or for which major modifications were carried out after December 31, 1970; or

(b) coal-fired steam electric generating units subject to the provisions of Section 118 of the Clean Air Act, which commenced operation before July 1, 1957, and whose stacks were constructed under a construction contract awarded before February 8, 1974.

(3) The director may require the source owner or operator to provide a demonstration that the source stack height meets good engineering practice as required by R307-410-6. The director shall notify the public of the availability of the demonstration as part of the public notice process required by R307-401-7, Pubic Notice.

KEY: air pollution, modeling, hazardous air pollutant, stack height

Date of Enactment or Last Substantive Amendment: 2015

Notice of Continuation: June 6, 2012
Authorizing, and Implemented or Interpreted Law: 19-2-104

R307. Environmental Quality, Air Quality.
R307-415. Permits: Operating Permit Requirements.

R307-415-3. Definitions.

(1) The definitions contained in R307-101-2 apply throughout R307-415, except as specifically provided in (2).

(2) The following additional definitions apply to R307-415.

"Act" means the Clean Air Act, as amended, 42 U.S.C. 7401, et seq.

"Administrator" means the Administrator of EPA or his or her designee.

"Affected States" are all states:

(a) Whose air quality may be affected and that are contiguous to Utah; or

(b) That are within 50 miles of the permitted source.

"Applicable requirement" means all of the following as they apply to emissions units in a Part 70 source, including requirements that have been promulgated or approved by the Board or by the EPA through rulemaking at the time of permit issuance but have future-effective compliance dates:

(a) Any standard or other requirement provided for in the State Implementation Plan;

(b) Any term or condition of any approval order issued under R307-401;

(c) Any standard or other requirement under Section 111 of the Act, Standards of Performance for New Stationary Sources, including Section 111(d);

(d) Any standard or other requirement under Section 112 of the Act, Hazardous Air Pollutants, including any requirement concerning accident prevention under Section 112(r)(7) of the Act;

(e) Any standard or other requirement of the Acid Rain Program under Title IV of the Act or the regulations promulgated thereunder;

(f) Any requirements established pursuant to Section 504(b) of the Act, Monitoring and Analysis, or Section 114(a)(3) of the Act, Enhanced Monitoring and Compliance Certification;

(g) Any standard or other requirement governing solid waste incineration, under Section 129 of the Act;

(h) Any standard or other requirement for consumer and commercial products, under Section 183(e) of the Act;

(i) Any standard or other requirement of the regulations promulgated to protect stratospheric ozone under Title VI of the Act, unless the Administrator has determined that such requirements need not be contained in an operating permit;

(j) Any national ambient air quality standard or increment or visibility requirement under part C of Title I of the Act, but only as it would apply to temporary sources permitted pursuant to

Section 504(e) of the Act;

(k) Any standard or other requirement under rules adopted by the Board.

"Area source" means any stationary source that is not a major source.

"Designated representative" shall have the meaning given to it in Section 402 of the Act and in 40 CFR Section 72.2, and applies only to Title IV affected sources.

"Draft permit" means the version of a permit for which the director offers public participation under R307-415-7i or affected State review under R307-415-8(2).

"Emissions allowable under the permit" means a federally-enforceable permit term or condition determined at issuance to be required by an applicable requirement that establishes an emissions limit, including a work practice standard, or a federally-enforceable emissions cap that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject.

"Emissions unit" means any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant or any hazardous air pollutant. This term is not meant to alter or affect the definition of the term "unit" for purposes of Title IV of the Act, Acid Deposition Control.

"Final permit" means the version of an operating permit issued by the director that has completed all review procedures required by R307-415-7a through 7i and R307-415-8.

"General permit" means an operating permit that meets the requirements of R307-415-6d.

"Hazardous Air Pollutant" means any pollutant listed by the Administrator as a hazardous air pollutant under Section 112(b) of the Act.

"Major source" means any stationary source (or any group of stationary sources that are located on one or more contiguous or adjacent properties, and are under common control of the same person (or persons under common control)) belonging to a single major industrial grouping and that are described in paragraphs (a), (b), or (c) of this definition. For the purposes of defining "major source," a stationary source or group of stationary sources shall be considered part of a single industrial grouping if all of the pollutant emitting activities at such source or group of sources on contiguous or adjacent properties belong to the same Major Group (all have the same two-digit code) as described in the Standard Industrial Classification Manual, 1987. Emissions resulting directly from an internal combustion engine for transportation purposes or from a non-road vehicle shall not be considered in determining whether a stationary source is a major source under this definition.

(a) A major source under Section 112 of the Act, Hazardous Air Pollutants, which is defined as: for pollutants other than radionuclides, any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit, in the aggregate, ten tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of such hazardous air pollutants. Notwithstanding the preceding sentence, emissions from any oil or gas exploration or production well, with its associated equipment, and emissions from any pipeline compressor or pump station shall not be aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control, to determine whether such units or stations are major sources.

(b) A major stationary source of air pollutants, as defined in Section 302 of the Act, that directly emits or has the potential to emit, 100 tons per year or more of any air pollutant subject to regulation, including any major source of fugitive emissions or fugitive dust of any such pollutant as determined by rule by the Administrator. The fugitive emissions or fugitive dust of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of Section 302(j) of the Act, unless the source belongs to any one of the following categories of stationary source:

(i) Coal cleaning plants with thermal dryers;

(ii) Kraft pulp mills;

(iii) Portland cement plants;

(iv) Primary zinc smelters;

(v) Iron and steel mills;

(vi) Primary aluminum ore reduction plants;

(vii) Primary copper smelters;

(viii) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(ix) Hydrofluoric, sulfuric, or nitric acid plants;

(x) Petroleum refineries;

(xi) Lime plants;

(xii) Phosphate rock processing plants;

(xiii) Coke oven batteries;

(xiv) Sulfur recovery plants;

(xv) Carbon black plants, furnace process;

(xvi) Primary lead smelters;

(xvii) Fuel conversion plants;

(xviii) Sintering plants;

(xix) Secondary metal production plants;

(xx) Chemical process plants;

(xxi) Fossil-fuel boilers, or combination thereof, totaling more than 250 million British thermal units per hour heat input;

(xxii) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(xxiii) Taconite ore processing plants;

(xxiv) Glass fiber processing plants;

(xxv) Charcoal production plants;

(xxvi) Fossil-fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

(xxvii) Any other stationary source category, which as of August 7, 1980 is being regulated under Section 111 or Section 112 of the Act.

(c) A major stationary source as defined in part D of Title I of the Act, Plan Requirements for Nonattainment Areas, including:

(i) For ozone nonattainment areas, sources with the potential to emit 100 tons per year or more of volatile organic compounds or oxides of nitrogen in areas classified as "marginal" or "moderate," 50 tons per year or more in areas classified as "serious," 25 tons per year or more in areas classified as "severe," and 10 tons per year or more in areas classified as "extreme"; except that the references in this paragraph to 100, 50, 25, and 10 tons per year of nitrogen oxides shall not apply with respect to any source for which the Administrator has made a finding, under Section 182(f)(1) or (2) of the Act, that requirements under Section 182(f) of the Act do not apply;

(ii) For ozone transport regions established pursuant to Section 184 of the Act, sources with the potential to emit 50 tons per year or more of volatile organic compounds;

(iii) For carbon monoxide nonattainment areas that are classified as "serious" and in which stationary sources contribute significantly to carbon monoxide levels as determined under rules issued by the Administrator, sources with the potential to emit 50 tons per year or more of carbon monoxide;

(iv) For PM-10 particulate matter nonattainment areas classified as "serious," sources with the potential to emit 70 tons per year or more of PM-10 particulate matter.

"Non-Road Vehicle" means a vehicle that is powered by an internal combustion engine (including the fuel system), that is not a self-propelled vehicle designed for transporting persons or property on a street or highway or a vehicle used solely for competition, and is not subject to standards promulgated under Section 111 of the Act (New Source Performance Standards) or Section 202 of the Act (Motor Vehicle Emission Standards).

"Operating permit" or "permit," unless the context suggests otherwise, means any permit or group of permits covering a Part 70 source that is issued, renewed, amended, or revised pursuant to these rules.

"Part 70 Source" means any source subject to the permitting requirements of R307-415, as provided in R307-415-4.

"Permit modification" means a revision to an operating permit that meets the requirements of R307-415-7f.

"Permit revision" means any permit modification or administrative permit amendment.

"Permit shield" means the permit shield as described in R307-415-6f.

"Proposed permit" means the version of a permit that the director proposes to issue and forwards to EPA for review in compliance with R307-415-8.

"Renewal" means the process by which a permit is reissued at the end of its term.

"Responsible official" means one of the following:

(a) For a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(i) the operating facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million in second quarter 1980 dollars; or

(ii) the delegation of authority to such representative is approved in advance by the director;

(b) For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

(c) For a municipality, State, Federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of R307-415, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency;

(d) For Title IV affected sources:

(i) The designated representative in so far as actions, standards, requirements, or prohibitions under Title IV of the Act, Acid Deposition Control, or the regulations promulgated thereunder are concerned;

(ii) The responsible official as defined above for any other purposes under R307-415.

"Stationary source" means any building, structure, facility, or installation that emits or may emit any regulated air pollutant or any hazardous air pollutant.

"Subject to regulation" means, for any air pollutant, that the pollutant is subject to either a provision in the Clean Air Act, or a nationally-applicable regulation codified by the

Administrator in subchapter C of 40 CFR Chapter I, that requires actual control of the quantity of emissions of that pollutant, and that such a control requirement has taken effect and is operative to control, limit or restrict the quantity of emissions of that pollutant released from the regulated activity. Except that:

(a) "Greenhouse gases (GHGs)," the air pollutant defined in 40 CFR 86.1818-12(a) (Federal Register, Vol. 75, Page 25686) as the aggregate group of six greenhouse gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, shall not be subject to regulation unless, as of July 1, 2011, the GHG emissions are at a stationary source emitting or having the potential to emit 100,000 tons per year (tpy) CO2 equivalent emissions.

(b) The term "tpy CO2 equivalent emissions (CO2e)" shall represent an amount of GHGs emitted, and shall be computed by multiplying the mass amount of emissions (tpy), for each of the six greenhouse gases in the pollutant GHGs, by the gas's associated global warming potential published at Table A-1 to subpart A of 40 CFR Part 98--Global Warming Potentials, that is hereby incorporated by reference (Federal Register, Vol. 74, Pages 56395-96), and summing the resultant value for each to compute a tpy CO2e.

"Title IV Affected source" means a source that contains one or more affected units as defined in Section 402 of the Act and in 40 CFR, Part 72.

R307-415-5e. Permit Applications: Insignificant Activities and Emissions.

An application may not omit information needed to determine the applicability of, or to impose, any applicable requirement, or to evaluate the fee amount required under R307-415-9. The following lists apply only to operating permit applications and do not affect the applicability of R307-415 to a source, do not affect the requirement that a source receive an approval order under R307-401, and do not relieve a source of the responsibility to comply with any applicable requirement.

(1) The following insignificant activities and emission levels are not required to be included in the permit application.

(a) Exhaust systems for controlling steam and heat that do not contain combustion products, except for systems that are subject to an emission standard under any applicable requirement.

(b) Air pollutants that are present in process water or non-contact cooling water as drawn from the environment or from municipal sources, or air pollutants that are present in compressed air or in ambient air, which may contain air pollution, used for combustion.

(c) Air conditioning or ventilating systems not designed to remove air pollutants generated by or released from other processes or equipment.

(d) Disturbance of surface areas for purposes of land development, not including mining operations or the disturbance of contaminated soil.

(e) Brazing, soldering, or welding operations.

(f) Aerosol can usage.

(g) Road and parking lot paving operations, not including asphalt, sand and gravel, and cement batch plants.

(h) Fire training activities that are not conducted at permanent fire training facilities.

(i) Landscaping, janitorial, and site housekeeping activities, including fugitive emissions from landscaping activities.

(j) Architectural painting.

(k) Office emissions, including cleaning, copying, and restrooms.

(l) Wet wash aggregate operations that are solely dedicated to this process.

(m) Air pollutants that are emitted from personal use by employees or other persons at the source, such as foods, drugs, or cosmetics.

(n) Air pollutants that are emitted by a laboratory at a facility under the supervision of a technically qualified individual as defined in 40 CFR 720.3(ee); however, this exclusion does not apply to specialty chemical production, pilot plant scale operations, or activities conducted outside the laboratory.

(o) Maintenance on petroleum liquid handling equipment such as pumps, valves, flanges, and similar pipeline devices and appurtenances when purged and isolated from normal operations.

(p) Portable steam cleaning equipment.

(q) Vents on sanitary sewer lines.

(r) Vents on tanks containing no volatile air pollutants, e.g., any petroleum liquid, not containing Hazardous Air Pollutants, with a Reid Vapor Pressure less than 0.05 psia.

(2) The following insignificant activities are exempted because of size or production rate and a list of such insignificant activities must be included in the application. The director may require information to verify that the activity is insignificant.

(a) Emergency heating equipment, using coal, wood, kerosene, fuel oil, natural gas, or LPG for fuel, with a rated capacity less than 50,000 BTU per hour.

(b) Individual emissions units having the potential to emit less than one ton per year per pollutant of PM10 particulate matter, nitrogen oxides, sulfur dioxide, volatile organic compounds, or carbon monoxide, unless combined emissions from similar small emission units located within the same Part 70 source are greater than five tons per year of any one pollutant. This does not include emissions units that emit air pollutants other than PM10 particulate matter, nitrogen oxides, sulfur dioxide, volatile organic compounds, or carbon monoxide.

(c) Petroleum industry flares, not associated with refineries, combusting natural gas containing no hydrogen sulfide except in amounts less than 500 parts per million by weight, and having the potential to emit less than five tons per year per air pollutant.

(d) Road sweeping.

(e) Road salting and sanding.

(f) Unpaved public and private roads, except unpaved haul roads located within the boundaries of a stationary source. A haul road means any road normally used to transport people, livestock, product or material by any type of vehicle.

(g) Non-commercial automotive (car and truck) service stations dispensing less than 6,750 gal. of gasoline/month

(h) Hazardous Air Pollutants present at less than 1% concentration, or 0.1% for a carcinogen, in a mixture used at a rate of less than 50 tons per year, provided that a National Emission Standards for Hazardous Air Pollutants standard does not specify otherwise.

(i) Fuel-burning equipment, in which combustion takes place at no greater pressure than one inch of mercury above ambient pressure, with a rated capacity of less than five million BTU per hour using no other fuel than natural gas, or LPG or other mixed gas distributed by a public utility.

(j) Comfort heating equipment (i.e., boilers, water heaters, air heaters and steam generators) with a rated capacity of less than one million BTU per hour if fueled only by fuel oil numbers 1 - 6.

(3) Any person may petition the Board to add an activity or

emission to the list of Insignificant Activities and Emissions which may be excluded from an operating permit application under (1) or (2) above upon a change in the rule and approval of the rule change by EPA. The petition shall include the following information:

(a) A complete description of the activity or emission to be added to the list.

(b) A complete description of all air pollutants that may be emitted by the activity or emission, including emission rate, air pollution control equipment, and calculations used to determine emissions.

(c) An explanation of why the activity or emission should be exempted from the application requirements for an operating permit.

(4) The director may determine on a case-by-case basis, insignificant activities and emissions for an individual Part 70 source that may be excluded from an application or that must be listed in the application, but do not require a detailed description. No activity with the potential to emit greater than two tons per year of any criteria pollutant, five tons of a combination of criteria pollutants, 500 pounds of any hazardous air pollutant or one ton of a combination of hazardous air pollutants shall be eligible to be determined an insignificant activity or emission under this subsection (4).

KEY: air pollution, greenhouse gases, operating permit, emission fees
Date of Enactment or Last Substantive Amendment: 2015
Notice of Continuation: June 6, 2012
Authorizing, and Implemented or Interpreted Law: 19-2-109.1; 19-2-104

ITEM 10

State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQ-067-15

M E M O R A N D U M

TO: Air Quality Board

THROUGH: Bryce C. Bird, Executive Secretary

FROM: Ryan Stephens, Environmental Planning Consultant

DATE: November 19, 2015

SUBJECT: PROPOSE FOR PUBLIC COMMENT: New Rule R307-104. Conflict of Interest.

Section 128(a)(2) of the Clean Air Act states that implementation plans must have an enforceable requirement that "any potential conflicts of interest by… the head of an executive agency" are disclosed. On October 25, 2013, the EPA partially disapproved DAQ's infrastructure state implementation plan (SIP) for the 1997 and 2006 $PM_{2.5}$ National Ambient Air Quality Standards. The disapproval was based on the fact that Utah did not have a rule that satisfied Section 128(a)(2) of the Clean Air Act.

DAQ staff has worked with the Utah Attorney General's office and EPA to develop this rule. R307-104 will satisfy Section 128 of the Clean Air Act and give EPA the opportunity to approve past and future infrastructure SIPs. DAQ does not anticipate any significant fiscal impact as a result of this new rule.

Staff Recommendation: Staff recommends that the Board propose for public comment new rule R307-104, Conflict of Interest.

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R307. Environmental Quality, Air Quality.

R307-104. Conflict of Interest.

R307-104-1. Authority.

This rule establishes procedures that are necessary for promulgating federally approvable air quality standards as permitted by subsection 19-2-104(1)(b).

R307-104-2. Purpose.

R307-104 satisfies the conflict of interest requirement of 42 U.S.C. 7428 (a)(2).

R307-104-3. Disclosure of conflict of interest.

(1) This rule applies to any member of the board or body which approves permits or enforcement orders, the head of the Utah Division of Air Quality with similar powers, and the head of the Utah Department of Environmental Quality with similar powers.

(2) Every individual listed in R307-104-3(1) who is an officer, director, agent, employee, or the owner of a substantial interest in any business entity which is subject to the regulation of the agency by which the individual listed in R307-104-3(1) is employed, shall disclose any position held and the precise nature and value of the interest upon first becoming a public officer or public employee listed in R307-104-3(1), and again whenever his or her position in the business entity changes significantly or if the value of his or her interest in the entity is significantly increased.

(3) The disclosure required under R307-104-3(2) shall be made in a sworn statement filed with:

(a) the state attorney general in the case of the head of the Utah Division of Air Quality and the head of the Utah Department of Environmental Quality; and

(b) the state attorney general and the head of the agency with which the member of the board or body is affiliated in the case of a member of the board of body.

(4) This rule does not apply to instances where the total value of the interest does not exceed $2,000, and life insurance policies and annuities shall not be considered in determining the value of any such interest.

(5) Disclosures made under R307-104-3 are public information and shall be available for examination by the public.

KEY: conflict of interest, Clean Air Act

Date of Enactment or Last Substantive Amendment: 2015

Authorizing, and Implemented or Interpreted Law: 19-1-201; 19-2-104

NOTICE OF
PROPOSED NEW RULE

- The agency identified below in box 1 provides notice of proposed rule change pursuant to Utah Code Section 63G-3-301.
- Please address questions regarding information on this notice to the agency.
- The full text of all rule filings is published in the Utah State Bulletin unless excluded because of space constraints.
- The full text of all rule filings may also be inspected at the Division of Administrative Rules.

Rule Information

DAR file no: Date filed:

State Admin Rule Filing Key: 156959

Utah Admin. Code ref. (R no.): R307-104

Agency Information

1. Agency: ENVIRONMENTAL QUALITY - Air Quality

Room no.: Fourth Floor

Building:

Street address 1: 195 N 1950 W

Street address 2:

City, state, zip: SALT LAKE CITY UT 84116-3085

Mailing address 1: PO BOX 144820

Mailing address 2:

City, state, zip: SALT LAKE CITY UT 84114-4820

Contact person(s):

Name:	Phone:	Fax:	E-mail:	Remove:
Ryan Stephens	801-536-4419	801-536-0085	rstephens@utah.gov	

(Interested persons may inspect this filing at the above address or at DAR during business hours)

Rule Title

2. Title of rule or section (catchline):
Conflict of Interest

Notice Type

3. Type of notice: New Rule

Rule Purpose

4. Purpose of the rule or reason for the change:
The purpose of the rule is to satisfy Section 128(a)(2) of the federal Clean Air Act.

Response Information

5. This change is a response to comments by the Administrative Rules Review Committee.

◉ No ○ Yes

Rule Summary

6. Summary of the rule or change:
   This rule requires any board or body which approves permits or enforcement orders, the head of the Utah Division of Air Quality with similar powers, and the head of the Utah Department of Environmental Quality with similar powers to disclose conflicts of interest exceeding 2,000 dollars.

Aggregate Cost Information

7. Aggregate anticipated cost or savings to:
   A) State budget:

   Affected: ◉ No ○ Yes

   The rule places no obligations on anyone other than public employees with potential conflicts. Therefore, the state budget is not impacted by the rule.

   B) Local government:

   Affected: ◉ No ○ Yes

   The rule places no obligations on anyone other than public employees with potential conflicts. Therefore, no costs or savings are anticipated for local governments.

   C) Small businesses:

   Affected: ◉ No ○ Yes

   ("small business" means a business employing fewer than 50 persons)

   The rule places no obligations on anyone other than public employees with potential conflicts. Therefore, small businesses are not affected by the rule.

   D) Persons other than small businesses, businesses, or local government entities:

   Affected: ◉ No ○ Yes

   ("person" means any individual, partnership, corporation, association, governmental entity, or public or private organization of any character other than an agency)

   The rule places no obligations on anyone other than public employees with potential conflicts. Therefore, other persons are not affected by the rule.

Compliance Cost Information

8. Compliance costs for affected persons:
   The rule places no obligations on anyone other than public employees with potential conflicts. Therefore, there will be no additional compliance costs for affected persons.

Department Head Comments

9. A) Comments by the department head on the fiscal impact the rule may have on businesses:
   The rule places no obligations on anyone other than public employees with potential conflicts. Therefore, the new rule will have no fiscal impact on businesses.

   B) Name and title of department head commenting on the fiscal impacts:

   Alan Matheson, Executive Director

Citation Information

10.

This rule change is authorized or mandated by state law, and implements or interprets the following state and federal laws.
State code or constitution citations (required) (e.g., Section 63G-3-402; Subsection 63G-3-601 (3); Article IV) :

Section 19-2-104

Incorporated Materials

11. This rule adds, updates, or removes the following title of materials incorporated by references (a copy of materials incorporated by reference must be submitted to DAR; if none, leave blank) :

Official Title of Materials Incorporated (from title page)	
Publisher	
Date Issued (mm/dd/yyyy)	
Issue, or version (including partial dates)	
ISBN Number	
ISSN Number	
Cost of Incorporated Reference	
Adds, updates, removes	-- SELECT ONE --

Comments

12. The public may submit written or oral comments to the agency identified in box 1. (The public may also request a hearing by submitting a written request to the agency. The agency is required to hold a hearing if it receives requests from ten interested persons or from an association having not fewer than ten members. Additionally, the request must be received by the agency not more than 15 days after the publication of this rule in the Utah State Bulletin. See Section 63G-3-302 and Rule R15-1 for more information.)

A) Comments will be accepted until 5:00 p.m. on (mm/dd/yyyy) : 02/01/2016

B) A public hearing (optional) will be held:

On (mm/dd/yyyy):	At (hh:mm AM/PM):	At (place):

Proposed Effective Date

13. This rule change may become effective on (mm/dd/yyyy): 02/08/2016

NOTE: The date above is the date on which this rule MAY become effective. It is NOT the effective date. After a minimum of seven days following the date designated in Box 12(A) above, the agency must submit a Notice of Effective Date to the Division of Administrative Rules to make this rule effective. Failure to submit a Notice of Effective Date will result in this rule lapsing and will require the agency to start the rulemaking process over.

Indexing Information

14. Indexing information - keywords (maximum of four, one term per field, in lower case, except for acronyms (e.g., "GRAMA") or proper nouns (e.g., "Medicaid")):

conflict of interest, Clean Air Act

File Information

15. Attach an RTF document containing the text of this rule change (filename):
 No document is associated with this filing.

To the Agency

Information requested on this form is required by Sections 63G-3-301, 302, 303, and 402. Incomplete forms will be returned to the agency for completion, possibly delaying publication in the Utah State Bulletin, and delaying the first possible effective date.

Agency Authorization

Agency head or designee, and title:	Bryce Bird Director	Date (mm/dd/yyyy):	11/18/2015

ITEM 11

State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQ-068-15

M E M O R A N D U M

TO: Air Quality Board

THROUGH: Bryce C. Bird, Executive Secretary

FROM: Ryan Stephens, Environmental Planning Consultant

DATE: November 19, 2015

SUBJECT: PROPOSE FOR PUBLIC COMMENT: Amend R307-101-2. Definitions.

R307-101-2 defines "PM10 Maintenance Area." The rule relies on an out of date proposal of a previous maintenance plan that was never approved by EPA. The rule needs to be updated to take into account the new maintenance plan that is being proposed for final adoption by the Board at the December 2015 board meeting. The main change is that "July 6, 2005" has been changed to "December 2, 2015."

Another minor change was made to the rule to remove a reference to the Clean Air Act as "amended in 1990." The rule has been changed to reference the federal Clean Air Act as "found in 42 U.S.C. Chapter 85." This change has been made to more accurately describe which federal laws the air quality rules reference. DAQ anticipates that there will be no fiscal impact resulting from these amendments.

<u>Staff Recommendation</u>: Staff recommends that the Board propose amendments to R307-101-2 for a 30 day public comment period.

R307. Environmental Quality, Air Quality.
R307-101. General Requirements.
R307-101-1. Foreword.

R307-101-2. Definitions.

Except where specified in individual rules, definitions in R307-101-2 are applicable to all rules adopted by the Air Quality Board.

"Actual Emissions" means the actual rate of emissions of a pollutant from an emissions unit determined as follows:

(1) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operations. The director shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

(2) The director may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(3) For any emission unit, other than an electric utility steam generating unit specified in (4), which has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

(4) For an electric utility steam generating unit (other than a new unit or the replacement of an existing unit) actual emissions of the unit following the physical or operational change shall equal the representative actual annual emissions of the unit, provided the source owner or operator maintains and submits to the director, on an annual basis for a period of 5 years from the date the unit resumes regular operation, information demonstrating that the physical or operational change did not result in an emissions increase. A longer period, not to exceed 10 years, may be required by the director if the director determines such a period to be more representative of normal source post-change operations.

"Acute Hazardous Air Pollutant" means any noncarcinogenic hazardous air pollutant for which a threshold limit value - ceiling (TLV-C) has been adopted by the American Conference of Governmental Industrial Hygienists (ACGIH) in its "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, (2009)."

"Air Contaminant" means any particulate matter or any gas, vapor, suspended solid or any combination of them, excluding steam and water vapors (Section 19-2-102(1)).

"Air Contaminant Source" means any and all sources of emission of air contaminants whether privately or publicly owned or operated (Section 19-2-102(2)).

"Air Pollution" means the presence in the ambient air of one or more air contaminants in such quantities and duration and under conditions and circumstances, as is or tends to be injurious to human health or welfare, animal or plant life, or property, or would unreasonably interfere with the enjoyment of life or use of property as determined by the standards, rules and regulations adopted by the Air Quality Board (Section 19-2-104).

"Allowable Emissions" means the emission rate of a source calculated using the maximum rated capacity of the source (unless the source is subject to enforceable limits which restrict the operating rate, or hours of operation, or both) and the emission limitation established pursuant to R307-401-8.

"Ambient Air" means the surrounding or outside air (Section 19-2-102(4)).

"Appropriate Authority" means the governing body of any city, town or county.

"Atmosphere" means the air that envelops or surrounds the earth and includes all space outside of buildings, stacks or exterior ducts.

"Authorized Local Authority" means a city, county, city-county or district health department; a city, county or combination fire department; or other local agency duly designated by appropriate authority, with approval of the state Department of Health; and other lawfully adopted ordinances, codes or regulations not in conflict therewith.

"Board" means Air Quality Board. See Section 19-2-102(8)(a).

"Breakdown" means any malfunction or procedural error, to include but not limited to any malfunction or procedural error during start-up and shutdown, which will result in the inoperability or sudden loss of performance of the control equipment or process equipment causing emissions in excess of those allowed by approval order or Title R307.

"BTU" means British Thermal Unit, the quantity of heat necessary to raise the temperature of one pound of water one degree Fahrenheit.

"Calibration Drift" means the change in the instrument meter readout over a stated period of time of normal continuous operation when the VOC concentration at the time of measurement is the same known upscale value.

"Carbon Adsorption System" means a device containing adsorbent material (e.g., activated carbon, aluminum, silica gel), an inlet and outlet for exhaust gases, and a system for the proper disposal or reuse of all VOC adsorbed.

"Carcinogenic Hazardous Air Pollutant" means any hazardous air pollutant that is classified as a known human carcinogen (A1) or suspected human carcinogen (A2) by the American Conference of Governmental Industrial Hygienists (ACGIH) in its "Threshold Limit

Values for Chemical Substances and Physical Agents and Biological Exposure Indices, (2009)."

"Chargeable Pollutant" means any regulated air pollutant except the following:

(1) Carbon monoxide;

(2) Any pollutant that is a regulated air pollutant solely because it is a Class I or II substance subject to a standard promulgated or established by Title VI of the Act, Stratospheric Ozone Protection;

(3) Any pollutant that is a regulated air pollutant solely because it is subject to a standard or regulation under Section 112(r) of the Act, Prevention of Accidental Releases.

"Chronic Hazardous Air Pollutant" means any noncarcinogenic hazardous air pollutant for which a threshold limit value - time weighted average (TLV-TWA) having no threshold limit value - ceiling (TLV-C) has been adopted by the American Conference of Governmental Industrial Hygienists (ACGIH) in its "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, (2009)."

"Clean Air Act" means federal Clean Air Act as [~~amended in 1990~~]found in 42 U.S.C. Chapter 85.

"Clean Coal Technology" means any technology, including technologies applied at the precombustion, combustion, or post combustion stage, at a new or existing facility which will achieve significant reductions in air emissions of sulfur dioxide or oxides of nitrogen associated with the utilization of coal in the generation of electricity, or process steam which was not in widespread use as of November 15, 1990.

"Clean Coal Technology Demonstration Project" means a project using funds appropriated under the heading "Department of Energy-Clean Coal Technology," up to a total amount of $2,500,000,000 for commercial demonstration of clean coal technology, or similar projects funded through appropriations for the Environmental Protection Agency. The Federal contribution for a qualifying project shall be at least 20 percent of the total cost of the demonstration project.

"Clearing Index" means an indicator of the predicted rate of clearance of ground level pollutants from a given area. This number is provided by the National Weather Service.

"Commence" as applied to construction of a major source or major modification means that the owner or operator has all necessary pre-construction approvals or permits and either has:

(1) Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

(2) Entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of

the source to be completed within a reasonable time.

"Condensable PM2.5" means material that is vapor phase at stack conditions, but which condenses and/or reacts upon cooling and dilution in the ambient air to form solid or liquid particulate matter immediately after discharge from the stack.

"Compliance Schedule" means a schedule of events, by date, which will result in compliance with these regulations.

"Construction" means any physical change or change in the method of operation including fabrication, erection, installation, demolition, or modification of a source which would result in a change in actual emissions.

"Control Apparatus" means any device which prevents or controls the emission of any air contaminant directly or indirectly into the outdoor atmosphere.

"Department" means Utah State Department of Environmental Quality. See Section 19-1-103(1).

"Director" means the Director of the Division of Air Quality. See Section 19-1-103(1).

"Division" means the Division of Air Quality.

"Electric Utility Steam Generating Unit" means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the affected facility.

"Emission" means the act of discharge into the atmosphere of an air contaminant or an effluent which contains or may contain an air contaminant; or the effluent so discharged into the atmosphere.

"Emissions Information" means, with reference to any source operation, equipment or control apparatus:

(1) Information necessary to determine the identity, amount, frequency, concentration, or other characteristics related to air quality of any air contaminant which has been emitted by the source operation, equipment, or control apparatus;

(2) Information necessary to determine the identity, amount, frequency, concentration, or other characteristics (to the extent related to air quality) of any air contaminant which, under an applicable standard or limitation, the source operation was authorized to emit (including, to the extent necessary for such purposes, a description of the manner or rate of operation of the source operation), or any combination of the foregoing; and

(3) A general description of the location and/or nature of the source operation to the extent necessary to identify the source operation and to distinguish it from other source operations (including, to the extent necessary for such purposes, a description

of the device, installation, or operation constituting the source operation).

"Emission Limitation" means a requirement established by the Board, the director or the Administrator, EPA, which limits the quantity, rate or concentration of emission of air pollutants on a continuous emission reduction including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction (Section 302(k)).

"Emissions Unit" means any part of a stationary source which emits or would have the potential to emit any pollutant subject to regulation under the Clean Air Act.

"Enforceable" means all limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within the State Implementation Plan and R307, any permit requirements established pursuant to 40 CFR 52.21 or R307-401.

"EPA" means Environmental Protection Agency.

"EPA Method 9" means 40 CFR Part 60, Appendix A, Method 9, "Visual Determination of Opacity of Emissions from Stationary Sources," and Alternate 1, "Determination of the opacity of emissions from stationary sources remotely by LIDAR."

"Executive Director" means the Executive Director of the Utah Department of Environmental Quality. See Section 19-1-103(2).

"Existing Installation" means an installation, construction of which began prior to the effective date of any regulation having application to it.

"Facility" means machinery, equipment, structures of any part or accessories thereof, installed or acquired for the primary purpose of controlling or disposing of air pollution. It does not include an air conditioner, fan or other similar device for the comfort of personnel.

"Filterable PM2.5" means particles with an aerodynamic diameter equal to or less than 2.5 micrometers that are directly emitted by a source as a solid or liquid at stack or release conditions and can be captured on the filter of a stack test train.

"Fireplace" means all devices both masonry or factory built units (free standing fireplaces) with a hearth, fire chamber or similarly prepared device connected to a chimney which provides the operator with little control of combustion air, leaving its fire chamber fully or at least partially open to the room. Fireplaces include those devices with circulating systems, heat exchangers, or draft reducing doors with a net thermal efficiency of no greater than twenty percent and are used for aesthetic purposes.

"Fugitive Dust" means particulate, composed of soil and/or industrial particulates such as ash, coal, minerals, etc., which becomes airborne because of wind or mechanical disturbance of surfaces. Natural sources of dust and fugitive emissions are not fugitive dust within the meaning of this definition.

"Fugitive Emissions" means emissions from an installation or facility which are neither passed through an air cleaning device nor vented through a stack or could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

"Garbage" means all putrescible animal and vegetable matter resulting from the handling, preparation, cooking and consumption of food, including wastes attendant thereto.

"Gasoline" means any petroleum distillate, used as a fuel for internal combustion engines, having a Reid vapor pressure of 4 pounds or greater.

"Hazardous Air Pollutant (HAP)" means any pollutant listed by the EPA as a hazardous air pollutant in conformance with Section 112(b) of the Clean Air Act. A list of these pollutants is available at the Division of Air Quality.

"Household Waste" means any solid or liquid material normally generated by the family in a residence in the course of ordinary day-to-day living, including but not limited to garbage, paper products, rags, leaves and garden trash.

"Incinerator" means a combustion apparatus designed for high temperature operation in which solid, semisolid, liquid, or gaseous combustible wastes are ignited and burned efficiently and from which the solid and gaseous residues contain little or no combustible material.

"Installation" means a discrete process with identifiable emissions which may be part of a larger industrial plant. Pollution equipment shall not be considered a separate installation or installations.

"LPG" means liquified petroleum gas such as propane or butane.

"Maintenance Area" means an area that is subject to the provisions of a maintenance plan that is included in the Utah state implementation plan, and that has been redesignated by EPA from nonattainment to attainment of any National Ambient Air Quality Standard.

(a) The following areas are considered maintenance areas for ozone:

(i) Salt Lake County, effective August 18, 1997; and

(ii) Davis County, effective August 18, 1997.

(b) The following areas are considered maintenance areas for carbon monoxide:

(i) Salt Lake City, effective March 22, 1999;

(ii) Ogden City, effective May 8, 2001; and

(iii) Provo City, effective January 3, 2006.

(c) The following areas are considered maintenance areas for PM10:

(i) Salt Lake County, effective on the date that EPA approves the maintenance plan that was adopted by the Board on [~~July 6, 2005~~]December 2, 2015; and

(ii) Utah County, effective on the date that EPA approves the maintenance plan that was adopted by the Board on [~~July 6, 2005~~]December 2, 2015; and

(iii) Ogden City, effective on the date that EPA approves the maintenance plan that was adopted by the Board on [~~July 6, 2005~~]December 2, 2015.

(d) The following area is considered a maintenance area for sulfur dioxide: all of Salt Lake County and the eastern portion of Tooele County above 5600 feet, effective on the date that EPA approves the maintenance plan that was adopted by the Board on January 5, 2005.

"Major Modification" means any physical change in or change in the method of operation of a major source that would result in a significant net emissions increase of any pollutant. A net emissions increase that is significant for volatile organic compounds shall be considered significant for ozone. Within Salt Lake and Davis Counties or any nonattainment area for ozone, a net emissions increase that is significant for nitrogen oxides shall be considered significant for ozone. Within areas of nonattainment for PM10, a significant net emission increase for any PM10 precursor is also a significant net emission increase for PM10. A physical change or change in the method of operation shall not include:

(1) routine maintenance, repair and replacement;

(2) use of an alternative fuel or raw material by reason of an order under section 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974, or by reason of a natural gas curtailment plan pursuant to the Federal Power Act;

(3) use of an alternative fuel by reason of an order or rule under section 125 of the federal Clean Air Act;

(4) use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(5) use of an alternative fuel or raw material by a source:

(a) which the source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any enforceable permit condition; or

(b) which the source is otherwise approved to use;

(6) an increase in the hours of operation or in the production rate unless such change would be prohibited under any enforceable permit condition;

(7) any change in ownership at a source

(8) the addition, replacement or use of a pollution control project at an existing electric utility steam generating unit, unless the director determines that such addition, replacement, or use renders the unit less environmentally beneficial, or except:

(a) when the director has reason to believe that the pollution control project would result in a significant net increase in representative actual annual emissions of any criteria pollutant over levels used for that source in the most recent air quality impact analysis in the area conducted for the purpose of Title I of the Clean

Air Act, if any, and

(b) the director determines that the increase will cause or contribute to a violation of any national ambient air quality standard or PSD increment, or visibility limitation.

(9) the installation, operation, cessation, or removal of a temporary clean coal technology demonstration project, provided that the project complies with:

(a) the Utah State Implementation Plan; and

(b) other requirements necessary to attain and maintain the national ambient air quality standards during the project and after it is terminated.

"Major Source" means, to the extent provided by the federal Clean Air Act as applicable to R307:

(1) any stationary source of air pollutants which emits, or has the potential to emit, one hundred tons per year or more of any pollutant subject to regulation under the Clean Air Act; or

(a) any source located in a nonattainment area for carbon monoxide which emits, or has the potential to emit, carbon monoxide in the amounts outlined in Section 187 of the federal Clean Air Act with respect to the severity of the nonattainment area as outlined in Section 187 of the federal Clean Air Act; or

(b) any source located in Salt Lake or Davis Counties or in a nonattainment area for ozone which emits, or has the potential to emit, VOC or nitrogen oxides in the amounts outlined in Section 182 of the federal Clean Air Act with respect to the severity of the nonattainment area as outlined in Section 182 of the federal Clean Air Act; or

(c) any source located in a nonattainment area for PM10 which emits, or has the potential to emit, PM10 or any PM10 precursor in the amounts outlined in Section 189 of the federal Clean Air Act with respect to the severity of the nonattainment area as outlined in Section 189 of the federal Clean Air Act.

(2) any physical change that would occur at a source not qualifying under subpart 1 as a major source, if the change would constitute a major source by itself;

(3) the fugitive emissions and fugitive dust of a stationary source shall not be included in determining for any of the purposes of these R307 rules whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

(a) Coal cleaning plants (with thermal dryers);

(b) Kraft pulp mills;

(c) Portland cement plants;

(d) Primary zinc smelters;

(e) Iron and steel mills;

(f) Primary aluminum or reduction plants;

(g) Primary copper smelters;

(h) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(i) Hydrofluoric, sulfuric, or nitric acid plants;

(j) Petroleum refineries;

(k) Lime plants;

(l) Phosphate rock processing plants;

(m) Coke oven batteries;

(n) Sulfur recovery plants;

(o) Carbon black plants (furnace process);

(p) Primary lead smelters;

(q) Fuel conversion plants;

(r) Sintering plants;

(s) Secondary metal production plants;

(t) Chemical process plants;

(u) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British Thermal Units per hour heat input;

(v) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(w) Taconite ore processing plants;

(x) Glass fiber processing plants;

(y) Charcoal production plants;

(z) Fossil fuel-fired steam electric plants of more than 250 million British Thermal Units per hour heat input;

(aa) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the federal Clean Air Act.

"Modification" means any planned change in a source which results in a potential increase of emission.

"National Ambient Air Quality Standards (NAAQS)" means the allowable concentrations of air pollutants in the ambient air specified by the Federal Government (Title 40, Code of Federal Regulations, Part 50).

"Net Emissions Increase" means the amount by which the sum of the following exceeds zero:

(1) any increase in actual emissions from a particular physical change or change in method of operation at a source; and

(2) any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable. For purposes of determining a "net emissions increase":

(a) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between the date five years before construction on the particular change commences; and the date that the increase from the particular change occurs.

(b) An increase or decrease in actual emissions is creditable only if it has not been relied on in issuing a prior approval for the source which approval is in effect when the increase in actual emissions for the particular change occurs.

(c) An increase or decrease in actual emission of sulfur dioxide, nitrogen oxides or particulate matter which occurs before an applicable minor source baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available. With respect to particulate matter, only PM10 emissions will be used to evaluate this increase or decrease.

(d) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

(e) A decrease in actual emissions is creditable only to the extent that:

(i) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

(ii) It is enforceable at and after the time that actual construction on the particular change begins; and

(iii) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

(iv) It has not been relied on in issuing any permit under R307-401 nor has it been relied on in demonstrating attainment or reasonable further progress.

(f) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

"New Installation" means an installation, construction of which began after the effective date of any regulation having application to it.

"Nonattainment Area" means an area designated by the Environmental Protection Agency as nonattainment under Section 107, Clean Air Act for any National Ambient Air Quality Standard. The designations for Utah are listed in 40 CFR 81.345.

"Offset" means an amount of emission reduction, by a source, greater than the emission limitation imposed on such source by these regulations and/or the State Implementation Plan.

"Opacity" means the capacity to obstruct the transmission of light, expressed as percent.

"Open Burning" means any burning of combustible materials resulting in emission of products of combustion into ambient air without passage through a chimney or stack.

"Owner or Operator" means any person who owns, leases, controls, operates or supervises a facility, an emission source, or air pollution control equipment.

"PSD" Area means an area designated as attainment or unclassifiable under section 107(d)(1)(D) or (E) of the federal Clean Air Act.

"PM2.5" means particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers as measured by an EPA reference or equivalent method.

"PM2.5 Precursor" means any chemical compound or substance which, after it has been emitted into the atmosphere, undergoes chemical or physical changes that convert it into particulate matter, specifically PM2.5, and has been identified in the applicable implementation plan for PM2.5 as significant for the purpose of developing control measures. Specifically, PM2.5 precursors include SO_2, NOx, and VOC.

"PM10" means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by an EPA reference or equivalent method.

"PM10 Precursor" means any chemical compound or substance which, after it has been emitted into the atmosphere, undergoes chemical or physical changes that convert it into particulate matter, specifically PM10.

"Part 70 Source" means any source subject to the permitting requirements of R307-415.

"Person" means an individual, trust, firm, estate, company, corporation, partnership, association, state, state or federal agency or entity, municipality, commission, or political subdivision of a state. (Subsection 19-2-103(4)).

"Pollution Control Project" means any activity or project at an existing electric utility steam generating unit for purposes of reducing emissions from such unit. Such activities or projects are limited to:

(1) The installation of conventional or innovative pollution control technology, including but not limited to advanced flue gas desulfurization, sorbent injection for sulfur dioxide and nitrogen oxides controls and electrostatic precipitators;

(2) An activity or project to accommodate switching to a fuel which is less polluting than the fuel used prior to the activity or project, including, but not limited to natural gas or coal reburning, or the cofiring of natural gas and other fuels for the purpose of controlling emissions;

(3) A permanent clean coal technology demonstration project conducted under Title II, sec. 101(d) of the Further Continuing Appropriations Act of 1985 (sec. 5903(d) of title 42 of the United States Code), or subsequent appropriations, up to a total amount of $2,500,000,000 for commercial demonstration of clean coal technology, or similar projects funded through appropriations for the Environmental Protection Agency; or

(4) A permanent clean coal technology demonstration project that constitutes a repowering project.

"Potential to Emit" means the maximum capacity of a source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation or the effect it would have on emissions is enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

"Primary PM2.5" means the sum of filterable PM2.5 and condensable PM2.5.

"Process Level" means the operation of a source, specific to the kind or type of fuel, input material, or mode of operation.

"Process Rate" means the quantity per unit of time of any raw material or process intermediate consumed, or product generated, through the use of any equipment, source operation, or control apparatus. For a stationary internal combustion unit or any other fuel burning equipment, this term may be expressed as the quantity of fuel burned per unit of time.

"Reactivation of a Very Clean Coal-Fired Electric Utility Steam Generating Unit" means any physical change or change in the method of operation associated with the commencement of commercial operations by a coal-fired utility unit after a period of discontinued operation where the unit:

(1) Has not been in operation for the two-year period prior to the enactment of the Clean Air Act Amendments of 1990, and the emissions from such unit continue to be carried in the emission inventory at the time of enactment;

(2) Was equipped prior to shutdown with a continuous system of emissions control that achieves a removal efficiency for sulfur dioxide of no less than 85 percent and a removal efficiency for particulates of no less than 98 percent;

(3) Is equipped with low-NOx burners prior to the time of commencement of operations following reactivation; and

(4) Is otherwise in compliance with the requirements of the Clean Air Act.

"Reasonable Further Progress" means annual incremental reductions in emission of an air pollutant which are sufficient to provide for attainment of the NAAQS by the date identified in the State Implementation Plan.

"Refuse" means solid wastes, such as garbage and trash.

"Regulated air pollutant" means any of the following:

(a) Nitrogen oxides or any volatile organic compound;

(b) Any pollutant for which a national ambient air quality standard has been promulgated;

(c) Any pollutant that is subject to any standard promulgated under Section 111 of the Act, Standards of Performance for New Stationary Sources;

(d) Any Class I or II substance subject to a standard promulgated under or established by Title VI of the Act, Stratospheric Ozone Protection;

(e) Any pollutant subject to a standard promulgated under Section 112, Hazardous Air Pollutants, or other requirements established under Section 112 of the Act, including Sections 112(g), (j), and (r) of the Act, including any of the following:

(i) Any pollutant subject to requirements under Section 112(j) of the Act, Equivalent Emission Limitation by Permit. If the Administrator fails to promulgate a standard by the date established pursuant to Section 112(e) of the Act, any pollutant for which a subject source would be major shall be considered to be regulated on the date 18 months after the applicable date established pursuant to Section 112(e) of the Act;

(ii) Any pollutant for which the requirements of Section 112(g)(2) of the Act (Construction, Reconstruction and Modification) have been met, but only with respect to the individual source subject to Section 112(g)(2) requirement.

"Repowering" means replacement of an existing coal-fired boiler with one of the following clean coal technologies: atmospheric or pressurized fluidized bed combustion, integrated gasification combined cycle, magnetohydrodynamics, direct and indirect coal-fired turbines, integrated gasification fuel cells, or as determined by the Administrator, in consultation with the Secretary of Energy, a derivative of one or more of these technologies, and any other technology capable of controlling multiple combustion emissions simultaneously with improved boiler or generation efficiency and with significantly greater waste reduction relative to the performance of technology in widespread commercial use as of November 15, 1990.

(1) Repowering shall also include any oil and/or gas-fired unit which has been awarded clean coal technology demonstration funding as of January 1, 1991, by the Department of Energy.

(2) The director shall give expedited consideration to permit applications for any source that satisfies the requirements of this definition and is granted an extension under section 409 of the Clean Air Act.

"Representative Actual Annual Emissions" means the average rate, in tons per year, at which the source is projected to emit a pollutant for the two-year period after a physical change or change in the method of operation of unit, (or a different consecutive two-year period within 10 years after that change, where the director determines that such period is more representative of source operations), considering the effect any such change will have on increasing or decreasing the hourly emissions rate and on projected capacity utilization. In projecting future emissions the director shall:

(1) Consider all relevant information, including but not limited to, historical operational data, the company's own

representations, filings with the State of Federal regulatory authorities, and compliance plans under title IV of the Clean Air Act; and

(2) Exclude, in calculating any increase in emissions that results from the particular physical change or change in the method of operation at an electric utility steam generating unit, that portion of the unit's emissions following the change that could have been accommodated during the representative baseline period and is attributable to an increase in projected capacity utilization at the unit that is unrelated to the particular change, including any increased utilization due to the rate of electricity demand growth for the utility system as a whole.

"Residence" means a dwelling in which people live, including all ancillary buildings.

"Residential Solid Fuel Burning" device means any residential burning device except a fireplace connected to a chimney that burns solid fuel and is capable of, and intended for use as a space heater, domestic water heater, or indoor cooking appliance, and has an air-to-fuel ratio less than 35-to-1 as determined by the test procedures prescribed in 40 CFR 60.534. It must also have a useable firebox volume of less than 6.10 cubic meters or 20 cubic feet, a minimum burn rate less than 5 kilograms per hour or 11 pounds per hour as determined by test procedures prescribed in 40 CFR 60.534, and weigh less than 800 kilograms or 362.9 pounds. Appliances that are described as prefabricated fireplaces and are designed to accommodate doors or other accessories that would create the air starved operating conditions of a residential solid fuel burning device shall be considered as such. Fireplaces are not included in this definition for solid fuel burning devices.

"Road" means any public or private road.

"Salvage Operation" means any business, trade or industry engaged in whole or in part in salvaging or reclaiming any product or material, including but not limited to metals, chemicals, shipping containers or drums.

"Secondary Emissions" means emissions which would occur as a result of the construction or operation of a major source or major modification, but do not come from the major source or major modification itself.

Secondary emissions must be specific, well defined, quantifiable, and impact the same general area as the source or modification which causes the secondary emissions. Secondary emissions include emissions from any off-site support facility which would not be constructed or increase its emissions except as a result of the construction or operation of the major source or major modification. Secondary emissions do not include any emissions which come directly from a mobile source such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel.

Fugitive emissions and fugitive dust from the source or modification are not considered secondary emissions.

"Secondary PM2.5" means particles that form or grow in mass through chemical reactions in the ambient air well after dilution and condensation have occurred. Secondary PM2.5 is usually formed at some distance downwind from the source.

"Significant" means:

(1) In reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Carbon monoxide: 100 ton per year (tpy);

Nitrogen oxides: 40 tpy;

Sulfur dioxide: 40 tpy;

PM10: 15 tpy;

PM2.5: 10 tpy;

Particulate matter: 25 tpy;

Ozone: 40 tpy of volatile organic compounds;

Lead: 0.6 tpy.

"Solid Fuel" means wood, coal, and other similar organic material or combination of these materials.

"Solvent" means organic materials which are liquid at standard conditions (Standard Temperature and Pressure) and which are used as dissolvers, viscosity reducers, or cleaning agents.

"Source" means any structure, building, facility, or installation which emits or may emit any air pollutant subject to regulation under the Clean Air Act and which is located on one or more continuous or adjacent properties and which is under the control of the same person or persons under common control. A building, structure, facility, or installation means all of the pollutant-emitting activities which belong to the same industrial grouping. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e. which have the same two-digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (US Government Printing Office stock numbers 4101-0065 and 003-005-00176-0, respectively).

"Stack" means any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct but not including flares.

"Standards of Performance for New Stationary Sources" means the Federally established requirements for performance and record keeping (Title 40 Code of Federal Regulations, Part 60).

"State" means Utah State.

"Temporary" means not more than 180 calendar days.

"Temporary Clean Coal Technology Demonstration Project" means a clean coal technology demonstration project that is operated for a period of 5 years or less, and which complies with the Utah State

Implementation Plan and other requirements necessary to attain and maintain the national ambient air quality standards during the project and after it is terminated.

"Threshold Limit Value - Ceiling (TLV-C)" means the airborne concentration of a substance which may not be exceeded, as adopted by the American Conference of Governmental Industrial Hygienists in its "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, (2009)."

"Threshold Limit Value - Time Weighted Average (TLV-TWA)" means the time-weighted airborne concentration of a substance adopted by the American Conference of Governmental Industrial Hygienists in its "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, (2009)."

"Total Suspended Particulate (TSP)" means minute separate particles of matter, collected by high volume sampler.

"Toxic Screening Level" means an ambient concentration of an air contaminant equal to a threshold limit value - ceiling (TLV- C) or threshold limit value -time weighted average (TLV-TWA) divided by a safety factor.

"Trash" means solids not considered to be highly flammable or explosive including, but not limited to clothing, rags, leather, plastic, rubber, floor coverings, excelsior, tree leaves, yard trimmings and other similar materials.

"Volatile Organic Compound (VOC)" means VOC as defined in 40 CFR 51.100(s), effective as of the date referenced in R307-101-3, is hereby adopted and incorporated by reference.

"Waste" means all solid, liquid or gaseous material, including, but not limited to, garbage, trash, household refuse, construction or demolition debris, or other refuse including that resulting from the prosecution of any business, trade or industry.

"Zero Drift" means the change in the instrument meter readout over a stated period of time of normal continuous operation when the VOC concentration at the time of measurement is zero.

KEY: air pollution, definitions
Date of Enactment or Last Substantive Amendment: [~~August 7, 2014~~]2015
Notice of Continuation: May 8, 2014
Authorizing, and Implemented or Interpreted Law: 19-2-104(1)(a)

NOTICE OF
PROPOSED RULE AMENDMENT

- The agency identified below in box 1 provides notice of proposed rule change pursuant to Utah Code Section 63G-3-301.
- Please address questions regarding information on this notice to the agency.
- The full text of all rule filings is published in the Utah State Bulletin unless excluded because of space constraints.
- The full text of all rule filings may also be inspected at the Division of Administrative Rules.

Rule Information

DAR file no: Date filed:
State Admin Rule Filing Key: 156957
Utah Admin. Code ref. (R no.): R307-101-2

Agency Information

1. Agency: ENVIRONMENTAL QUALITY - Air Quality

Room no.: Fourth Floor
Building:
Street address 1: 195 N 1950 W
Street address 2:
City, state, zip: SALT LAKE CITY UT 84116-3085
Mailing address 1: PO BOX 144820
Mailing address 2:
City, state, zip: SALT LAKE CITY UT 84114-4820

Contact person(s):

Name:	Phone:	Fax:	E-mail:	Remove:
Ryan Stephens	801-536-4419	801-536-0085	rstephens@utah.gov	

(Interested persons may inspect this filing at the above address or at DAR during business hours)

Rule Title

2. Title of rule or section (catchline):
Definitions.

Notice Type

3. Type of notice: Amendment

Rule Purpose

4. Purpose of the rule or reason for the change:
The purpose is to update an out of date reference to a PM10 maintenance plan.

Response Information

5. This change is a response to comments by the Administrative Rules Review Committee.

◉ No ○ Yes

Rule Summary

6. Summary of the rule or change:
The rule currently references a maintenance plan adopted by the Air Quality Board on July 6, 2005. This reference is being changed to December 2, 2015, which is the date of adoption for the current maintenance plan.

Aggregate Cost Information

7. Aggregate anticipated cost or savings to:
A) State budget:
Affected: ◉ No ○ Yes
No, all of the substantive requirements are contained within the Utah State Implementation Plan (SIP), Section IX.A and IX.H, and other Air Quality Rules that are part of the SIP. This amendment merely changes a date that helps define the geographic region of the PM10 maintenance area.
B) Local government:
Affected: ◉ No ○ Yes
No, all of the substantive requirements are contained within the Utah State Implementation Plan (SIP), Section IX.A and IX.H, and other Air Quality Rules that are part of the SIP. This amendment merely changes a date that helps define the geographic region of the PM10 maintenance area.
C) Small businesses:
Affected: ◉ No ○ Yes
("small business" means a business employing fewer than 50 persons)
No, all of the substantive requirements are contained within the Utah State Implementation Plan (SIP), Section IX.A and IX.H, and other Air Quality Rules that are part of the SIP. This amendment merely changes a date that helps define the geographic region of the PM10 maintenance area.
D) Persons other than small businesses, businesses, or local government entities:
Affected: ◉ No ○ Yes
("person" means any individual, partnership, corporation, association, governmental entity, or public or private organization of any character other than an agency)
No, all of the substantive requirements are contained within the Utah State Implementation Plan (SIP), Section IX.A and IX.H, and other Air Quality Rules that are part of the SIP. This amendment merely changes a date that helps define the geographic region of the PM10 maintenance area.

Compliance Cost Information

8. Compliance costs for affected persons:
There will be no compliance costs for affected persons. All of the substantive requirements are contained within the Utah State Implementation Plan (SIP), Section IX.A and IX.H, and other Air Quality Rules that are part of the SIP. This amendment merely changes a date that helps define the geographic region of the PM10 maintenance area.

Department Head Comments

9. A) Comments by the department head on the fiscal impact the rule may have on businesses:
This amendment will not have a fiscal impact on businesses. All of the substantive requirements are contained within the Utah State Implementation Plan (SIP), Section IX.A and IX.H, and other Air Quality Rules that are part of the SIP. This amendment merely changes a date that helps define the geographic region of the PM10 maintenance area.
B) Name and title of department head commenting on the fiscal impacts:
Executive Director, Alan Matheson

Citation Information

10. This rule change is authorized or mandated by state law, and implements or interprets the following state and federal laws.
State code or constitution citations (required) (e.g., Section 63G-3-402; Subsection 63G-3-601 (3); Article IV) :
19-2-104

Incorporated Materials

11. This rule adds, updates, or removes the following title of materials incorporated by references (a copy of materials incorporated by reference must be submitted to DAR; if none, leave blank) :

Official Title of Materials Incorporated (from title page)	
Publisher	
Date Issued (mm/dd/yyyy)	
Issue, or version (including partial dates)	
ISBN Number	
ISSN Number	
Cost of Incorporated Reference	
Adds, updates, removes	-- SELECT ONE --

Comments

12. The public may submit written or oral comments to the agency identified in box 1. (The public may also request a hearing by submitting a written request to the agency. The agency is required to hold a hearing if it receives requests from ten interested persons or from an association having not fewer than ten members. Additionally, the request must be received by the agency not more than 15 days after the publication of this rule in the Utah State Bulletin. See Section 63G-3-302 and Rule R15-1 for more information.)
A) Comments will be accepted until 5:00 p.m. on (mm/dd/yyyy) : 02/01/2016
B) A public hearing (optional) will be held:

On (mm/dd/yyyy):	At (hh:mm AM/PM):	At (place):

Proposed Effective Date

13. This rule change may become effective on (mm/dd/yyyy): 02/08/2016

NOTE: The date above is the date on which this rule MAY become effective. It is NOT the effective date. After a minimum of seven days following the date designated in Box 12(A) above, the agency must submit a Notice of Effective Date to the Division of Administrative Rules to make this rule effective. Failure to submit a Notice of Effective Date will result in this rule lapsing and will require the agency to start the rulemaking process over.

Indexing Information

14. Indexing information - keywords (maximum of four, one term per field, in lower case, except for acronyms (e.g., "GRAMA") or proper nouns (e.g., "Medicaid")):

air pollution, definitions

File Information

15. Attach an RTF document containing the text of this rule change (filename):

No document is associated with this filing.

To the Agency

Information requested on this form is required by Sections 63G-3-301, 302, 303, and 402. Incomplete forms will be returned to the agency for completion, possibly delaying publication in the Utah State Bulletin, and delaying the first possible effective date.

Agency Authorization

Agency head or designee, and title:	Bryce Bird Director	Date (mm/dd/yyyy):	11/17/2015

ITEM 12

Air Toxics

State of Utah
GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality
Alan Matheson
Executive Director
DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQA-1038-15

M E M O R A N D U M

TO: Air Quality Board

FROM: Bryce C. Bird, Executive Secretary

DATE: October 14, 2015

SUBJECT: Air Toxics, Lead-Based Paint, and Asbestos (ATLAS) Section Compliance Activities – September 2015

MACT Compliance Inspections	0
Asbestos Demolition/Renovation NESHAP Inspections	29
Asbestos AHERA Inspections	34
Asbestos State Rules Only Inspections	12
Asbestos Notifications Accepted	225
Asbestos Telephone Calls Answered	375
Asbestos Individuals Certifications Approved/Disapproved	72/0
Asbestos Company Certifications/Re-Certifications	2/0
Asbestos Alternate Work Practices Approved/Disapproved	18/0
Lead-Based Paint (LBP) Inspections	6
LBP Notifications Approved	14
LBP Telephone Calls Answered	25
LBP Letters Prepared and Mailed	0
LBP Courses Reviewed/Approved	0/0
LBP Course Audits	0
LBP Individual Certifications Approved/Disapproved	19/0

LBP Firm Certifications	10
Notices of Violation Issued	0
Compliance Advisories Issued	11
Warning Letters Issued	15
Settlement Agreements Finalized	2
Penalties Agreed to:	
Tooele County School District	$ 62.50
Eddie Lopez Construction	$600.00
	$662.50

State of Utah
GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality
Alan Matheson
Executive Director
DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQA-1093-15

M E M O R A N D U M

TO: Air Quality Board

FROM: Bryce C. Bird, Executive Secretary

DATE: November 12, 2015

SUBJECT: Air Toxics, Lead-Based Paint, and Asbestos (ATLAS) Section Compliance Activities – October 2015

Asbestos Demolition/Renovation NESHAP Inspections	28
Asbestos AHERA Inspections	30
Asbestos State Rules Only Inspections	10
Asbestos Notifications Accepted	203
Asbestos Telephone Calls Answered	367
Asbestos Individuals Certifications Approved/Disapproved	21/0
Asbestos Company Certifications/Re-Certifications	3/0
Asbestos Alternate Work Practices Approved/Disapproved	16/0
Lead-Based Paint (LBP) Inspections	1
LBP Notifications Approved	2
LBP Telephone Calls Answered	11
LBP Letters Prepared and Mailed	0
LBP Courses Reviewed/Approved	0/0
LBP Course Audits	1
LBP Individual Certifications Approved/Disapproved	7/0
LBP Firm Certifications	9

195 North 1950 West • Salt Lake City, Utah
Mailing Address: P.O. Box 144820 • Salt Lake City, Utah 84114-4820
Telephone (801) 536-4000 • Fax (801) 536-4099 • T.D.D (801) 903-3978
www.deq.utah.gov

Notices of Violation Issued	0
Compliance Advisories Issued	16
Warning Letters Issued	7
Settlement Agreements Finalized	0
Penalties Agreed to:	0

Compliance

State of Utah
GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality
Alan Matheson
Executive Director
DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQC-1333-15

M E M O R A N D U M

TO: Air Quality Board

FROM: Bryce C. Bird, Executive Secretary

DATE: October 19, 2015

SUBJECT: Compliance Activities – September 2015

Annual Inspections Conducted:

Major 11
Synthetic Minor 6
Minor 26

On-Site Stack Test Audits Conducted: 12

Stack Test Report Reviews: 41

On-Site CEM Audits Conducted: 0

Emission Reports Reviewed: 2

Temporary Relocation Requests Reviewed & Approved: 11

Fugitive Dust Control Plans Reviewed & Accepted: 117

Soil Remediation Report Reviews: 2

[1]Miscellaneous Inspections Conducted: 44

Complaints Received: 37

Breakdown Reports Received: 0
Compliance Actions Resulting From a Breakdown 0

Warning Letters Issued: 2

Notices of Violation Issued:... 0

Compliance Advisories Issued:.. 3

Settlement Agreements Reached: 1

Hill Brothers Chemical.. $3,200.00

[1]Miscellaneous inspections include, e.g., surveillance, level I inspections, VOC inspections, complaints, on-site training, dust patrol, smoke patrol, open burning, etc.

State of Utah
GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQC-1482-15

M E M O R A N D U M

TO: Air Quality Board

FROM: Bryce C. Bird, Executive Secretary

DATE: November 17, 2015

SUBJECT: Compliance Activities – October 2015

Annual Inspections Conducted:

Major 1
Synthetic Minor 0
Minor 12

On-Site Stack Test Audits Conducted: 7

Stack Test Report Reviews: 41

On-Site CEM Audits Conducted: 0

Emission Reports Reviewed: 27

Temporary Relocation Requests Reviewed & Approved: 6

Fugitive Dust Control Plans Reviewed & Accepted: 99

Open Burn Permits Issued 1,045

Soil Remediation Report Reviews: 1

[1]Miscellaneous Inspections Conducted: 14

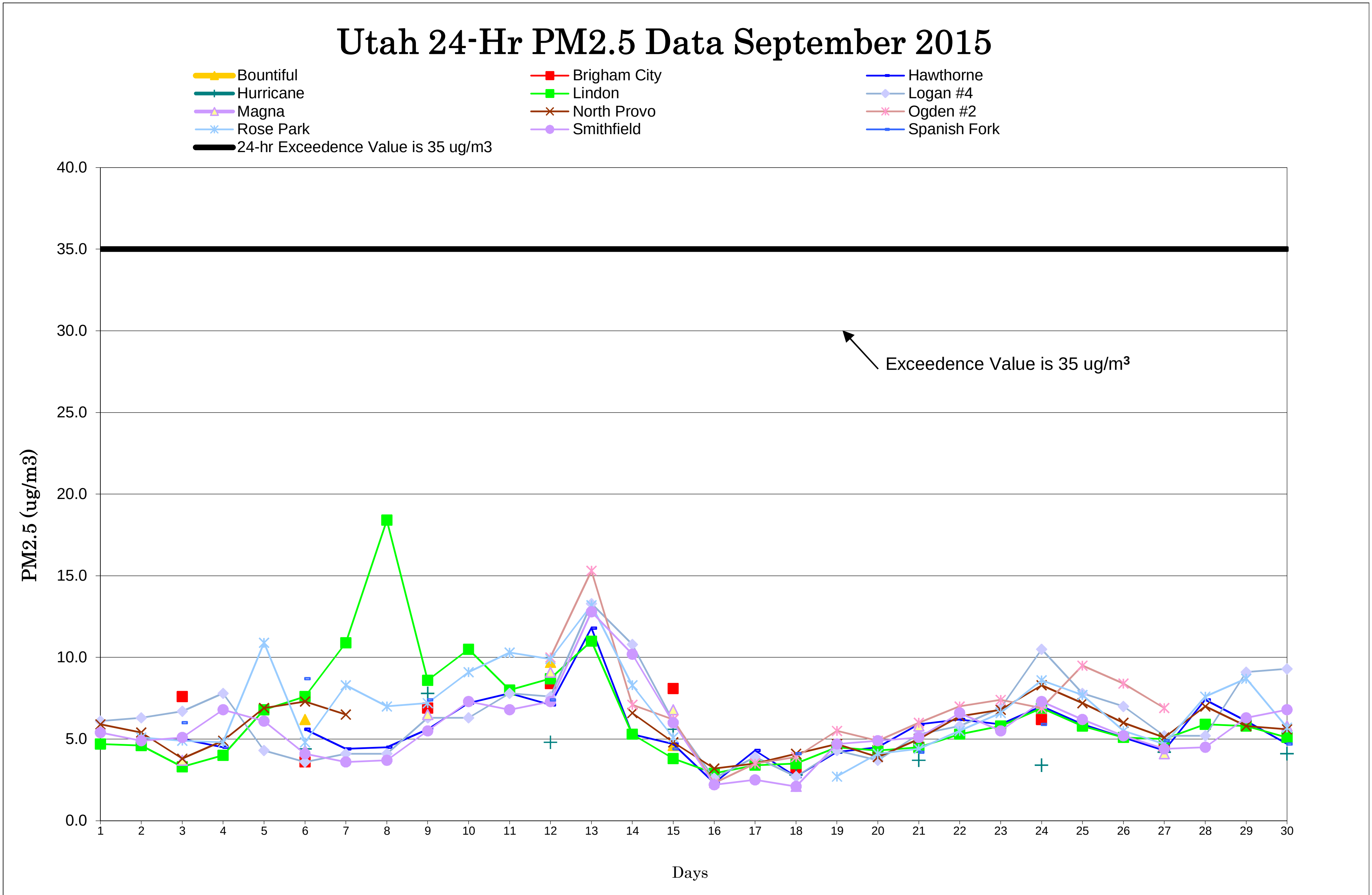
Complaints Received: 18

195 North 1950 West • Salt Lake City, Utah
Mailing Address: P.O. Box 144820 • Salt Lake City, Utah 84114-4820
Telephone (801) 536-4000 • Fax (801)536-4099 • T.D.D. (801) 903-3978
www.deq.utah.gov

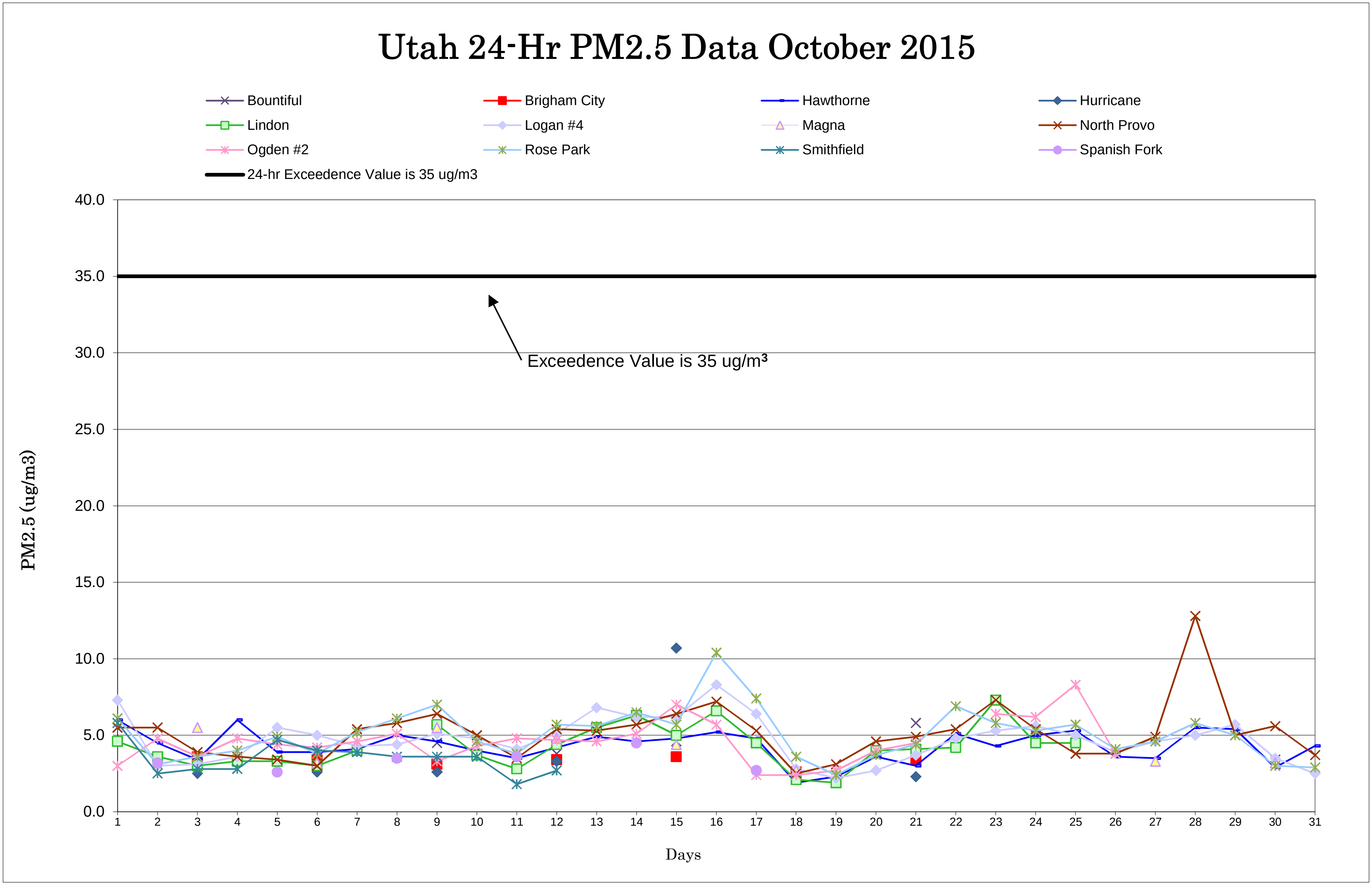
Breakdown Reports Received:	2
Compliance Actions Resulting From a Breakdown	0
Warning Letters Issued:	1
Notices of Violation Issued:	0
Compliance Advisories Issued:	6
Settlement Agreements Reached:	4
Bland Recycling	$1,600.00
Kennecott	$2,480.00
Broken Arrow	$5,028.00
Cargill Salt	$471.00

[1]Miscellaneous inspections include, e.g., surveillance, level I inspections, VOC inspections, complaints, on-site training, dust patrol, smoke patrol, open burning, etc.

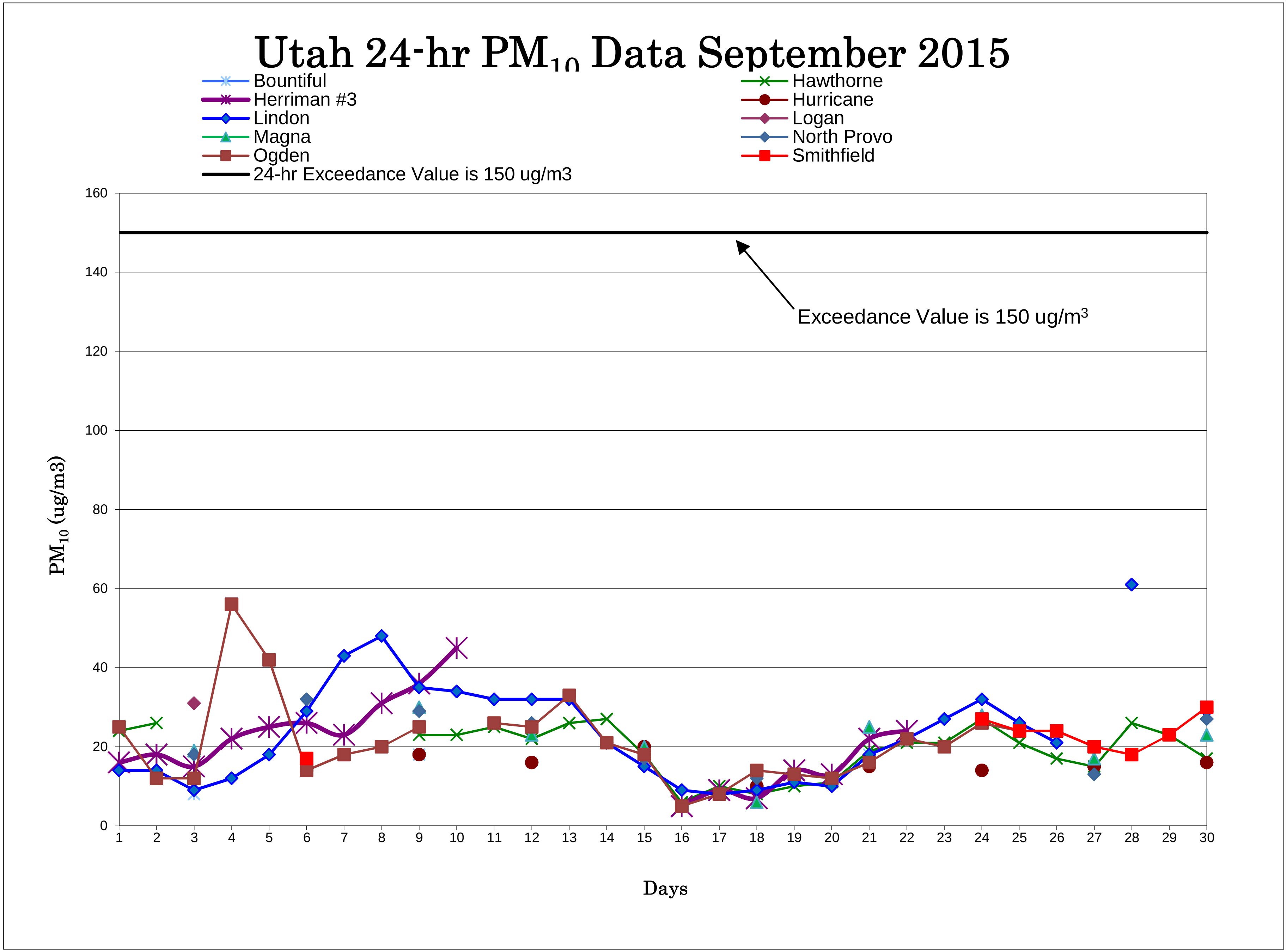
Air Monitoring



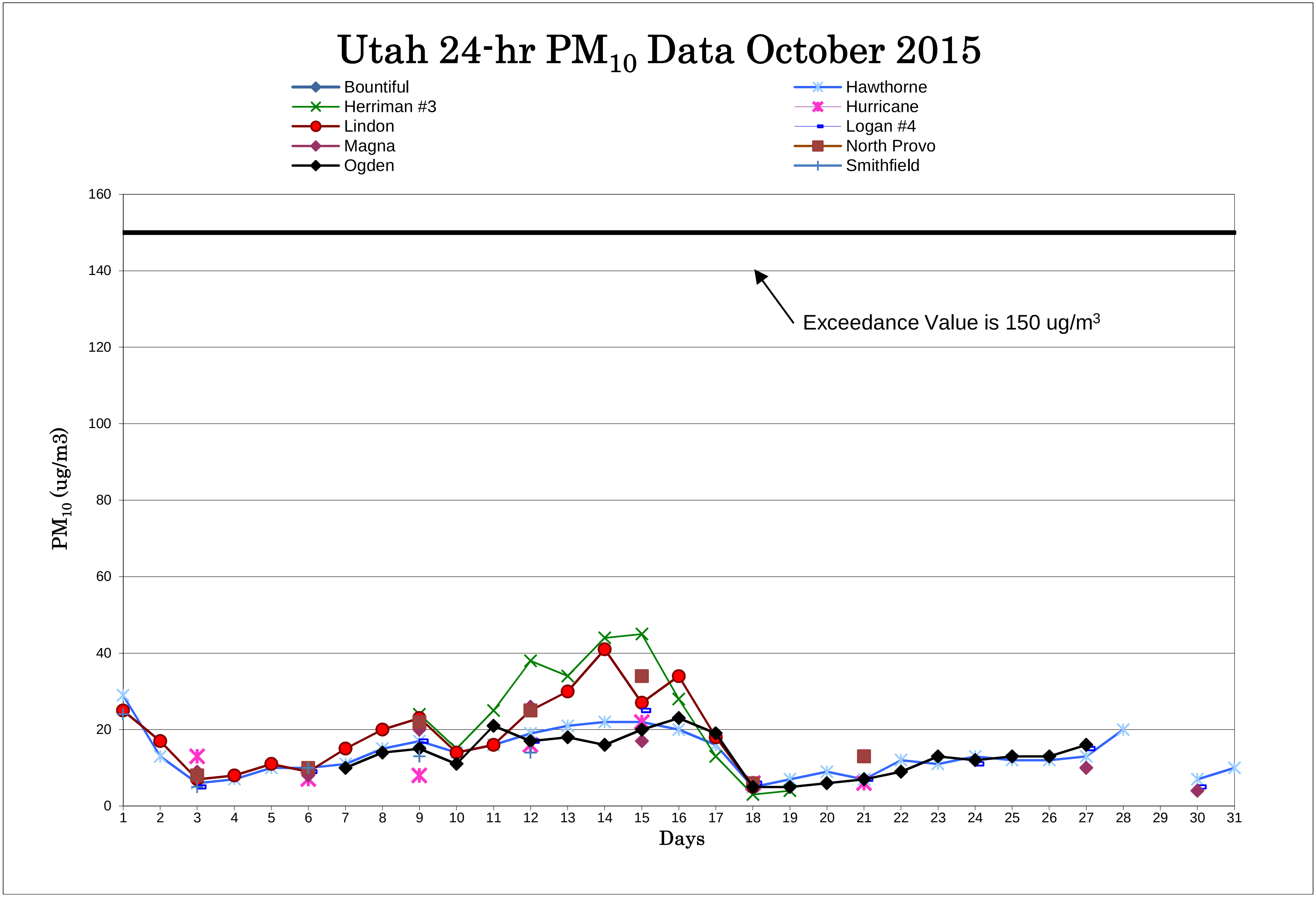
Utah Division of Air Quality



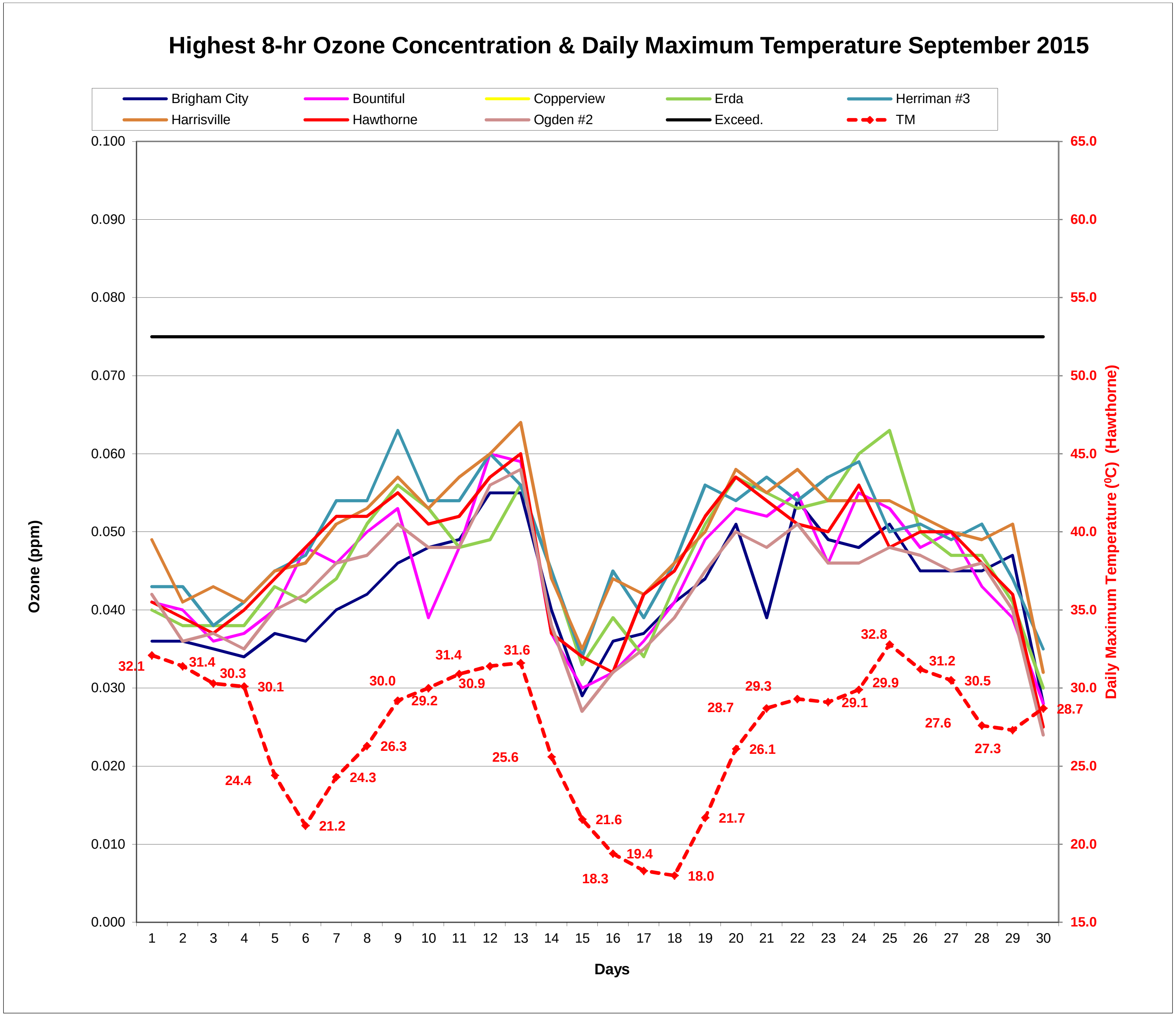
Utah Division of Air Quality



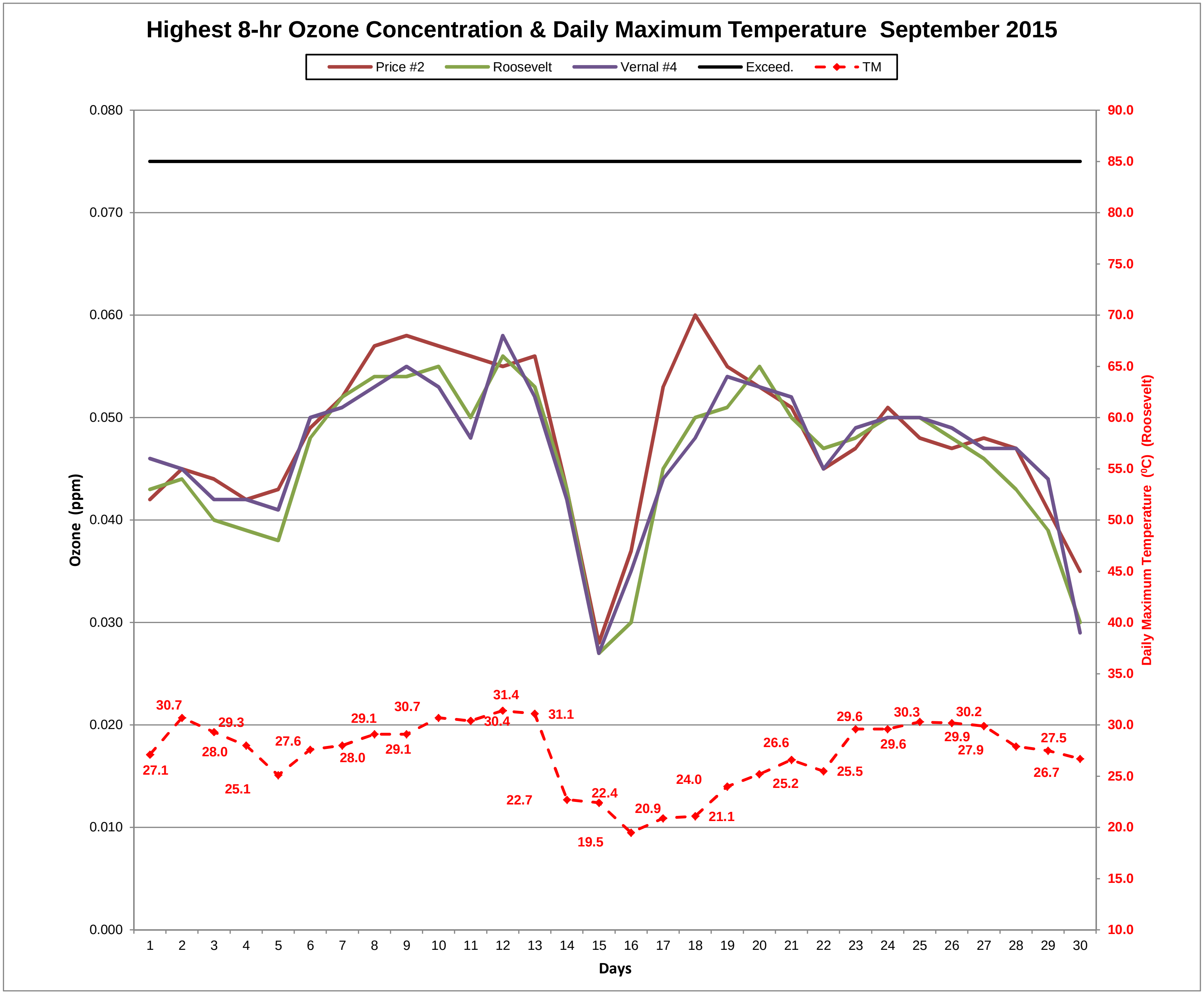
Utah Division of Air Quality



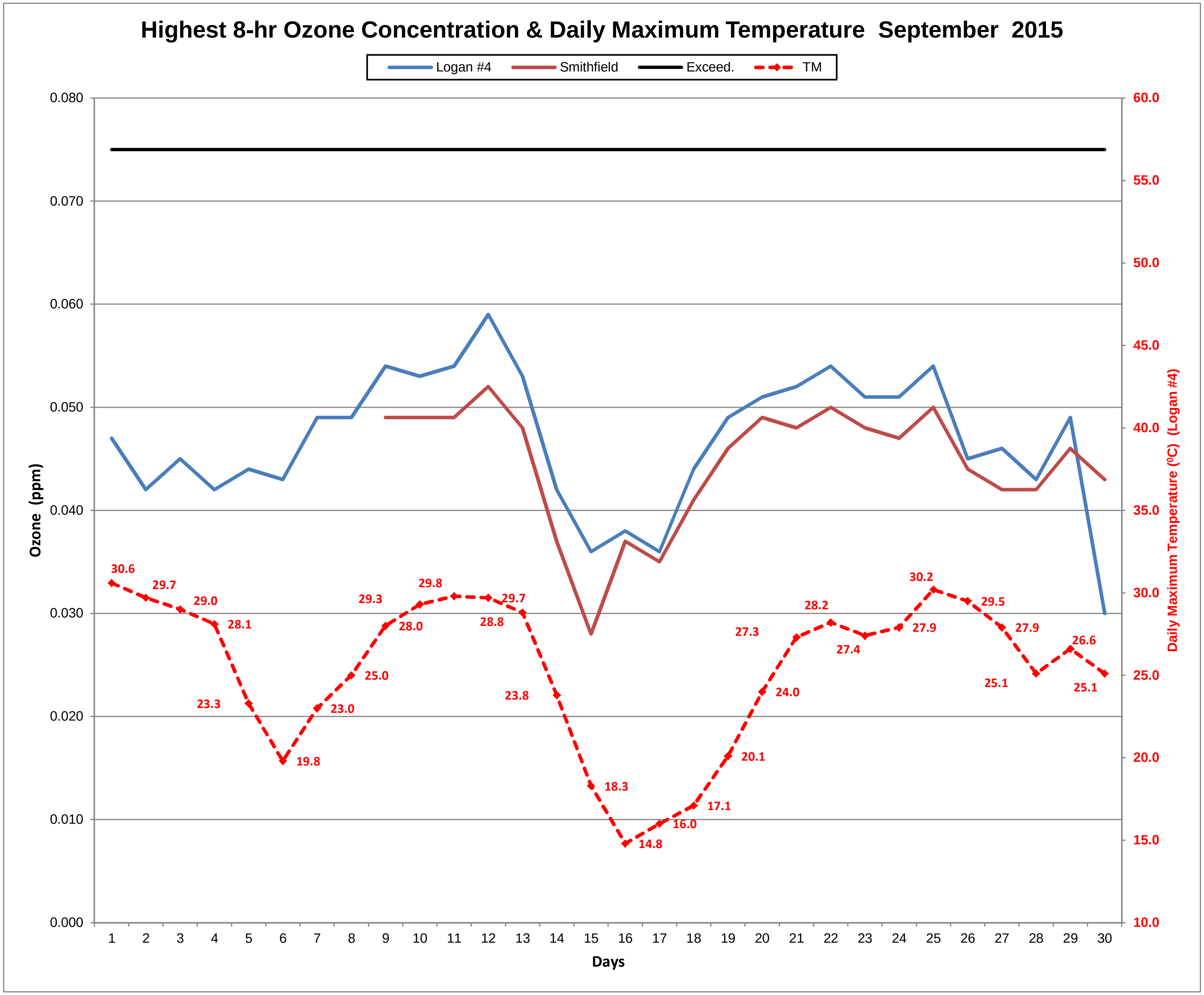
Utah Division of Air Quality



Highest 8-hr Ozone Concentration & Daily Maximum Temperature September 2015
Brigham City
Bountiful
Copperview
Erda
Herriman #3
Harrisville
Hawthorne
Ogden #2
Exceed.
TM
Ozone (ppm)
Daily Maximum Temperature (ºC) (Hawthorne)
Days
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
32.1
31.4
30.3
30.1
24.4
21.2
24.3
26.3
30.0
29.2
31.4
30.9
31.6
25.6
21.6
19.4
18.3
18.0
21.7
28.7
26.1
29.3
29.1
32.8
29.9
31.2
27.6
30.5
27.3
28.7



Highest 8-hr Ozone Concentration & Daily Maximum Temperature September 2015
Price #2
Roosevelt
Vernal #4
Exceed.
TM
Ozone (ppm)
Daily Maximum Temperature (⁰C) (Roosevelt)
Days
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
27.1
30.7
29.3
28.0
25.1
27.6
28.0
29.1
29.1
30.7
30.4
31.4
31.1
22.7
22.4
19.5
20.9
24.0
21.1
25.2
26.6
25.5
29.6
29.6
30.3
29.9
30.2
27.9
27.5
26.7



Highest 8-hr Ozone Concentration & Daily Maximum Temperature September 2015
Logan #4
Smithfield
Exceed.
TM
Ozone (ppm)
Daily Maximum Temperature (ºC) (Logan #4)
Days
0.000
0.010
0.020
0.030
0.040
0.050
0.060
0.070
0.080
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
55.0
60.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
30.6
29.7
29.0
28.1
23.3
19.8
23.0
25.0
29.3
28.0
29.8
28.8
29.7
23.8
18.3
14.8
16.0
17.1
20.1
24.0
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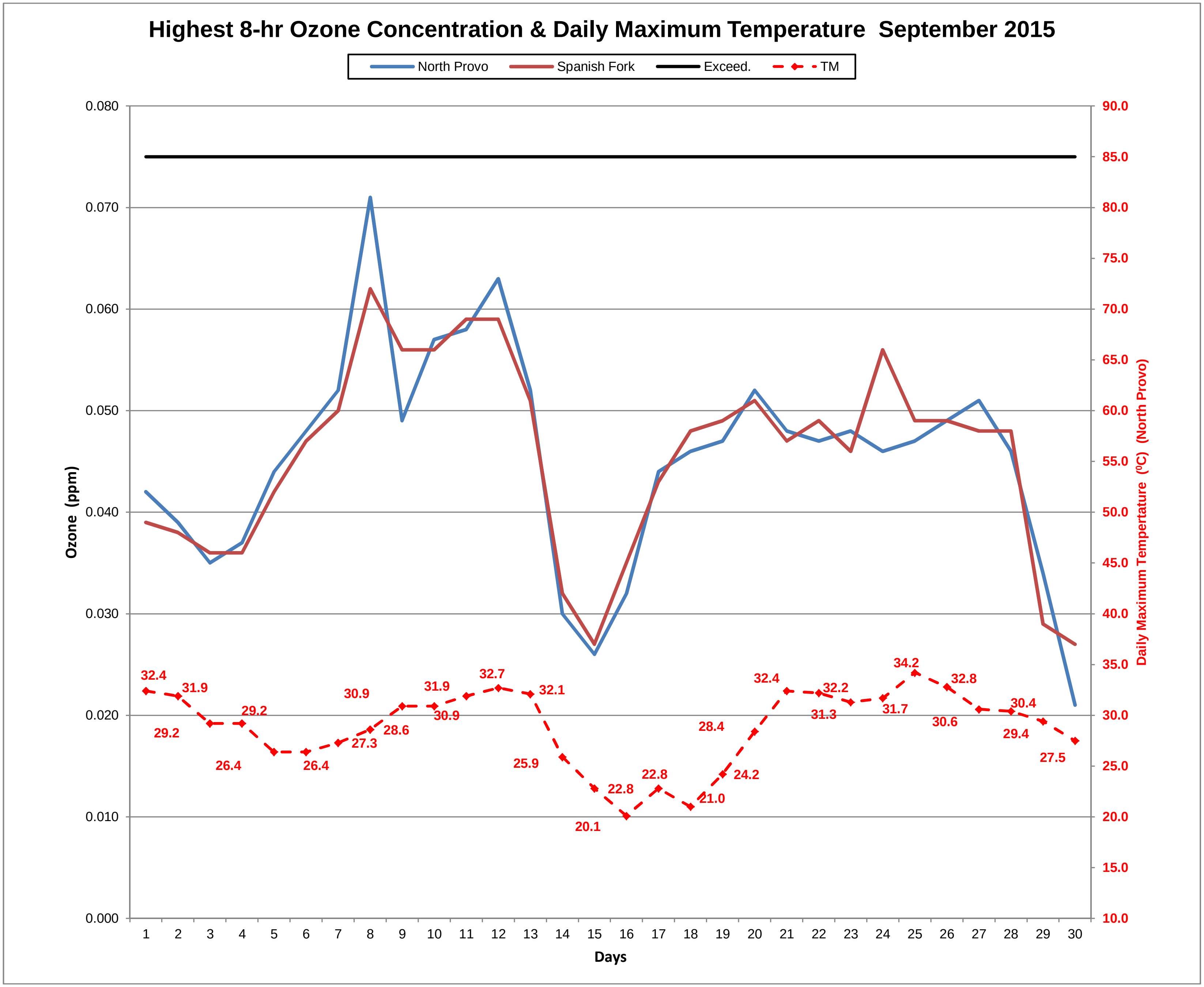
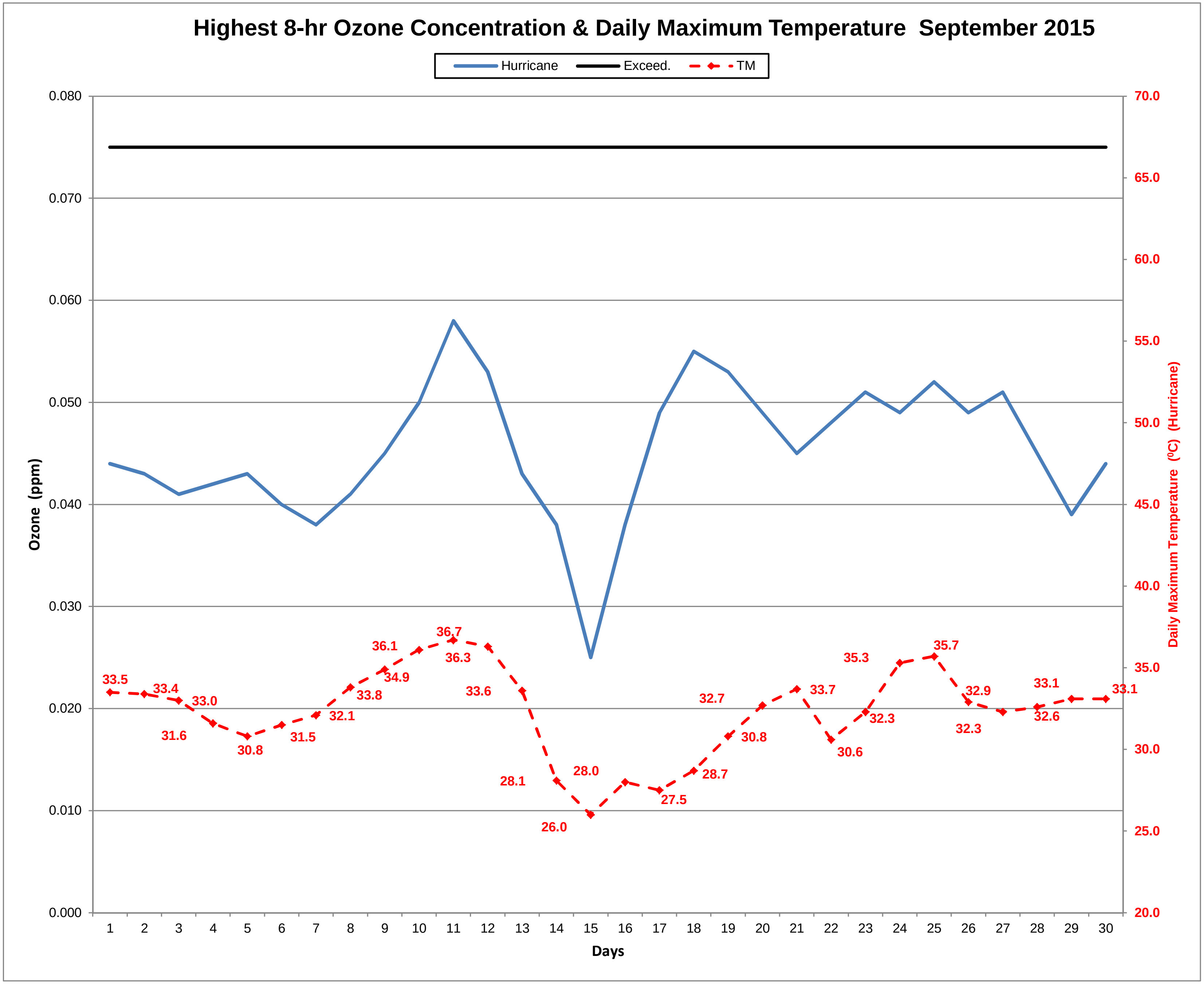
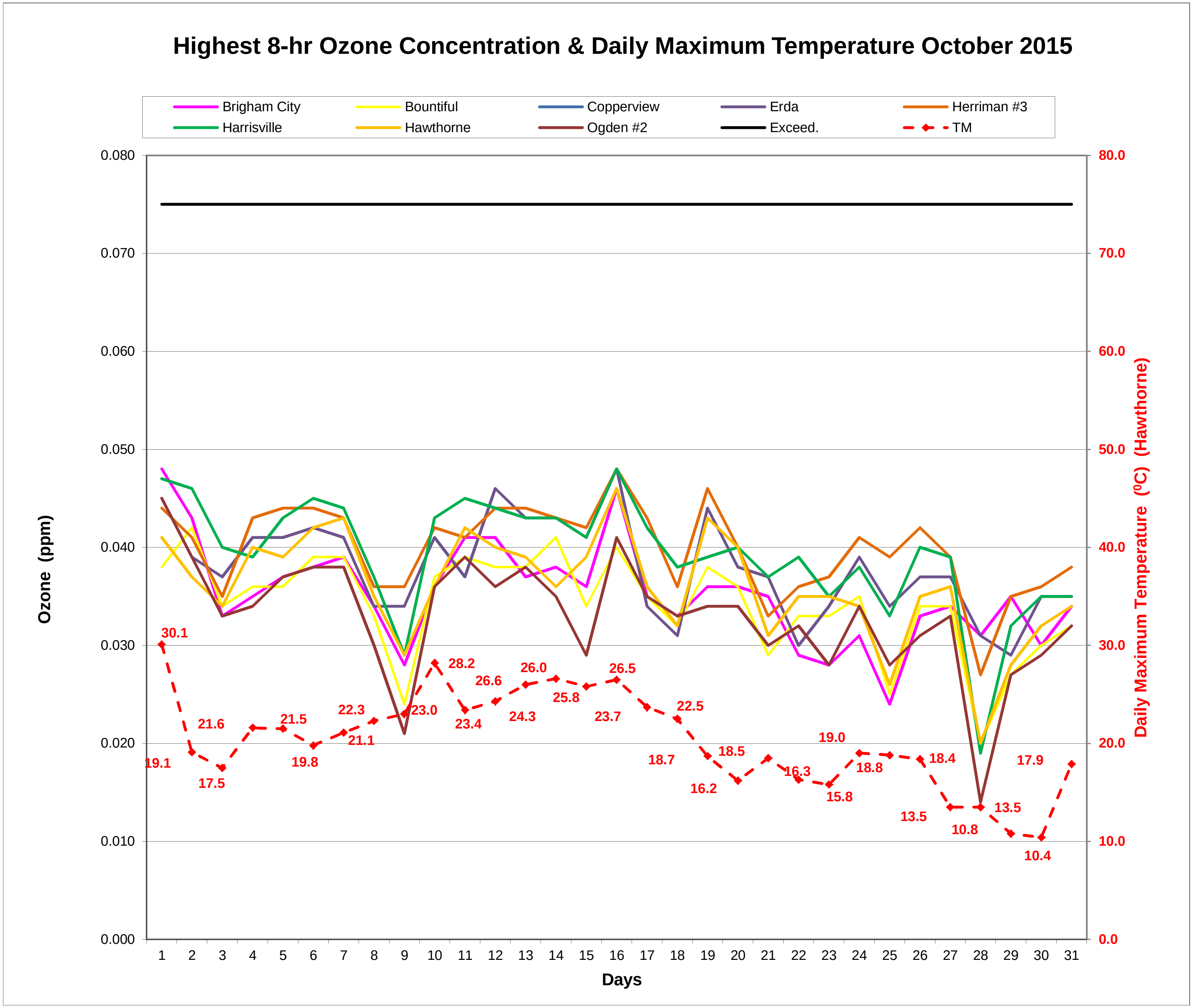
27.4
27.9
30.2
29.5
27.9
25.1
26.6
25.1

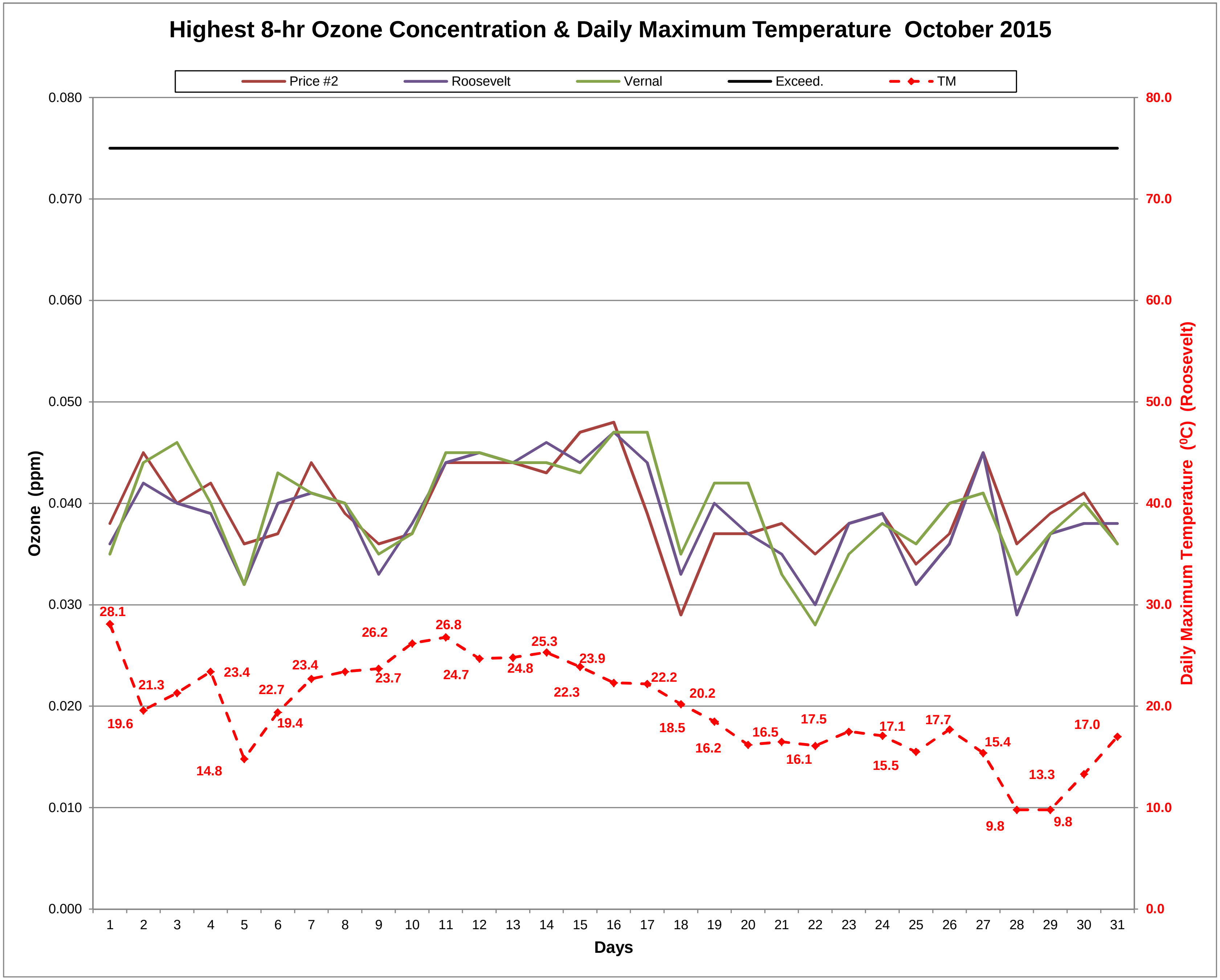


Highest 8-hr Ozone Concentration & Daily Maximum Temperature September 2015
North Provo
Spanish Fork
Exceed.
TM
Ozone (ppm)
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
Daily Maximum Tempertature (⁰C) (North Provo)
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
Days
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
32.4
31.9
29.2
29.2
26.4
26.4
27.3
28.6
30.9
31.9
30.9
32.7
32.1
25.9
22.8
20.1
22.8
21.0
24.2
28.4
32.4
32.2
31.3
31.7
34.2
32.8
30.6
30.4
29.4
27.5

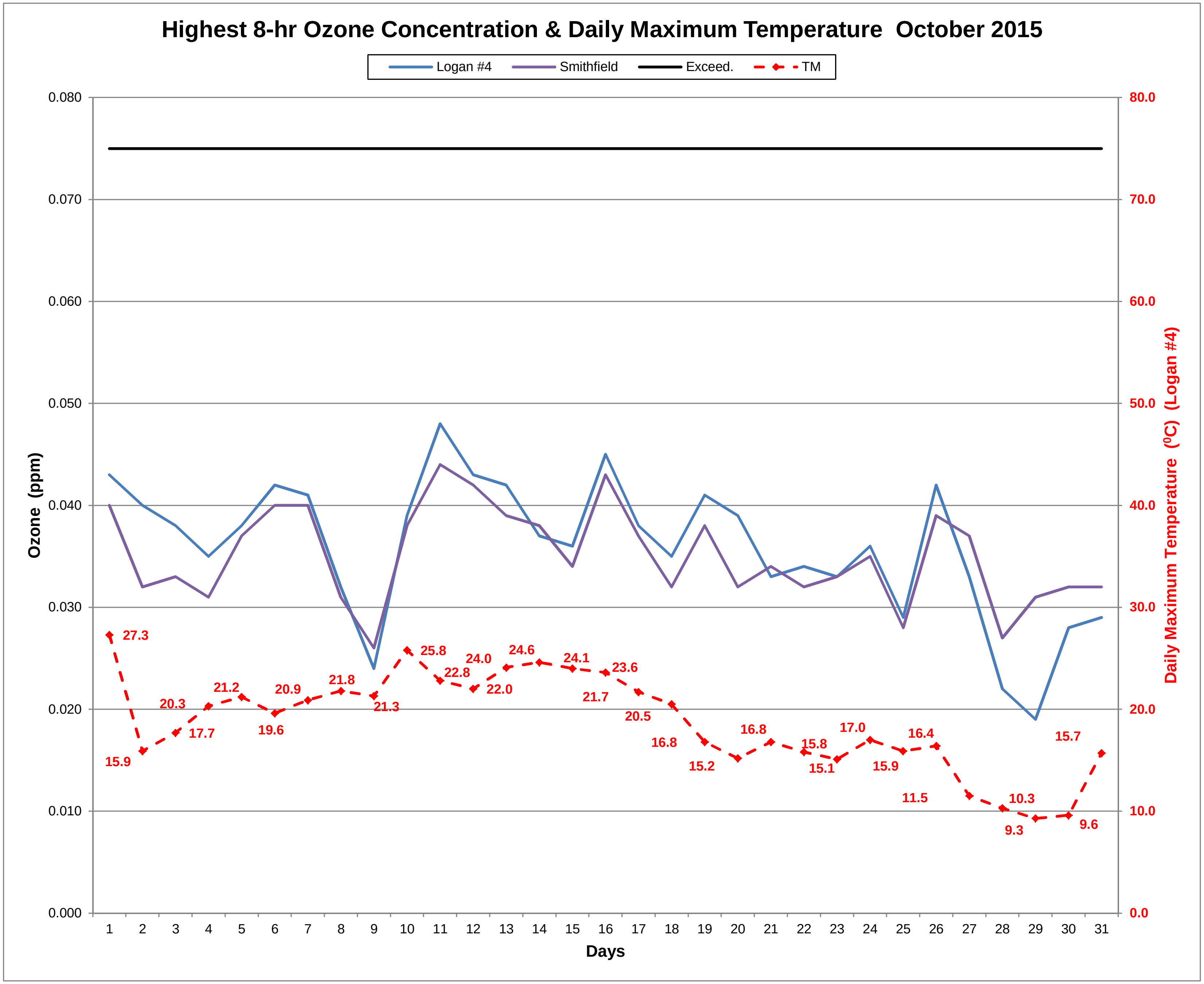

Highest 8-hr Ozone Concentration & Daily Maximum Temperature September 2015
Hurricane
Exceed.
TM
Ozone (ppm)
Daily Maximum Temperature (ºC) (Hurricane)
Days
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
33.5
33.4
33.0
31.6
30.8
31.5
32.1
33.8
34.9
36.1
36.3
36.7
33.6
28.1
26.0
28.0
27.5
28.7
30.8
32.7
33.7
30.6
32.3
35.3
35.7
32.9
32.3
32.6
33.1
33.1



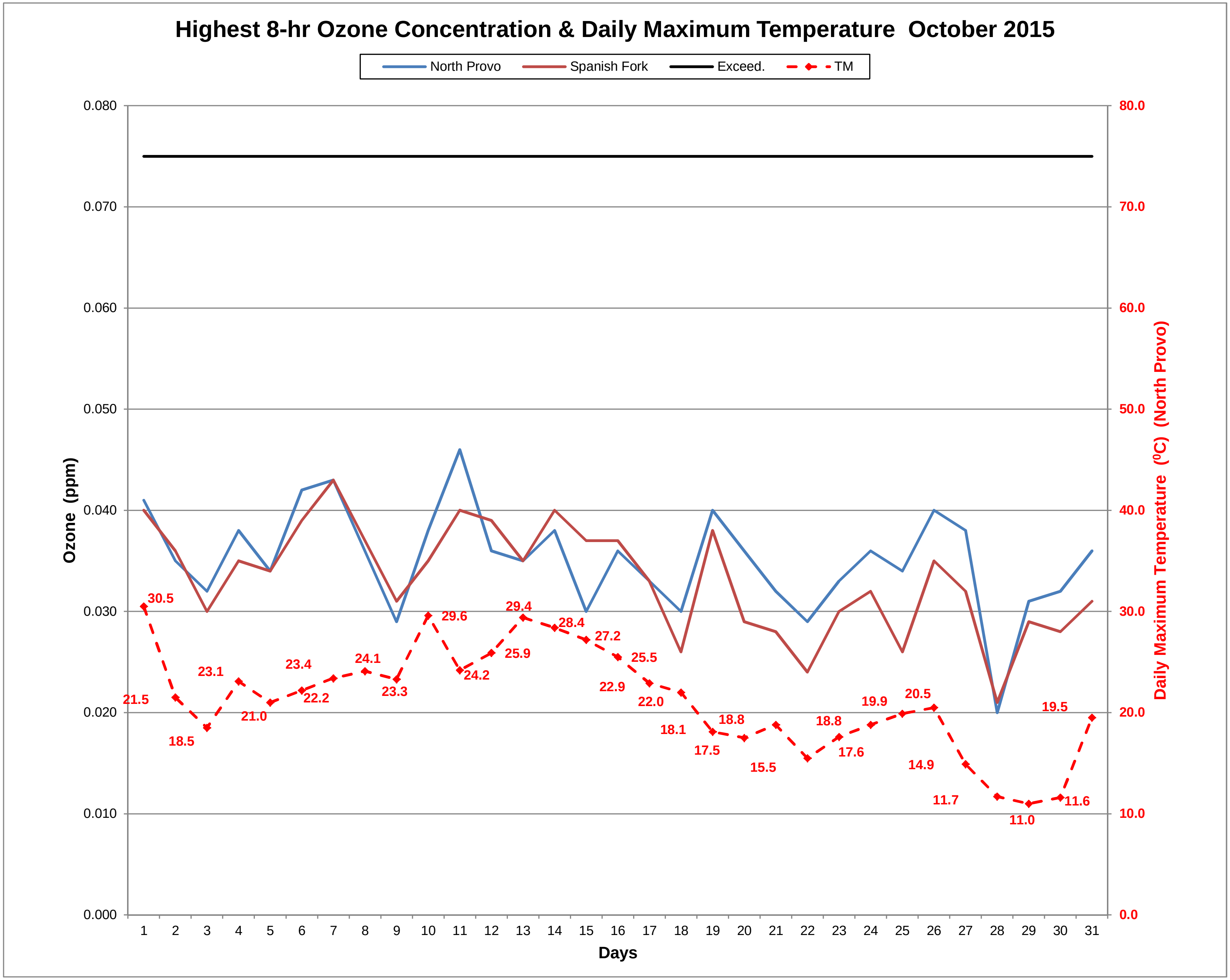
Highest 8-hr Ozone Concentration & Daily Maximum Temperature October 2015
Brigham City
Bountiful
Copperview
Erda
Herriman #3
Harrisville
Hawthorne
Ogden #2
Exceed.
TM
Ozone (ppm)
Daily Maximum Temperature (°C) (Hawthorne)
Days
0.000
0.010
0.020
0.030
0.040
0.050
0.060
0.070
0.080
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
30.1
19.1
17.5
21.6
21.5
19.8
22.3
21.1
23.0
28.2
23.4
26.6
24.3
26.0
25.8
26.5
23.7
18.7
22.5
16.2
18.5
16.3
19.0
15.8
18.8
13.5
18.4
10.8
13.5
17.9
10.4



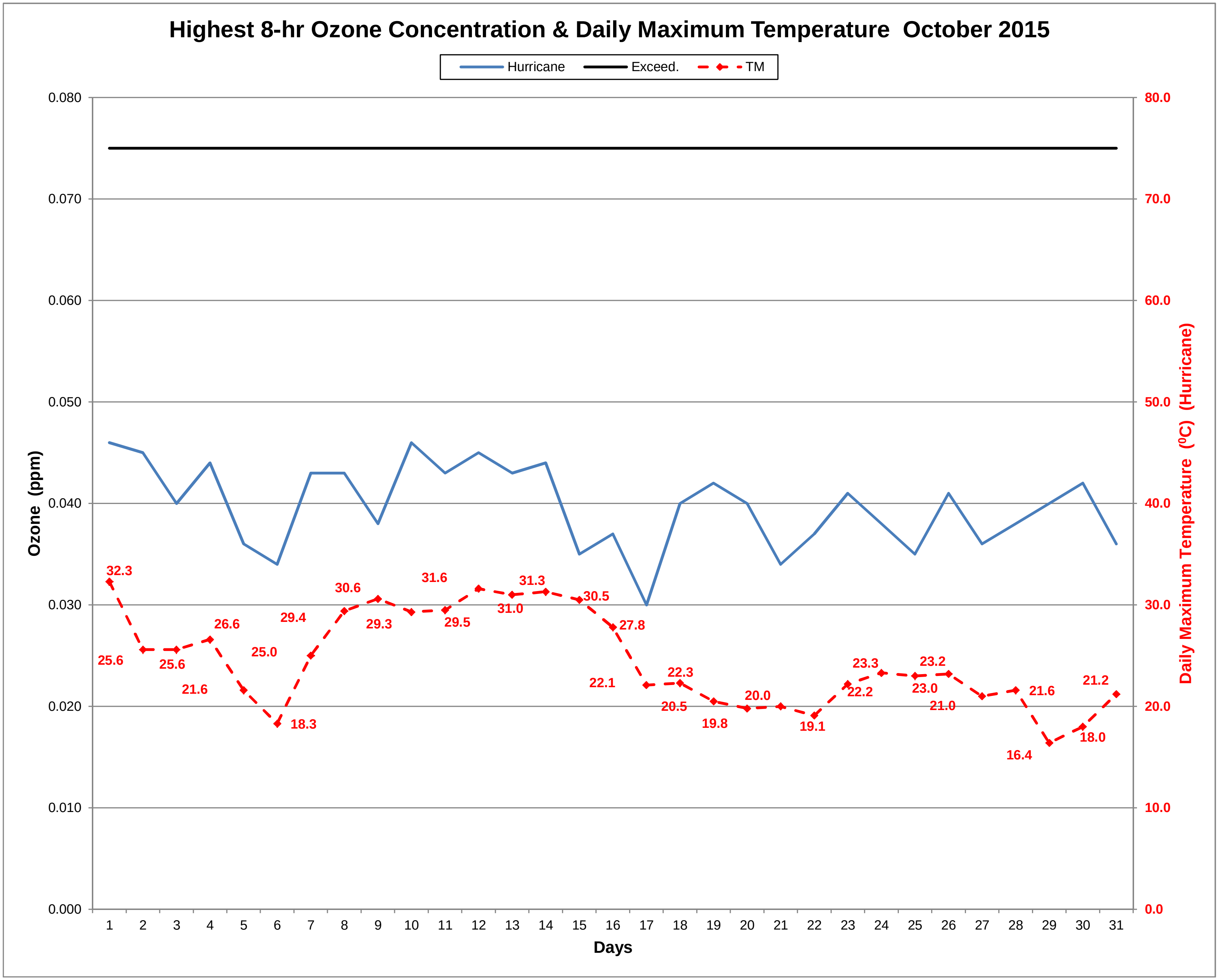
Highest 8-hr Ozone Concentration & Daily Maximum Temperature October 2015
Price #2
Roosevelt
Vernal
Exceed.
TM
Ozone (ppm)
Daily Maximum Temperature (°C) (Roosevelt)
Days
0.000
0.010
0.020
0.030
0.040
0.050
0.060
0.070
0.080
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
28.1
19.6
21.3
23.4
14.8
19.4
22.7
23.4
23.7
26.2
26.8
24.7
24.8
25.3
22.3
23.9
22.2
18.5
20.2
16.2
16.5
16.1
17.5
15.5
17.1
17.7
15.4
9.8
9.8
13.3
17.0



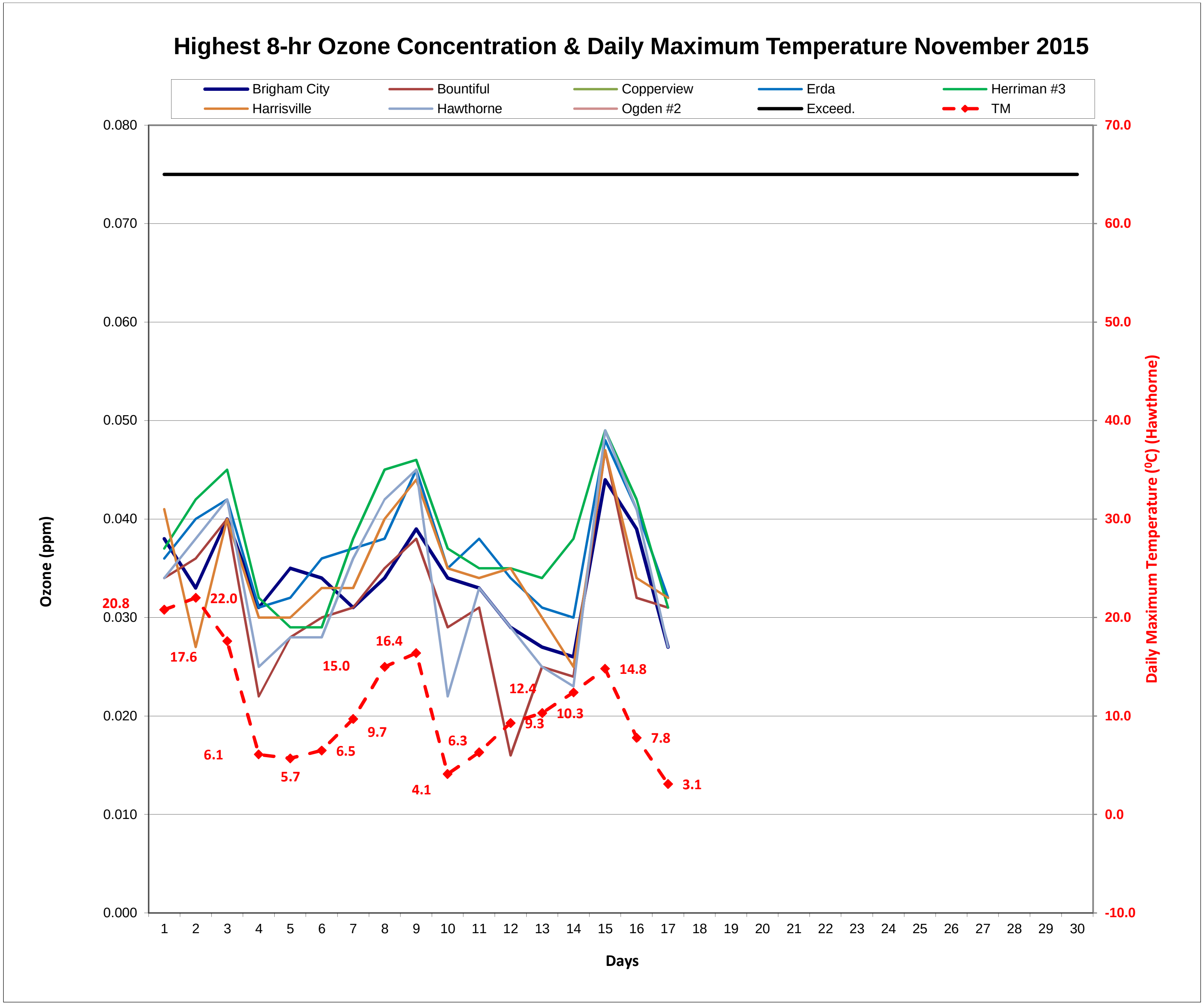
Highest 8-hr Ozone Concentration & Daily Maximum Temperature October 2015
Logan #4
Smithfield
Exceed.
TM
Ozone (ppm)
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
Daily Maximum Temperature (°C) (Logan #4)
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Days
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
27.3
15.9
17.7
20.3
21.2
19.6
20.9
21.8
21.3
25.8
22.8
22.0
24.0
24.6
24.1
23.6
21.7
20.5
16.8
15.2
16.8
15.8
15.1
17.0
15.9
16.4
11.5
10.3
9.3
9.6
15.7



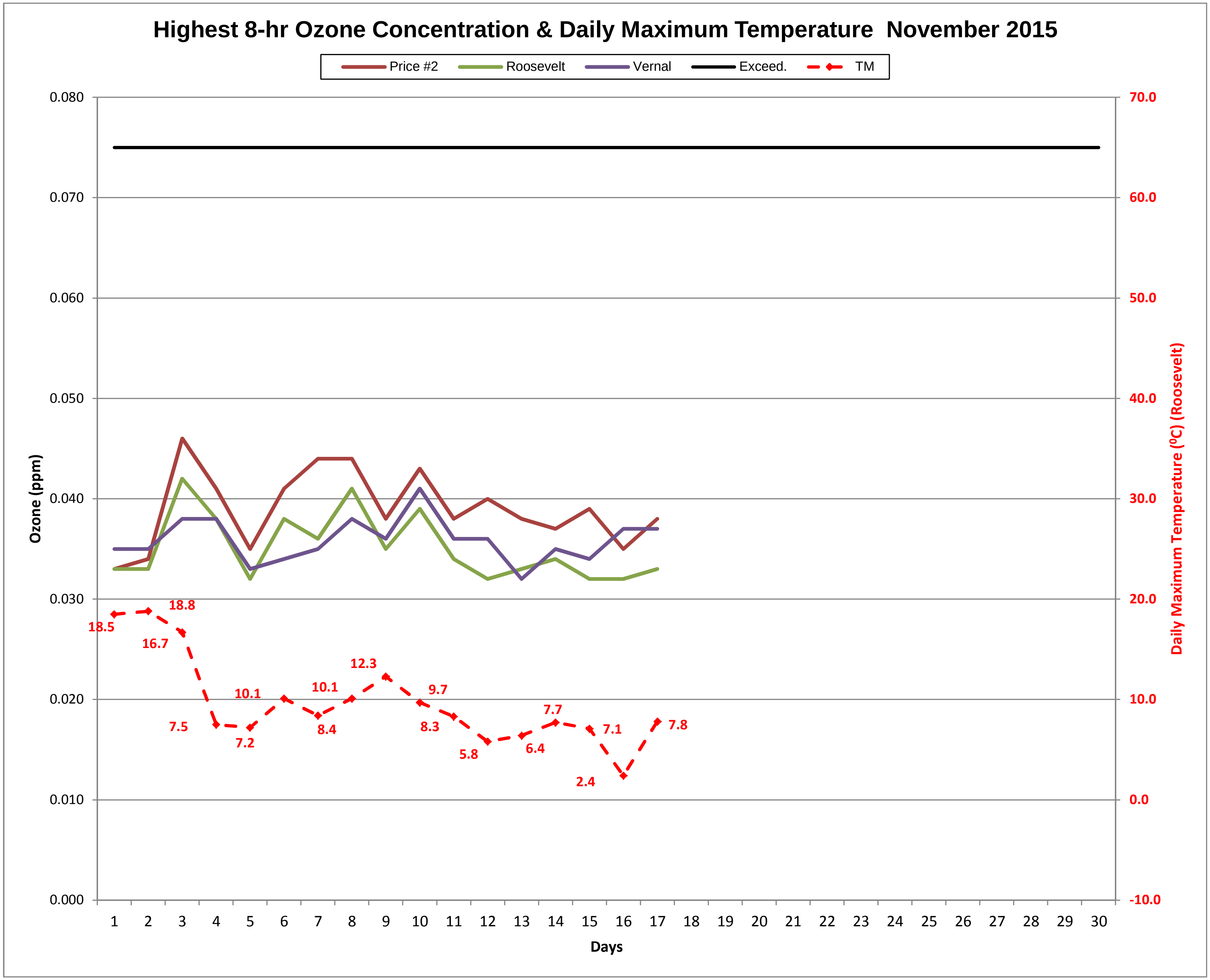
Highest 8-hr Ozone Concentration & Daily Maximum Temperature October 2015
North Provo
Spanish Fork
Exceed.
TM
Ozone (ppm)
Daily Maximum Temperature (°C) (North Provo)
Days
0.000
0.010
0.020
0.030
0.040
0.050
0.060
0.070
0.080
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
30.5
21.5
18.5
23.1
21.0
22.2
23.4
24.1
23.3
29.6
24.2
25.9
29.4
28.4
27.2
25.5
22.9
22.0
18.1
17.5
18.8
15.5
18.8
17.6
19.9
20.5
14.9
11.7
11.0
11.6
19.5



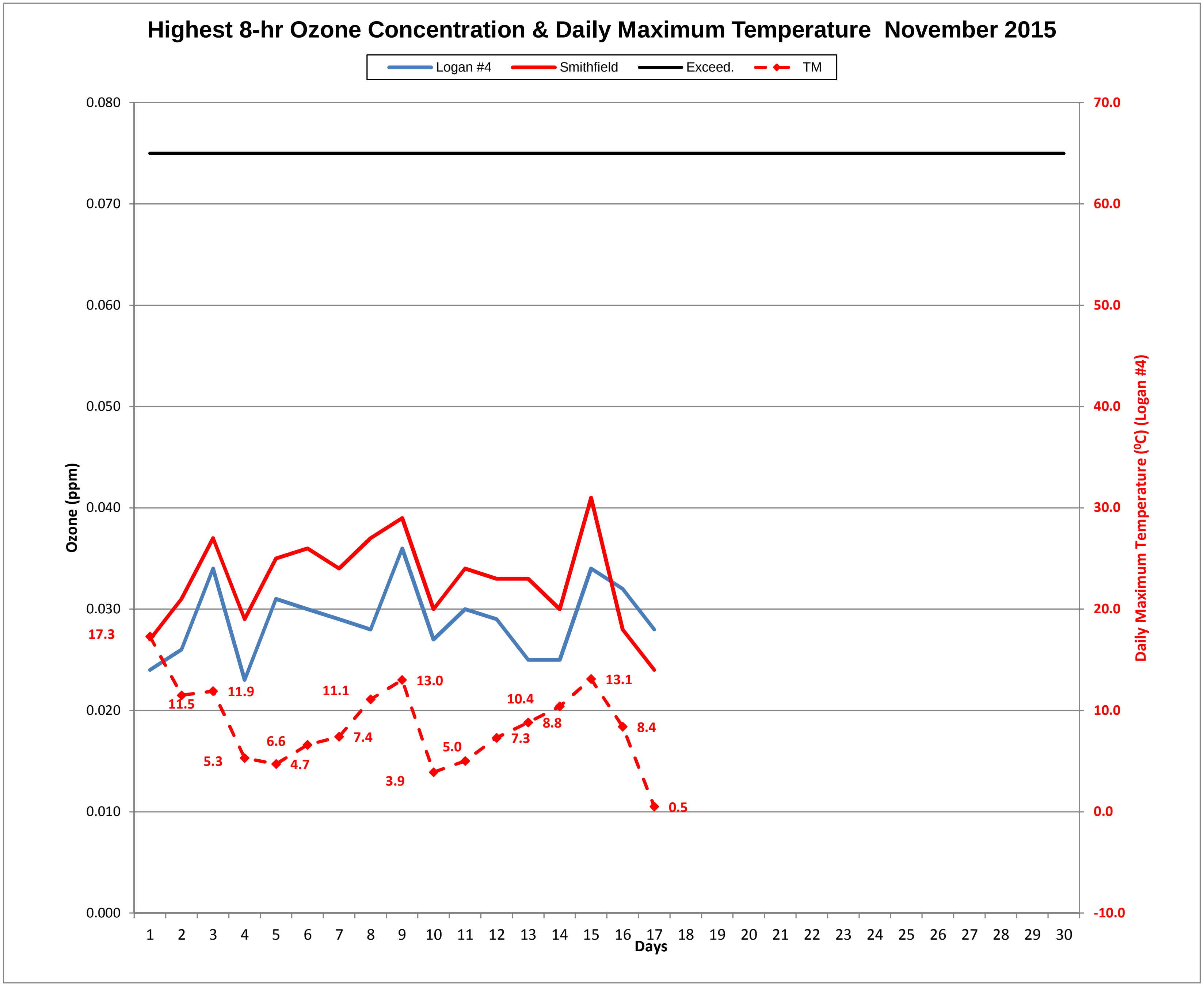
Highest 8-hr Ozone Concentration & Daily Maximum Temperature October 2015
Hurricane
Exceed.
TM
Ozone (ppm)
Daily Maximum Temperature (ºC) (Hurricane)
Days
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
32.3
25.6
25.6
26.6
21.6
25.0
18.3
29.4
30.6
29.3
31.6
29.5
31.3
31.0
30.5
27.8
22.1
22.3
20.5
19.8
20.0
19.1
23.3
22.2
23.2
23.0
21.0
21.6
16.4
18.0
21.2



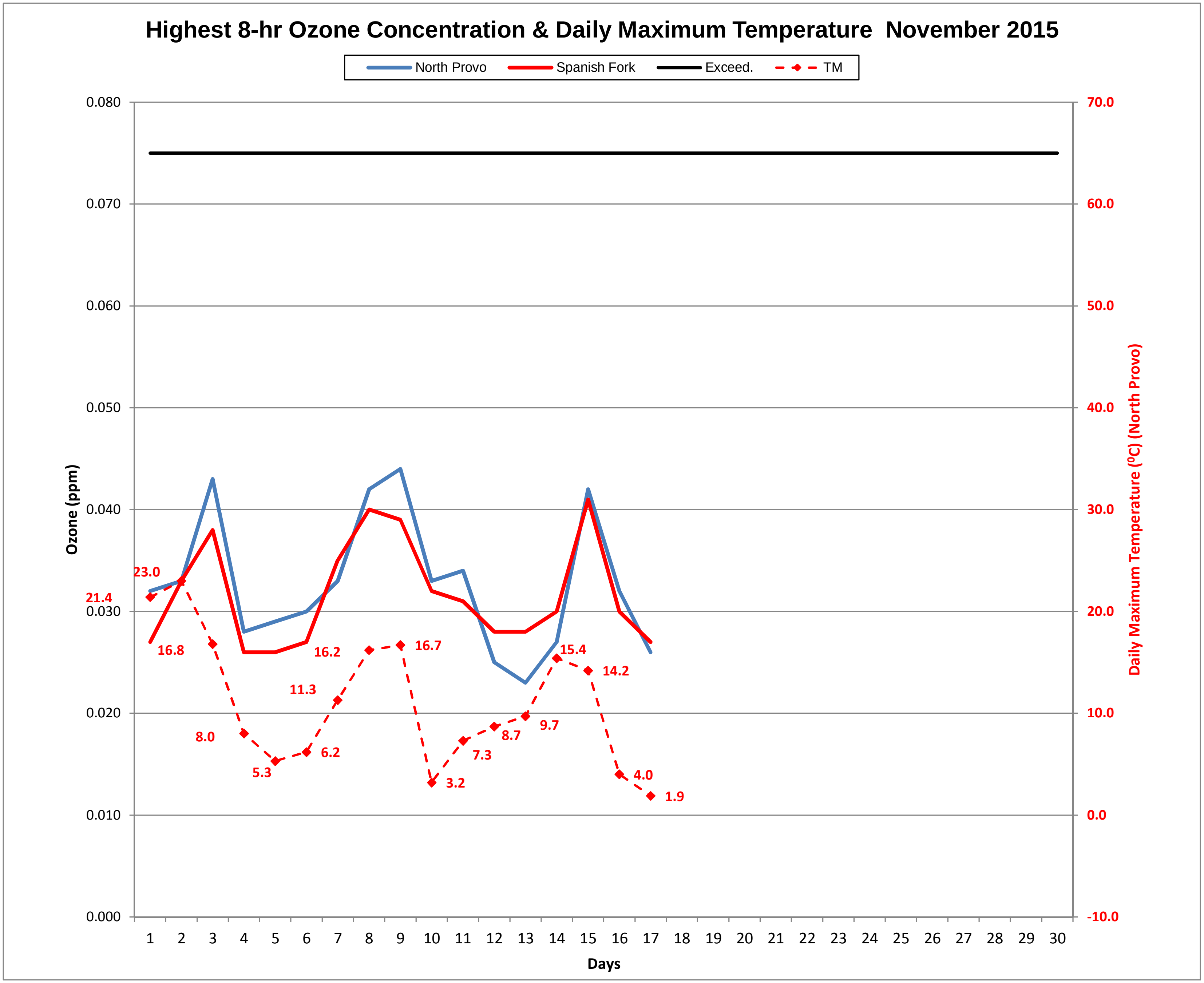
Highest 8-hr Ozone Concentration & Daily Maximum Temperature November 2015
Brigham City
Bountiful
Copperview
Erda
Herriman #3
Harrisville
Hawthorne
Ogden #2
Exceed.
TM
Ozone (ppm)
Daily Maximum Temperature (⁰C) (Hawthorne)
Days
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
20.8
22.0
17.6
6.1
5.7
6.5
15.0
9.7
16.4
4.1
6.3
12.4
9.3
10.3
14.8
7.8
3.1

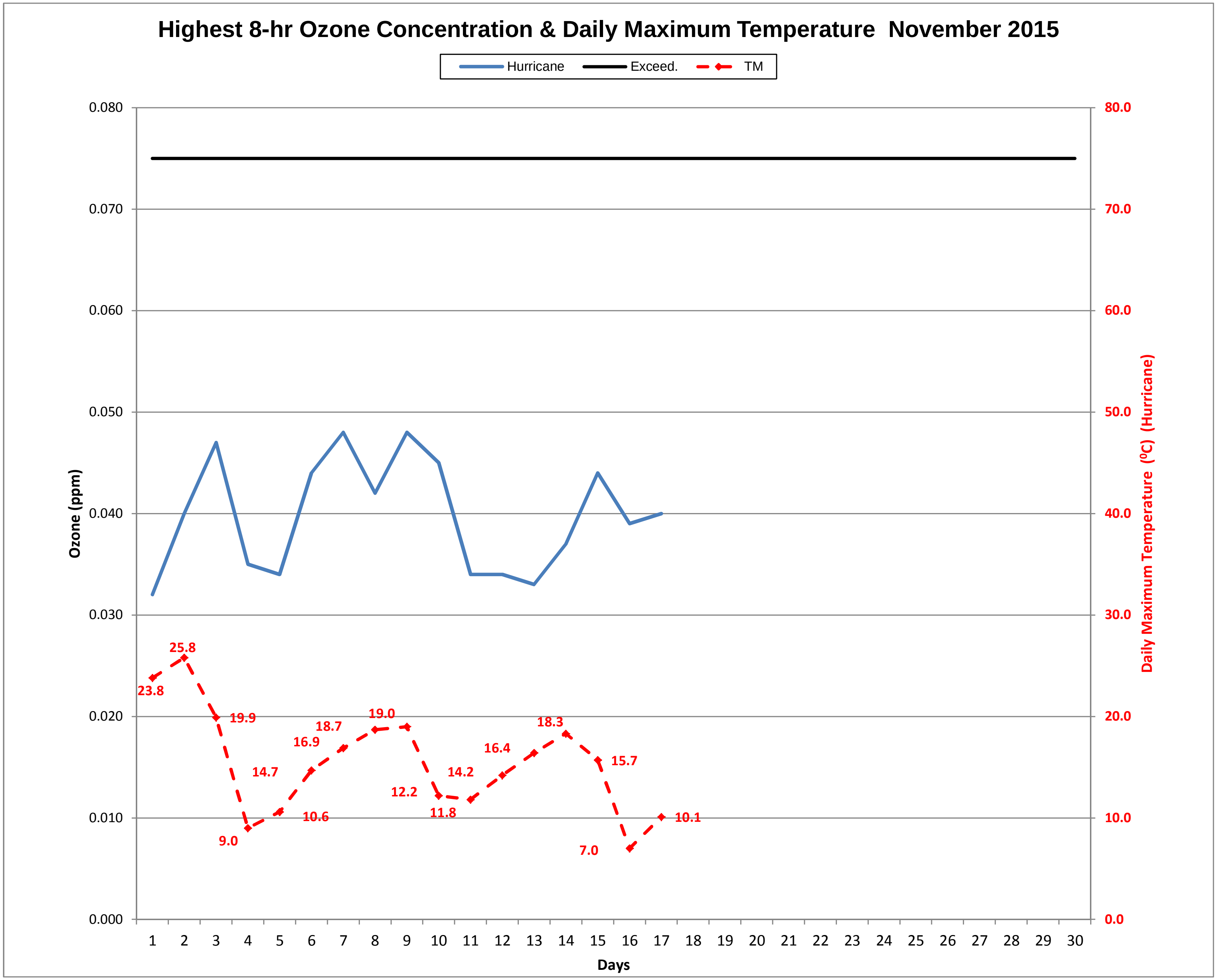


Highest 8-hr Ozone Concentration & Daily Maximum Temperature November 2015
Price #2
Roosevelt
Vernal
Exceed.
TM
Ozone (ppm)
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
Daily Maximum Temperature (^{0}C) (Roosevelt)
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
18.5
18.8
16.7
7.5
10.1
7.2
10.1
8.4
12.3
9.7
8.3
5.8
6.4
7.7
7.1
2.4
7.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Days



Highest 8-hr Ozone Concentration & Daily Maximum Temperature November 2015
Logan #4
Smithfield
Exceed.
TM
Ozone (ppm)
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
Daily Maximum Temperature (°C) (Logan #4)
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
17.3
11.5
11.9
5.3
4.7
6.6
7.4
11.1
13.0
3.9
5.0
7.3
8.8
10.4
13.1
8.4
0.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Days


Highest 8-hr Ozone Concentration & Daily Maximum Temperature November 2015
North Provo
Spanish Fork
Exceed.
TM
Ozone (ppm)
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
Daily Maximum Temperature (⁰C) (North Provo)
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
23.0
21.4
16.8
8.0
5.3
6.2
11.3
16.2
16.7
3.2
7.3
8.7
9.7
15.4
14.2
4.0
1.9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Days


Highest 8-hr Ozone Concentration & Daily Maximum Temperature November 2015
Hurricane
Exceed.
TM
Ozone (ppm)
Daily Maximum Temperature (°C) (Hurricane)
Days
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
23.8
25.8
19.9
9.0
10.6
14.7
16.9
18.7
19.0
12.2
11.8
14.2
16.4
18.3
15.7
7.0
10.1